

No.

In the Supreme Court of the United States

UNITED STATES OF AMERICA, PETITIONER

v.

ARTHREX, INC., ET AL.

UNITED STATES OF AMERICA, PETITIONER

v.

POLARIS INNOVATIONS LIMITED, ET AL.

*ON PETITION FOR A WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT*

PETITION FOR A WRIT OF CERTIORARI

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QUESTIONS PRESENTED

1. Whether, for purposes of the Appointments Clause, U.S. Const. Art. II, § 2, Cl. 2, administrative patent judges of the U.S. Patent and Trademark Office are principal officers who must be appointed by the President with the Senate's advice and consent, or "inferior Officers" whose appointment Congress has permissibly vested in a department head.
2. Whether the court of appeals erred by adjudicating an Appointments Clause challenge brought by a litigant that had not presented the challenge to the agency.

(I)

PARTIES TO THE PROCEEDING

The petitioner in this Court is the United States of America, which intervened in the court of appeals in both Nos. 2018-2140 and 2018-1831 pursuant to 28 U.S.C. 2403(a).

The respondents in this Court are Arthrex, Inc., which was the appellant in the court of appeals in No. 2018-2140; Smith & Nephew, Inc., and Arthrocare Corp., which were the appellees in the court of appeals in No. 2018-2140; Polaris Innovations Limited, which was the appellant in the court of appeals in No. 2018-1831; and Kingston Technology Company, Inc., which was the appellee in the court of appeals in No. 2018-1831.

RELATED PROCEEDINGS

United States Court of Appeals (Fed. Cir.):

Arthrex, Inc. v. Smith & Nephew, Inc., No. 2018-2140
(Oct. 31, 2019)

Polaris Innovations Limited v. Kingston Technology Company, Inc., No. 2018-1831 (Jan. 31, 2020)

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PETITION FOR A WRIT OF CERTIORARI

The Solicitor General, on behalf of the United States, respectfully petitions for a writ of certiorari to review the judgments of the United States Court of Appeals for the Federal Circuit in these cases. Pursuant to this Court’s Rule 12.4, the United States is filing a “single petition for a writ of certiorari” because the “judgments * * * sought to be reviewed” are from “the same court and involve identical or closely related questions.” Sup. Ct. R. 12.4.

(1)

OPINIONS BELOW

The opinion of the court of appeals in *Arthrex, Inc. v. Smith & Nephew, Inc.*, No. 2018-2140 (App., *infra*, 1a-33a) is reported at 941 F.3d 1320. The final written decision of the Patent Trial and Appeal Board in that case (App., *infra*, 83a-129a) is not published in the United States Patent Quarterly but is available at 2018 WL 2084866. The decision of the Patent Trial and Appeal Board (App., *infra*, 60a-82a) to institute inter partes review is not published in the United States Patent Quarterly but is available at 2017 WL 1969743.

The opinion of the court of appeals in *Polaris Innovations Limited v. Kingston Technology Company, Inc.*, No. 2018-1831 (App., *infra*, 34a-59a) is not published in the Federal Reporter but is reprinted at 792 Fed. Appx. 820. The final written decision of the Patent Trial and Appeal Board in that case (App., *infra*, 165a-222a) is not published in the United States Patent Quarterly but is available at 2018 WL 914702. The decision of the Patent Trial and Appeal Board (App., *infra*, 130a-164a) to institute inter partes review is not reported.

JURISDICTION

The judgment of the court of appeals in *Arthrex* was entered on October 31, 2019. Petitions for rehearing in that case were denied on March 23, 2020 (App., *infra*, 229a-295a).

The judgment of the court of appeals in *Polaris* was entered on January 31, 2020. Petitions for rehearing in that case were denied on March 16, 2020 (App., *infra*, 296a-297a).

On March 19, 2020, the Court extended the time within which to file any petition for a writ of certiorari due on or after that date to 150 days from the date of the lower-court judgment, order denying discretionary

review, or order denying a timely petition for rehearing. The effect of that order was to extend the deadline for filing a petition for a writ of certiorari in *Arthrex* to August 20, 2020, and to extend the deadline in *Polaris* to August 13, 2020.

In both *Arthrex* and *Polaris*, the jurisdiction of this Court is invoked under 28 U.S.C. 1254(1).

CONSTITUTIONAL AND STATUTORY PROVISIONS INVOLVED

The pertinent constitutional and statutory provisions are reprinted in an appendix to this petition. App., *infra*, 298a-321a.

STATEMENT

These cases concern whether, under the Appointments Clause, U.S. Const. Art. II, § 2, Cl. 2, administrative patent judges of the United States Patent and Trademark Office (USPTO) are principal officers who must be appointed by the President with the advice and consent of the Senate, or “inferior Officers” whose appointment Congress may vest in a department head.

A. Statutory Background

1. The Patent Act of 1952 (Patent Act), 35 U.S.C. 1 *et seq.*, establishes the USPTO as an executive agency within the United States Department of Commerce “responsible for the granting and issuing of patents and the registration of trademarks.” 35 U.S.C. 2(a)(1); see 35 U.S.C. 1(a). Congress has “vested” “[t]he powers and duties” of the USPTO in its Director, who is “appointed by the President, by and with the advice and consent of the Senate,” and is removable at will by the President. 35 U.S.C. 3(a)(1). Congress has charged the Director with providing “policy direction and management supervision for the [USPTO] and for the issuance

of patents and the registration of trademarks.” 35 U.S.C. 3(a)(2)(A). The Act additionally authorizes the Secretary of Commerce to appoint a Deputy Director, a Commissioner for Patents, and a Commissioner for Trademarks, all of whom serve under the Director. 35 U.S.C. 3(b)(1) and (2).

The Patent Trial and Appeal Board (Board) is an administrative tribunal within the USPTO. 35 U.S.C. 6. The Board consists of the Director, the Deputy Director, the Commissioners for Patents and Trademarks, and “administrative patent judges.” 35 U.S.C. 6(a). Administrative patent judges are “persons of competent legal knowledge and scientific ability who are appointed by the Secretary [of Commerce], in consultation with the Director.” *Ibid.* There are currently more than 200 such judges. Like other “[o]fficers and employees” of the USPTO, administrative patent judges are “subject to the provisions of title 5, relating to Federal employees,” 35 U.S.C. 3(c), under which civil servants may be removed “only for such cause as will promote the efficiency of the service,” 5 U.S.C. 7513(a). Here, because the Secretary appoints the judges, that removal authority belongs to the Secretary. See *Free Enterprise Fund v. Public Co. Accounting Oversight Bd.*, 561 U.S. 477, 509 (2010) (“Under the traditional default rule, removal is incident to the power of appointment.”).

2. The Board conducts several kinds of patent-related administrative adjudications, including appeals from adverse decisions of patent examiners on patent applications and in patent reexaminations; derivation proceedings; and inter partes and post-grant reviews. 35 U.S.C. 6(b). The Board hears each appeal, derivation proceeding, inter partes review, and post-grant review in panels of “at least 3 members * * * designated by

the Director.” 35 U.S.C. 6(c). It “enters thousands of decisions every year.” Patent Trial and Appeal Board, *Standard Operating Procedure 2 (Revision 10)* 3 (Sept. 20, 2018) (SOP2), <https://go.usa.gov/xwXem>. Unless designated as precedential, each decision is binding only “in the case in which it is made.” *Ibid.*

The Patent Act establishes several mechanisms by which the Director can direct and supervise the Board and the administrative patent judges serving on it. 35 U.S.C. 3(a)(2). For example, the Director may promulgate (on behalf of the USPTO) regulations to “govern the conduct of proceedings” in the agency. 35 U.S.C. 2(b)(2)(A). He may issue policy directives to govern the Board’s implementation of various Patent Act provisions, including directives regarding the proper application of those statutory provisions to sample fact patterns. 35 U.S.C. 3(a)(2)(A); SOP2, at 1-2.

The Director also has plenary authority to decide which Board members will hear each case, and he may alter a panel’s composition at any time. See 35 U.S.C. 6(c). Exercising that authority, the Director has established procedures for the assignment of administrative patent judges to Board panels based on factors such as seniority, workload, and expertise; for their reassignment when necessary, for example, to avoid conflicts of interests; and for the expansion of panels in narrow circumstances. See Patent Trial and Appeal Board, *Standard Operating Procedure 1 (Revision 15)* 1-16 (Sept. 20, 2018) (SOP1), <https://go.usa.gov/xwX6N>.*

* Under these procedures, an expanded panel might be used, for example, “to secure and maintain uniformity of the Board’s decisions *** in related cases ordinarily involving different three

The Director may designate any decision by any Board panel as precedential and thus binding in future USPTO proceedings. Conversely, “[n]o decision may be designated as precedential without the Director’s approval.” SOP2, at 8. The Board’s current operating procedures establish a process to designate a decision as precedential (or to de-designate a decision that had previously been made precedential). *Id.* at 8-12. But those procedures “do[] not limit the authority of the Director” to determine, “in his or her sole discretion,” whether a decision should be precedential. *Id.* at 1.

The Director may also convene a Precedential Opinion Panel, consisting of at least three Board members whom the Director selects, to determine whether to rehear a decision. SOP2, at 3-8; see 35 U.S.C. 6(c). Under current operating procedures, the Precedential Opinion Panel presumptively consists of the Director, the Commissioner for Patents, and the Chief Administrative Patent Judge, SOP2, at 4; but the Director has reserved the authority to alter the composition of the Precedential Opinion Panel at any time, *ibid.*

3. These cases arise out of inter partes review proceedings conducted by the Board. Inter partes review allows third parties to “ask the [USPTO] to reexamine the claims in an already-issued patent and to cancel any claim that the agency finds to be unpatentable.” *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2136 (2016). Although the Patent Act imposes a host of requirements on a petition for an inter partes review, Congress has

judge panels.” SOP1, at 15. Despite this authority and the Director’s plenary authority over panel composition more broadly, the Director primarily relies on the other mechanisms outlined here to direct agency policy on patent rights. See, *e.g.*, *id.* at 15 n.4.

vested in the Director generally unreviewable discretion to institute, refuse to institute, or de-institute particular reviews. 35 U.S.C. 314(a) and (d); see *Thryv, Inc. v. Click-to-Call Techs., LP*, 140 S. Ct. 1367, 1373-1375 (2020). By regulation, the Director has delegated to the Board his authority to determine whether particular inter partes reviews should be instituted. 37 C.F.R. 42.4(a). The Director also may promulgate regulations for the conduct of such proceedings. 35 U.S.C. 316(a).

When an inter partes review is instituted, the Board determines the patentability of the claims at issue through a proceeding that has “many of the usual trappings of litigation.” *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1353-1354 (2018); see 35 U.S.C. 316; 37 C.F.R. Pt. 42, Subpt. A. At the end of the proceeding (unless it has been de-instituted), the Board issues a final written decision addressing the patentability of the challenged claims. 35 U.S.C. 318(a). All such decisions are subject to rehearing by the Board. 35 U.S.C. 6(c).

“A party dissatisfied with the final written decision of the Patent Trial and Appeal Board under [S]ection 318(a) may appeal the decision” to the Federal Circuit. 35 U.S.C. 319; see 35 U.S.C. 141(c), 144. The Director may intervene in any such appeal, 35 U.S.C. 143, and frequently does so. After “the time for appeal has expired or any appeal has terminated, the Director shall issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable, confirming any claim of the patent determined to be patentable, and incorporating in the patent by operation of the certificate any new or amended claim determined to be patentable.” 35 U.S.C. 318(b).

B. The Present Controversies

In these cases, patent owners challenged final written decisions issued by the Board in inter partes review proceedings. The patent owners argued that the administrative patent judges who had served on the Board panels in those proceedings had been unconstitutionally appointed. They contended that, under the Appointments Clause, administrative patent judges are principal officers of the United States and therefore must be appointed by the President with the advice and consent of the Senate, rather than appointed by the Secretary alone as the Patent Act provides. In each case, the Federal Circuit agreed, vacated the Board's final written decision, and remanded the case to be reheard by a different panel of the Board. App., *infra*, 1a-33a; *id.* at 34a-59a.

1. a. In *Arthrex*, the patent owner raised its Appointments Clause challenge for the first time in its opening brief in the court of appeals. The court recognized that, as a general rule, “a federal appellate court does not consider an issue not passed upon below.” App., *infra*, 4a (citation omitted). The court also noted that it had previously applied that principle to an Appointments Clause challenge involving administrative patent judges and had “decline[d] to address” the challenge as “waived.” *Id.* at 5a (citing *In re DBC*, 545 F.3d 1373 (Fed. Cir. 2008)).

The *Arthrex* court held, however, that the constitutional issue warranted resolution here “despite Arthrex’s failure to raise its Appointments Clause challenge before the Board.” App., *infra*, 4a. The court found that the case “implicates the important structural interests and separation of powers concerns protected by the Appointments Clause,” and that “[t]imely resolution [wa]s

critical to providing certainty to rights holders and competitors alike.” *Id.* at 4a-5a. The court stated that here, unlike in *DBC*, the Board could not have “corrected the Constitutional infirmity,” *id.* at 5a, and it concluded that resolving the issue would be “an appropriate use of [the court’s] discretion,” *id.* at 6a.

b. The *Arthrex* court held that administrative patent judges are principal rather than inferior officers. App., *infra*, 6a-22a. The court recognized that, under *Edmond v. United States*, 520 U.S. 651 (1997), inferior officers are “officers whose work is directed and supervised at some level by others who were appointed by Presidential nomination with the advice and consent of the Senate.” App., *infra*, 9a (quoting *Edmond*, 520 U.S. at 663). It distilled from *Edmond* three non-exclusive factors for determining whether a sufficient degree of direction and supervision exists: “(1) whether an appointed official has the power to review and reverse the officers’ decision; (2) the level of supervision and oversight an appointed official has over the officers; and (3) the appointed official’s power to remove the officers.” *Ibid.*

The court of appeals concluded that the first factor it articulated (review authority) suggested that administrative patent judges are principal officers, because “[n]o presidentially-appointed officer has independent statutory authority to review a final written decision by the [judges] before the decision issues on behalf of the United States.” App., *infra*, 9a-10a; see *id.* at 9a-14a. The court observed that a minimum of three Board members must decide each inter partes review, and that “[t]he Director is the only member of the Board who is nominated by the President and confirmed by the Senate.” *Id.* at 10a. The court stated that “[t]here is no provision or procedure providing the Director the

power to single-handedly review, nullify or reverse a final written decision issued by a panel of [the Board].” *Ibid.*

In contrast, the court of appeals viewed the second factor (supervisory authority) as “weigh[ing] in favor of a conclusion that [administrative patent judges] are inferior officers.” App., *infra*, 15a; see *id.* at 14a-15a. The court explained that the Director is empowered to “provide instructions that include exemplary applications of patent laws to fact patterns”; has the authority to “designate[] or de-designate[]” panel decisions as “precedential decisions of the Board [that] are binding on future panels”; and may determine which judges will decide each *inter partes* review. *Id.* at 14a-15a (citing 35 U.S.C. 3(a)(2)(A), 6(c), 316).

Finally, the court of appeals held that the third factor (removal authority) weighed in favor of viewing administrative patent judges as principal officers, because neither the Secretary nor the Director has “unfettered” authority to remove those judges from federal service. App., *infra*, 15a; see *id.* at 15a-21a. The court concluded that the Secretary’s authority to remove administrative patent judges from federal service for “such cause as will promote the efficiency of the service,” 5 U.S.C. 7513(a), was insufficient because those judges cannot be “remov[ed] without cause.” App., *infra*, 21a; see *id.* at 17a-21a & nn.4-5. It similarly concluded that, for Appointments Clause purposes, the Director’s “authority to assign certain [judges] to *certain panels*” is “not the same as the authority to remove an [administrative patent judge] *from judicial service without cause*.” *Id.* at 17a; see *id.* at 16a-17a.

Finding no other factors indicating that administrative patent judges are inferior officers, the court of appeals concluded that those judges must “be appointed by the President and confirmed by the Senate,” and that “the current structure of the Board violates the Appointments Clause.” App., *infra*, 22a; see *id.* at 21a-22a.

c. The court of appeals determined that it could cure the Appointments Clause violation going forward by “sever[ing] the application of Title 5’s [efficiency-of-the-service] removal restrictions” to administrative patent judges. App., *infra*, 27a; see *id.* at 22a-29a. The court concluded that making administrative patent judges removable at will by the Secretary would “render[] them inferior rather than principal officers,” and that doing so is the “narrowest viable approach to remedying the [constitutional] violation.” *Id.* at 26a, 28a.

Based on its conclusion that “the Board’s decision in this case was made by a panel of [judges] that were not constitutionally appointed at the time the decision was rendered,” the court of appeals “vacate[d] and remand[ed] the Board’s decision.” App., *infra*, 29a. The court reiterated its view that relief was appropriate, despite Arthrex’s failure to raise its Appointments Clause challenge before the Board, because “the Board was not capable of providing any meaningful relief to this type of Constitutional challenge.” *Id.* at 30a. The court stated that vacatur and remand would also be appropriate in all other inter partes review cases “where final written decisions were issued and where litigants present an Appointments Clause challenge on appeal.” *Id.* at 33a. The court ordered that on remand, “a new panel of [administrative patent judges] must be designated and a new hearing granted.” *Ibid.*

2. In *Polaris*, the court of appeals applied its *Arthrex* holding to a case in which the patent owner had timely raised its Appointments Clause challenge before the Board. App., *infra*, 34a-35a. In a per curiam summary order, the court vacated the final written decision of the Board and remanded the case “for proceedings consistent with th[e] court’s decision in *Arthrex*.” *Id.* at 35a.

Judge Hughes, joined by Judge Wallach, issued a concurring opinion, noting that the panel was bound by *Arthrex* but expressing disagreement with that decision. App., *infra*, 36a-59a. Judge Hughes expressed the view that, given “the Director’s significant control over the activities” of the Board and its members, administrative patent judges “are inferior officers already properly appointed by the Secretary of Commerce.” *Id.* at 37a. He criticized the *Arthrex* panel for paying “insufficient attention to the significant ways in which the Director directs and supervises the work of the [administrative patent judges] and, instead, focus[ing] on whether the Director can single-handedly review and reverse Board decisions, and whether [administrative patent judges] are removable at will” from federal service. *Id.* at 38a.

3. The court of appeals subsequently denied petitions for rehearing en banc in both cases. App., *infra*, 229a-231a; *id.* at 296a-297a. *Arthrex* produced five separate opinions, joined by a total of eight judges, concurring in or dissenting from the court’s order. *Id.* at 232a-295a.

Judge Moore, joined by Judges O’Malley, Reyna, and Chen, concurred in the denial of rehearing en banc. They defended the *Arthrex* panel’s decision and disagreed with alternative remedial solutions offered in

Judge Dyk's dissent from the court's rehearing order. App., *infra*, 232a-241a. Judge O'Malley, joined by Judges Moore and Reyna, separately concurred to express further disagreement with Judge Dyk's opinion. *Id.* at 242a-248a.

Judge Dyk, joined in full by Judges Newman and Wallach and joined in part by Judge Hughes, dissented from the denial of en banc review. App., *infra*, 249a-275a. They stated that the panel's merits decision was "open to question," and they disagreed with the panel's invalidation of administrative patent judges' removal protections and the panel's vacatur-and-remand remedy. *Id.* at 273a. Judge Hughes, joined by Judge Wallach, dissented from the denial of rehearing en banc, reiterating the points made in their *Polaris* concurrence. *Id.* at 276a-291a. Judge Wallach separately dissented, emphasizing that he found "the Director's ability to select a panel's members, to designate a panel's decision as precedential, and to de-designate precedential opinions" to be particularly significant tools for directing and supervising administrative patent judges. *Id.* at 292a; see *id.* at 292a-295a.

REASONS FOR GRANTING THE PETITION

The court of appeals held that the administrative patent judges who sit on Board panels are principal officers who must be, but by statute are not, appointed by the President with the advice and consent of the Senate. App., *infra*, 6a-22a. To eliminate that putative constitutional infirmity going forward, the court severed the application to administrative patent judges of certain statutory protections against removal. *Id.* at 22a-29a. The court's decision invalidating an Act of Congress is erroneous and warrants this Court's review.

The court of appeals in *Arthrex* compounded the error and magnified its disruptive effects by resolving an Appointments Clause challenge that the appellant had not presented to the agency. The reasons the court gave for excusing that forfeiture would apply to nearly all separation-of-powers challenges. The *Arthrex* court remanded for a new administrative proceeding before a differently constituted Board panel, and the Federal Circuit has since mandated the same result in dozens of other cases. In the vast majority of the more than 100 cases that the court has remanded to the Board based on its constitutional holding in *Arthrex*, no Appointments Clause challenge was presented to the Board.

The court of appeals' Appointments Clause and forfeiture holdings warrant plenary review. To ensure that the Court can reach and decide both issues if necessary, it should grant review in both *Arthrex* and *Polaris*.

I. THE COURT OF APPEALS' HOLDING THAT THE BOARD'S ADMINISTRATIVE PATENT JUDGES ARE PRINCIPAL OFFICERS WARRANTS THIS COURT'S REVIEW

A. The Federal Circuit's Decision Invalidates An Act Of Congress And Will Have Substantial Practical Effects

The court of appeals in *Arthrex* held that, by authorizing the Secretary of Commerce to appoint the Board's administrative patent judges, the governing statutory scheme "violates the Appointments Clause." App., *infra*, 1a. The *Arthrex* panel held that "the statute as currently constructed makes [those judges] principal officers" who must be appointed by the President and confirmed by the Senate. *Id.* at 1a-2a; see *id.* at 6a-22a. On that basis, the court vacated the Board's decision and remanded for a new hearing.

Any decision invalidating an Act of Congress on constitutional grounds is significant. See *Rostker v. Goldberg*, 453 U.S. 57, 64 (1981) (noting that judging the constitutionality of a federal statute is “the gravest and most delicate duty that this Court is called upon to perform”) (quoting *Blodgett v. Holden*, 275 U.S. 142, 148 (1927) (Holmes, J.)). A decision that finds a constitutional infirmity in the statutory framework that governs more than 200 agency adjudicators, in an agency that administers intellectual-property rights affecting vast swaths of the Nation’s economy, particularly warrants this Court’s review.

To cure the purported constitutional defect going forward, the Federal Circuit further held that the statutory provision restricting removal of administrative patent judges from federal employment—a provision that applies to “federal employees generally” and permits removal “only for such cause as will promote the efficiency of the service,” App., *infra*, 18a n.4 (quoting 5 U.S.C. 7513(a))—is “unconstitutional” and no longer operative “as applied to [administrative patent judges],” *id.* at 28a. The court “sever[ed] the application of [those] removal restrictions to [administrative patent judges].” *Id.* at 27a; see *id.* at 27a-29a. Although the court’s choice of remedy mitigates the harm that the merits decision might otherwise have inflicted, it does not save the many dozens of Board decisions that were still subject to appellate review when the Federal Circuit ruled. *Id.* at 243a-248a (O’Malley, J., concurring in the denial of rehearing en banc).

Because the Federal Circuit has exclusive jurisdiction over appeals from Board decisions, see 35 U.S.C. 141, no other circuit is likely to issue a conflicting decision or to offer its own views on the Appointments

Clause issue presented here. The Federal Circuit’s denial of petitions for rehearing en banc in *Arthrex*, App., *infra*, 229a-231a, and in *Polaris*, *id.* at 296a-297a, makes it highly unlikely that the court will revisit the issue. And the sharply divided separate opinions respecting the denial of rehearing in *Arthrex*, see pp. 12-13, *supra*, like conflicting circuit-court decisions in more typical legal contexts, both evince the need for definitive guidance from this Court and identify a range of potential analytic approaches for this Court’s consideration.

B. The Federal Circuit Erred In Holding That Administrative Patent Judges Are Principal Officers

The court of appeals concluded that USPTO administrative patent judges are principal officers for whom the Constitution requires appointment by the President with the advice and consent of the Senate. App., *infra*, 6a-22a. The court therefore held that the statutorily prescribed method of appointing those judges—by the Secretary of Commerce, see 35 U.S.C. 6(a), who is the “Head[]” of the judges’ “Department[],” U.S. Const. Art. II, § 2, Cl. 2—violates the Appointments Clause. That holding is incorrect.

1. The Appointments Clause distinguishes between “inferior Officers”—whose appointment Congress may vest “in the President alone, in the Courts of Law, or in the Heads of Departments,” Art. II, § 2, Cl. 2—and other, *i.e.*, “principal (noninferior) officers,” who must be appointed by the President with the advice and consent of the Senate. *Edmond v. United States*, 520 U.S. 651, 659 (1997); see *id.* at 659-660. The Clause does not define the term ““inferior Officers,’” and this Court’s “cases have not set forth an exclusive criterion for distinguishing between principal and inferior officers for

Appointments Clause purposes.” *Id.* at 659, 661 (citation omitted). But under the analytic framework that the Court’s decisions have articulated, USPTO administrative patent judges are inferior officers.

“Generally speaking, the term ‘inferior officer’ connotes a relationship with some higher ranking officer or officers below the President,” because “[w]hether one is an ‘inferior’ officer depends on whether he has a superior.” *Edmond*, 520 U.S. at 662. Whether an officer “has a superior” does not turn on titles, *e.g.*, whether some “other officers may be identified who formally maintain a higher rank.” *Id.* at 662-663. Instead, the key inquiry is whether the officer’s “work is directed and supervised at some level by others who were appointed by Presidential nomination with the advice and consent of the Senate.” *Id.* at 663. That “understanding of the Appointments Clause conforms with the views of the first Congress,” which “expressly designated” the Secretary of “the first Executive department, the Department of Foreign Affairs,” as a “‘principal officer,’” but deemed “his subordinate, the Chief Clerk,” an “‘inferior officer.’” *Ibid.*; see *id.* at 664 (same for Department of War).

Applying that approach, the *Edmond* Court held that judges of the Coast Guard Court of Criminal Appeals were inferior officers. 520 U.S. at 664-666. The Court explained that, although those judges “[we]re charged with exercising significant authority on behalf of the United States,” that fact established only that the judges were “officer[s]” rather than employees. *Id.* at 662. The Court further held that, in light of the various mechanisms by which other Executive officers could direct and supervise the Coast Guard judges’ work, the judges were inferior rather than principal officers. *Id.* at 664-666.

The Court in *Edmond* made clear that, in determining whether a particular officer is subject to the requisite degree of direction and supervision, a court should consider the *cumulative* effect of the supervisory mechanisms available to various superior officers. Thus, the Coast Guard Judge Advocate General (who was subordinate to a presidentially nominated, Senate-confirmed department head) “exercise[d] administrative oversight over” the Coast Guard Court of Criminal Appeals; could “prescribe uniform rules of procedure” for that court; could (with other officers) “formulate policies and procedure[s]” for reviewing cases; and could “remove a Court of Criminal Appeals judge from his judicial assignment without cause.” *Edmond*, 520 U.S. at 664 (citation omitted). And while the Judge Advocate General “ha[d] no power to reverse” the Coast Guard judges’ decisions in individual cases, “another Executive Branch entity, the Court of Appeals for the Armed Forces,” could review those decisions, either in its discretion at a party’s request, or automatically at the Judge Advocate General’s direction and in any capital case. *Ibid.*; see *id.* at 664-665.

2. The USPTO’s administrative patent judges are “directed and supervised” (*Edmond*, 520 U.S. at 663) by higher-level Executive Branch officials to at least the same degree as the Coast Guard judges whose appointments were at issue in *Edmond*. The Secretary of Commerce and the Director of the USPTO—each of whom is appointed by the President and confirmed by the Senate, see 15 U.S.C. 1501; 35 U.S.C. 3(a)—have a variety of mechanisms to direct and supervise administrative patent judges’ work.

First, the Secretary and Director are authorized to appoint and remove administrative patent judges—the former with respect to judges’ federal service, and the

latter with respect to their “judicial assignment[s],” *Edmond*, 520 U.S. at 664. The Patent Act vests appointment of administrative patent judges in “the Secretary, in consultation with the Director.” 35 U.S.C. 6(a). And the Secretary may remove those judges from federal service under the same standard that applies to federal civil-service employees generally, *i.e.*, “for such cause as will promote the efficiency of the service.” 5 U.S.C. 7513(a); see 35 U.S.C. 3(c) (making USPTO “[o]fficers and employees * * * subject to the provisions of title 5, relating to Federal employees”); *Free Enterprise Fund v. Public Co. Accounting Oversight Bd.*, 561 U.S. 477, 509 (2010) (“Under the traditional default rule, removal is incident to the power of appointment.”). That standard generally permits removal for any legitimate reason with a connection to “the work of the agency.” See, *e.g.*, *Brown v. Department of the Navy*, 229 F.3d 1356, 1358 (Fed. Cir. 2000), cert. denied, 533 U.S. 949 (2001). The Secretary therefore may remove an administrative patent judge who, for example, fails or refuses to follow binding agency policy or guidance.

The Director has unfettered authority to determine which (if any) Board cases each administrative patent judge will adjudicate. The statute empowers the Director alone to “designate[]” which members of the Board—which consists of himself, three other senior USPTO officials, and 200-plus judges—will compose the panel to decide any particular case. 35 U.S.C. 6(c); see 35 U.S.C. 6(a) and (b). Although the Director has “delegated” that panel-designation authority “to the Chief Judge” of the Board, subject to guidelines the Director has prescribed, that “delegated authority is non-exclusive and the Director expressly retains his or her own statutory authority to designate panels * * * at any time, * * *

in his or her sole discretion.” SOP1, at 1-2; see *id.* at 1-16. Exercising that authority (personally or through a delegatee), the Director may exclude a particular judge from one case, from a category of cases, or from all cases—effectively precluding the judge from deciding any Board cases where, for example, the Director believes that the judge will not faithfully and properly apply the relevant patent laws, regulations, and agency policies. An administrative patent judge thus is appointed to and removable from federal office and particular adjudicatory tasks in Board proceedings by the Secretary and the Director, respectively.

Second, the Director has broad authority to establish binding agency policies for inter partes reviews and for the other agency proceedings that the Board adjudicates. The Patent Act “vest[s]” the “powers and duties” of the USPTO in the Director and makes him “responsible for providing policy direction and management supervision” for the agency. 35 U.S.C. 3(a)(1) and (2)(A). The Director exercises this policy-direction and supervisory responsibility in a variety of ways. He may promulgate regulations on behalf of the USPTO. 35 U.S.C. 2(b)(2), 316(a)(4). He may issue binding policy directives that govern the Board. See 35 U.S.C. 3(a)(2)(A). Using that authority, the Director may issue instructions as to how patent law, regulations, and USPTO policies apply to particular fact patterns, including in connection with pending cases. He may also exercise his broad statutory authority to determine which Board decisions are precedential and therefore binding on future panels. See SOP2, at 1 (stating that “[n]o decision will be designated or de-designated as precedential or informative without the approval of the Director,” and establishing proce-

dures for designation and de-designation, but recognizing that those procedures “do[] not limit the authority of the Director” to make such determinations “in his or her sole discretion”).

Third, the Director has substantial prerogatives with respect to the conduct of individual proceedings. For example, the statute grants the Director unilateral authority to determine whether to institute a particular inter partes review, 35 U.S.C. 314(a), and his determination “whether to institute an inter partes review under [Section 314] shall be final and nonappealable,” 35 U.S.C. 314(d); see *Thryv, Inc. v. Click-to-Call Techs., LP*, 140 S. Ct. 1367, 1373 (2020). Although the Director has delegated to the Board the authority to decide whether particular inter partes reviews will be instituted, 37 C.F.R. 42.4(a); see also 37 C.F.R. 42.208 (same for post-grant review); 37 C.F.R. 42.408(a) (delegating institution of derivation proceedings to administrative patent judge), the crucial point for Appointments Clause purposes is that administrative patent judges possess that authority only because, and to the extent that, the Director has chosen to confer it. Once review has been instituted, the Director may vacate his decision (or that of his delegatee) to institute the review, thereby terminating the proceedings. See *BioDelivery Scis. Int'l, Inc. v. Aquestive Therapeutics, Inc.*, 935 F.3d 1362, 1366 (Fed. Cir. 2019). And while “[o]nly the [Board] may grant rehearings” of Board decisions, 35 U.S.C. 6(c), the Director’s power to prescribe Board procedures and policies, and to designate the members of Board panels, give him substantial authority over rehearings as well. For example, the Director has established a Precedential Opinion Panel, which consists of Board members he chooses (typically including the Director himself, the

Commissioner for Patents, and the Chief Administrative Patent Judge), and which can determine whether to rehear and reverse any Board decision. SOP2, at 3-8.

The work of a USPTO administrative patent judge thus is superintended by presidentially appointed, Senate-confirmed officers at virtually every step. An administrative patent judge decides only those Board cases, if any, that the Director assigns him. In deciding those cases, the judge must apply the patent laws in accordance with regulations, policies, and guidance the Director has issued, and with past decisions the Director has designated as precedential. Once the Board issues its final written decision, that decision can be deemed precedential (or not) by the Director, countermanded prospectively by further guidance he issues, or both. And any proceeding in which the judge participates may always be reheard de novo by a review panel whose members the Director also selects—a panel that typically includes the Director himself and two other particular senior Executive officials.

3. The court of appeals' reasons for finding administrative patent judges to be principal officers are unpersuasive. See App., *infra*, 6a-22a.

a. Instead of assessing the cumulative effect of various means by which other Executive officials can supervise and direct administrative patent judges' work, the panel focused on the presence or perceived absence of several specific supervisory mechanisms. The panel distilled from *Edmond* three criteria that it deemed dispositive here: "(1) whether an appointed official has the power to review and reverse the officers' decision; (2) the level of supervision and oversight an appointed official has over the officers; and (3) the appointed official's power to re-

move the officers.” App., *infra*, 9a. Those factors undoubtedly can be relevant to the determination whether a particular actor is a principal or inferior officer. But the panel erred by evaluating those attributes in isolation and treating them as ends in themselves, rather than as complementary tools of supervision and direction.

To be sure, the *Arthrex* court noted this Court’s admonition that “[t]here is no ‘exclusive criterion for distinguishing between principal and inferior officers.’” App., *infra*, 9a (quoting *Edmond*, 520 U.S. at 661). The practical effect of the panel’s analytic approach, however, was to treat some combination of at least two of the factors it articulated as essential to inferior-officer status. The panel acknowledged the Director’s “broad policy-direction and supervisory authority,” which it found “weigh[s] in favor of” characterizing administrative patent judges as inferior officers. *Id.* at 14a-15a. Yet the court concluded that those judges are nevertheless principal officers because the panel found that the other two factors—the power of higher-level officials to remove administrative patent judges, and the ability of other Executive officers to review and reverse their decisions—were not also present to an extent the court deemed adequate. See *id.* at 9a-21a.

b. The *Arthrex* court’s checklist approach misses the central point of *Edmond*: that an official’s status as a principal or inferior officer turns on whether, when all of the existing control mechanisms are considered together, the officer’s “work is directed and supervised” by superiors to a sufficient degree, 520 U.S. at 663. Instead of considering the cumulative effect of the various control mechanisms that the Secretary and Director can utilize, the panel measured those superiors’ powers in isolation against all-or-nothing benchmarks.

The panel ascribed substantial weight, for example, to the fact that no official has the “unfettered” authority “to remove an [administrative patent judge] from judicial service without cause.” App., *infra*, 15a, 17a (emphasis omitted). But “the power to remove officers’ at will and without cause” is relevant because it “is a powerful tool for control’ of an inferior.” *Free Enterprise Fund*, 561 U.S. at 510 (quoting *Edmond*, 520 U.S. at 664) (brackets omitted). The ability to remove a subordinate gives a superior a form of leverage to induce the subordinate to do the superior’s will. That kind of indirect control, flowing from the *in terrorem* effect of possible at-will termination, is unnecessary to render the officer inferior for Appointments Clause purposes if the superior has other, *direct* means to achieve the same outcome. Here, the statute empowers the Director to establish binding substantive rules that administrative patent judges must follow and to choose which judges will apply them in every case; and it vests both the Secretary and the Director with broad (even if not unfettered) authority to remove judges from their adjudicative roles.

Indeed, with respect to removal, the Secretary and Director possess at least as much authority as the relevant superior officers in *Edmond*. The *Edmond* Court found it significant that the Coast Guard Judge Advocate General could “remove a Court of Criminal Appeals judge from his *judicial assignment* without cause.” 520 U.S. at 664 (emphasis added). From the standpoint of “supervis[ing]” and “direct[ing]” an officer’s “work,” the power to preclude the officer from deciding cases—to give the officer no “work” to do, *id.* at 663—is more significant than the power to withhold the officer’s salary and benefits. The Director possesses that power here, since he can decline to assign an administrative

patent judge to a particular category of Board cases or to any Board cases at all. See pp. 19-20, *supra*.

The *Arthrex* court also examined whether the Secretary or Director may “single-handedly review, nullify or reverse” Board decisions. App., *infra*, 10a; see *id.* at 10a-14a. A superior’s ability unilaterally to overturn an officer’s decisions is one possible means of after-the-fact control of the officer’s work. That power also may be unnecessary to render the officer inferior, however, if the superior has other mechanisms to prevent or limit the reach of decisions with which the superior disagrees. Here, regardless of whether the Director may unilaterally review Board decisions, the Director can dictate in advance the rules an administrative patent judge must apply, and he can blunt the future effect of an erroneous decision by designating it as nonprecedential (or designating a contrary decision as precedential), issuing contrary policies or guidance, or both.

Here also, the ability to review Board decisions is at least comparable to the review that was available in *Edmond*. In *Edmond*, the Judge Advocate General who oversaw the Coast Guard judges could not review their decisions himself, but could only direct that a decision be reviewed by “another Executive Branch entity,” a separate court composed of judges who were removable “for neglect of duty, misconduct, or mental or physical disability.” 520 U.S. at 664-665 & n.2. That court might disagree with the Judge Advocate General, and its review was not plenary, since it could “not reevaluate the facts” found by the Coast Guard judges if the record contained “competent” evidence supporting them. *Id.* at 665. Here, the Director may convene a Board panel of members he selects (including himself) to decide

whether to rehear any decision de novo, and he can prescribe the standards that govern whether rehearing should be granted as well as substantive policies and guidance that should be applied in any rehearing.

By considering each mechanism of supervision and direction separately, and by discounting prerogatives that did not independently satisfy the panel's benchmarks, the panel overlooked the ways that the various powers the Secretary and Director possess work together. For example, the Secretary's power to remove a judge from federal service under the generally applicable efficiency-of-the-service standard, in *conjunction* with the Director's power to prescribe the rules and policies judges must follow, enables those superiors to ensure that judges faithfully apply those rules and policies in cases before them. If a judge fails or refuses to follow binding agency policy set by one presidentially appointed superior, another presidentially appointed superior may terminate the judge's federal employment altogether. See pp. 18-21, *supra*. That ability, together with all of the Secretary's and Director's other prerogatives, leaves no doubt that administrative patent judges' "work is directed and supervised at some level" by presidentially appointed superiors. *Edmond*, 520 U.S. at 663.

II. THE COURT OF APPEALS' FORFEITURE HOLDING WARRANTS THIS COURT'S REVIEW

The second question presented also warrants this Court's review. As the court of appeals' subsequent decisions make clear, the *Arthrex* court's willingness to excuse the patent owner's administrative forfeiture has significant practical implications for the agency and for industries that rely on patent rights. And the court fundamentally erred in adopting a categorical exception to ordinary rules of administrative exhaustion.

A. The Federal Circuit’s Forfeiture Ruling Presents A Question Of Substantial Practical Importance

The court of appeals in *Arthrex* amplified the practical effects of its erroneous constitutional ruling by excusing the patent owner’s failure to present its Appointments Clause challenge to the Board. The court preemptively announced that the same remedy will apply in all cases “where final written decisions were issued and where litigants present an Appointments Clause challenge on appeal.” App., *infra*, 33a. The Federal Circuit has since relied on that decision to “vacate[] more than 100 decisions by the [Board]” in inter partes review and other post-grant review proceedings, and to remand for further proceedings before newly constituted panels. *Id.* at 223a; see *id.* at 224a-228a (cataloging 103 decisions as of May 1, 2020). In the overwhelming majority of those cases, as in *Arthrex*, Appointments Clause challenges were not presented to the Board but were raised for the first time in the challenger’s Federal Circuit appeal of a final written decision. The government is aware of only a handful of appeals like *Polaris* in which litigants’ Appointments Clause challenges were properly presented to the agency. See, e.g., Order at 2, *Rovi Guides, Inc. v. Comcast Cable Commc’ns, LLC*, No. 19-1215 (Fed. Cir. Apr. 22, 2020) (vacating Board decisions in six inter partes review proceedings and remanding).

In vacating the Board’s final written decisions in dozens of cases, the court of appeals has unwound the significant efforts of the agency and the litigants in the administrative proceedings—often spanning a year or longer—to determine the patentability of the challenged claims. If allowed to stand, the Federal Circuit’s forfeiture ruling in *Arthrex* will force the prevailing parties

in many other cases to relitigate issues before newly constituted Board panels. Those duplicative proceedings are unlikely to yield any meaningful public benefit, and many patent claims that the Board has found unpatentable will remain in force, creating uncertainty in numerous patent-reliant industries throughout the Nation's economy.

B. The Federal Circuit Erred In Excusing Arthrex's Failure To Raise Its Appointments Clause Challenge Before The USPTO

The court of appeals erred in holding that a party's failure to raise its Appointments Clause challenge before the USPTO should be excused merely because the issue implicates the separation of powers and may have significant economic consequences. The court compounded that error by preemptively excusing similar failures by other litigants who first raised their Appointments Clause challenges in their opening briefs to the Federal Circuit.

1. This Court has long recognized that “[s]imple fairness to those who are engaged in the tasks of administration, and to litigants, requires as a general rule that courts should not topple over administrative decisions unless the administrative body not only has erred but has erred against objection made at the time appropriate under its practice.” *United States v. L. A. Tucker Truck Lines, Inc.*, 344 U.S. 33, 37 (1952); see, e.g., *Woodford v. Ngo*, 548 U.S. 81, 90 (2006); *McCarthy v. Madigan*, 503 U.S. 140, 144-145 (1992); *Unemployment Compensation Comm'n v. Aragon*, 329 U.S. 143, 154-155 (1946); *Hormel v. Helvering*, 312 U.S. 552, 556-557 (1941). That general rule serves important public purposes. It protects administrative-agency authority by giving the

agency an opportunity to address a party’s claim “before it is haled into federal court.” *Ngo*, 548 U.S. at 89 (citation omitted). It promotes efficiency by allowing a party’s claim to be resolved at the administrative level, potentially rendering judicial proceedings unnecessary. *McCarthy*, 503 U.S. at 145. And it discourages “sandbagging,” *Freytag v. Commissioner*, 501 U.S. 868, 895 (1991) (Scalia, J., concurring in part and concurring in the judgment), whereby a party strategically encourages an agency to pursue one course, but then seeks “at the last possible moment to undo the administrative proceedings” if the outcome is unfavorable. *L. A. Tucker Truck Lines*, 344 U.S. at 36.

That principle should have been dispositive in *Arthrex*. Before its decision in *Arthrex*, the Federal Circuit had recognized that rules requiring timely presentation of challenges during administrative proceedings apply with full force to Board adjudications generally, and to Appointments Clause challenges in particular. In *In re DBC*, 545 F.3d 1373 (Fed. Cir. 2008), the court relied on these principles in declining to consider an Appointments Clause challenge to the Board’s decision in an ex parte reexamination of a patent. The court explained that the patent owner had forfeited its argument that “two of the administrative patent judges on the panel were appointed unconstitutionally *** by failing to raise it before the Board.” *Id.* at 1377 (footnotes omitted); see *id.* at 1376-1381. And the Federal Circuit had previously declined to address the very Appointments Clause challenge that is presented here when that challenge was raised for the first time on appeal. See *Trading Techs. Int’l, Inc. v. IBG LLC*, 771 Fed. Appx. 493 (2019) (per curiam) (summary affirmance), cert. denied, 140 S. Ct. 955 (2020) (No. 19-522).

To be sure, “exceptional cases or particular circumstances” may arise “which will prompt a reviewing or appellate court, where injustice might otherwise result, to consider questions of law which were neither pressed nor passed upon by the * * * administrative agency below.” *Helvering*, 312 U.S. at 557; see *Freytag*, 501 U.S. at 879 (noting that “rare cases” may arise “in which [a court] should exercise [its] discretion” to hear challenges not raised before the administrative tribunal). But the Federal Circuit has identified nothing that makes *Arthrex* and the dozens of other cases in the same posture “exceptional,” nor any “particular circumstance[]” that sets them apart from mine-run cases where a litigant forfeits a potential challenge. *Helvering*, 312 U.S. at 557.

2. The *Arthrex* court offered two reasons for its forfeiture ruling. Neither is persuasive.

First, the court of appeals construed this Court’s decision in *Freytag* as giving courts broad discretion to excuse such forfeitures whenever separation-of-powers challenges are raised. See App., *infra*, 4a-5a. In *Freytag*, the Court addressed an Appointments Clause challenge to the manner of appointing certain Article I judges, despite the challenger’s failure to preserve the issue. See 501 U.S. at 878-880. The Federal Circuit in *Arthrex* found it appropriate to overlook the patent owner’s forfeiture because *Arthrex*, “[l]ike *Freytag*, * * * implicates the important structural interests and separation of powers concerns protected by the Appointments Clause,” and because the Appointments Clause issue “has a wide-ranging effect on property rights and the nation’s economy.” App., *infra*, 4a-5a. The court understood that principle to apply broadly, invoking *Freytag* to support its determination that “the

impact of” its decision would extend to all other “cases where final written decisions were issued [by administrative patent judges the court considered unconstitutionally appointed] and where litigants present an Appointments Clause challenge on appeal.” *Id.* at 33a.

Freytag does not support the Federal Circuit’s sweeping exercise of authority to adjudicate unpreserved separation-of-powers claims. The *Freytag* Court reiterated the ordinary rule that “sound appellate process” requires litigants, “as a general matter,” to “raise all issues and objections” before the administrative tribunal and precludes courts of appeals from “entertaining objections not raised below.” 501 U.S. at 879. The Court made clear that it should be a “rare case[] in which [a court] should exercise [its] discretion to hear [a] challenge to the constitutional authority” of an administrative tribunal despite the parties’ failure to raise the issue before that tribunal. *Ibid.*

Although the *Freytag* Court chose to resolve the Appointments Clause challenge in that particular case, the Court did not suggest, let alone hold, that the same result should follow in all or most cases raising separation-of-powers issues. To the contrary, as four Justices noted in dissent, the Court declined the petitioner’s invitation to “adopt[] a general rule that ‘structural’ constitutional rights as a class simply cannot be forfeited, and that litigants are entitled to raise them at any stage of litigation.” 501 U.S. at 893 (Scalia, J., concurring in part and concurring in the judgment) (emphasis omitted). The *Arthrex* court erred in reading *Freytag* as giving courts broad discretion to excuse administrative forfeitures whenever separation-of-powers issues are involved.

Second, the court of appeals believed that raising an Appointments Clause challenge before the Board would

have been “futile” because the Board lacked authority to “correct[] the problem.” App., *infra*, 5a, 30a; see *id.* at 30a (holding that “the Board was not capable of providing any meaningful relief to this type of Constitutional challenge”). That reasoning disregards both the USPTO’s statutory authority and this Court’s precedent.

The Patent Act grants the Director unfettered discretion to decline to institute an inter partes review. 35 U.S.C. 314; see *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016). If Arthrex (or any other patent owner) had raised its Appointments Clause challenge before the agency, the Director could have avoided any potential constitutional violation by declining to institute an inter partes review, or even vacating a prior institution decision, before the agency and the parties invested time and resources into determining patentability. That course would have accorded Arthrex complete relief. Contrary to the court of appeals’ assertion, Arthrex did not “s[ee]k to have its case decided by a constitutionally appointed board.” App., *infra*, 31a. Like most patent owners, Arthrex opposed the institution of an inter partes review that could jeopardize its patent claims. See *Arthrex C.A.* App. 140-215.

Even if the agency had instituted review in the face of a timely Appointments Clause challenge, Arthrex’s assertion of that challenge during the administrative proceedings might have facilitated subsequent judicial review of Arthrex’s constitutional claim. Raising constitutional challenges before agencies can serve important purposes even when an agency “lacks authority” to address or “refuse[s] to pass upon the constitutionality of legislation.” *Elgin v. Department of the Treasury*, 567 U.S. 1, 16 (2012). Subsequent judicial review of those constitutional questions may be facilitated by developing

a record that addresses antecedent issues and brings agency expertise to bear. *Id.* at 22. This is particularly true where, as here, “the challenged statute” is “one that the [agency] regularly construes,” so that “its statutory interpretation could alleviate constitutional concerns” or otherwise shed light on a constitutional question that is eventually brought to a court. *Id.* at 23.

Here, Arthrex argues that the structure and duties of the Board render administrative patent judges principal, not inferior, officers. Arthrex C.A. Br. 59-66. And the parties specifically disputed which statutory removal restrictions apply to the USPTO’s administrative patent judges. See App., *infra*, 18a n.4. Affording the agency an opportunity to address those questions during the administrative proceedings, rather than for the first time in a court of appeals brief filed in response to a belated constitutional challenge, serves important values.

III. THE COURT SHOULD GRANT CERTIORARI IN BOTH *ARTHREX AND POLARIS*

To ensure that the Court can decide both the Appointments Clause and forfeiture issues if necessary, it should grant a writ of certiorari in both *Arthrex* and *Polaris*. *Arthrex* presents both the constitutional and forfeiture issues. The court of appeals excused Arthrex’s failure to present its Appointments Clause challenge to the agency; held that the statutory method of appointing administrative patent judges violates the Appointments Clause; remedied the purported constitutional defect by severing the statutory restrictions on removal of those judges from federal service; and granted Arthrex a new hearing before a different Board panel. App., *infra*, 4a-33a. If the Court granted review only in *Arthrex*, however, it might not reach the Appointments

Clause question because it might first address and reverse the Federal Circuit’s decision to excuse Arthrex’s administrative forfeiture.

In contrast, *Polaris* presents only the Appointments Clause issue. It was the first Federal Circuit decision (and one of only a handful to date) that arose from a case in which an Appointments Clause challenge was presented to the Board. There is thus no risk that the forfeiture issue (present in *Arthrex* and other cases) would prevent the Court from deciding the constitutional question. For the same reason, however, *Polaris* would not afford this Court any opportunity to address the forfeiture issue if the Court affirmed the Federal Circuit’s merits holding on the Appointments Clause question. Granting review in both *Arthrex* and *Polaris* would ensure that the Court can decide the constitutional issue and, if necessary, address the forfeiture question as well.

CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted.

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JUNE 2020

APPENDIX A

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

2018-2140

ARTHREX, INC., APPELLANT

v.

SMITH & NEPHEW, INC., ARTHROCARE CORP.,
APPELLEES

UNITED STATES, INTERVENOR

Decided: Oct. 31, 2019

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00275

Before MOORE, REYNA, and CHEN, *Circuit Judges*.
MOORE, *Circuit Judge*.

Arthrex, Inc. appeals from the final written decision of the Patent Trial and Appeal Board holding claims 1, 4, 8, 10-12, 16, 18, and 25-28 of U.S. Patent No. 9,179,907 unpatentable as anticipated. Arthrex appeals this decision and contends that the appointment of the Board's Administrative Patent Judges ("APJs") by the Secretary of Commerce, as currently set forth in Title 35, violates the Appointments Clause, U.S. Const., art. II, § 2, cl. 2. We agree and conclude that the statute as

(1a)

currently constructed makes the APJs principal officers. To remedy the violation, we follow the approach set forth by the Supreme Court in *Free Enterprise Fund v. Public Company Accounting Oversight Board*, 561 U.S. 477 (2010) and followed by the D.C. Circuit in *Intercollegiate Broadcasting System, Inc. v. Copyright Royalty Board*, 684 F.3d 1332 (2012). As the Supreme Court instructs, “[g]enerally speaking, when confronting a constitutional flaw in a statute, we try to limit the solution to the problem,’ severing any ‘problematic portions while leaving the remainder intact.”’ *Free Enterprise Fund*, 561 U.S. at 508 (quoting *Ayotte v. Planned Parenthood of Northern New Eng.*, 546 U.S. 320, 328-29 (2006)). We conclude that severing the portion of the Patent Act restricting removal of the APJs is sufficient to render the APJs inferior officers and remedy the constitutional appointment problem. As the final written decision on appeal issued while there was an Appointments Clause violation, we vacate and remand. Following *Lucia v. S.E.C.*, 138 S. Ct. 2044 (2018), the appropriate course of action is for this case to be remanded to a new panel of APJs to which Arthrex is entitled.

BACKGROUND

Arthrex owns the ’907 patent, which is directed to a knotless suture securing assembly. Smith & Nephew, Inc. and Arthrocare Corp. (collectively “Petitioners” or “Appellees”) filed a petition requesting *inter partes* review of claims 1, 4, 8, 10-12, 16, 18, and 25-28 of the ’907 patent.

Inter partes review is a “hybrid proceeding” with ‘adjudicatory characteristics’ similar to court proceedings.” *Saint Regis Mohawk Tribe v. Mylan Pharms.*, 896 F.3d 1322, 1326 (Fed. Cir. 2018). After a petitioner files a

petition requesting that the Board consider the patentability of issued patent claims, the Director of the United States Patent and Trademark Office (“USPTO”) determines whether to institute an *inter partes* review proceeding. 35 U.S.C. § 314.¹ A three-judge panel of Board members then conducts the instituted *inter partes* review. *Id.* § 316(c).² If an instituted review is not dismissed before the conclusion of the proceedings, the Board issues a final written decision determining the patentability of challenged claims. *Id.* § 318(a). Once the time for appeal of the decision expires or any appeal has been terminated, the Director issues and publishes a certificate canceling any claim of the patent finally determined to be unpatentable. *Id.* § 318(b).

The *inter partes* review of the ’907 patent was heard by a three-judge panel consisting of three APJs. The Board instituted review and after briefing and trial, the Board issued a final written decision finding the claims unpatentable as anticipated. J.A. 12, 14, 42.

¹ The Director delegated that authority to the Board, so now “[t]he Board institutes the trial on behalf of the Director.” 37 C.F.R. § 42.4(a).

² The Board consists of “[t]he Director, the Deputy Director, the Commissioner for Patents, the Commissioner for Trademarks, and the administrative patent judges.” 35 U.S.C. § 6(a). The Director of the USPTO is “appointed by the President, by and with the advice and consent of the Senate.” *Id.* § 3(a). The Deputy Director and the Commissioners are appointed by the Secretary of Commerce; the former being nominated by the Director. *Id.* §§ 3(b)(1)-(2). The Administrative Patent Judges “are appointed by the Secretary [of Commerce], in consultation with the Director.” *Id.* § 6(a).

ANALYSIS

A. Waiver

Appellees and the government argue that Arthrex forfeited its Appointments Clause challenge by not raising the issue before the Board. Although “[i]t is the general rule . . . that a federal appellate court does not consider an issue not passed upon below,” we have discretion to decide when to deviate from that general rule. *Singleton v. Wulff*, 428 U.S. 106, 120-21 (1976). The Supreme Court has included Appointments Clause objections to officers as a challenge which could be considered on appeal even if not raised below. *Freytag v. Commissioner of Internal Revenue*, 501 U.S. 868, 878-79 (1991); *Glidden Co. v. Zdanok*, 370 U.S. 530, 535-36 (1962).

In *Freytag*, the Supreme Court exercised its discretion to decide an Appointments Clause challenge despite petitioners’ failure to raise a timely objection at trial. 501 U.S. at 878-79. In fact, the Court reached the issue despite the fact that it had not been raised until the appellate stage. The Court explained that the structural and political roots of the separation of powers concept are embedded in the Appointments Clause. It concluded that the case was one of the “rare cases in which we should exercise our discretion to hear petitioners’ challenge to the constitutional authority.” *Id.* at 879. We believe that this case, like *Freytag*, is one of those exceptional cases that warrants consideration despite Arthrex’s failure to raise its Appointments Clause challenge before the Board. Like *Freytag*, this case implicates the important structural interests and separation of powers concerns protected by the Appointments

Clause. Separation of powers is “a fundamental constitutional safeguard” and an “exceptionally important” consideration in the context of *inter partes* review proceedings. *Cascades Projection LLC v. Epson America, Inc.*, 864 F.3d 1309, 1322 (Fed. Cir. 2017) (Reyna, J., dissenting from denial of petition for hearing en banc). The issue presented today has a wide-ranging effect on property rights and the nation’s economy. Timely resolution is critical to providing certainty to rights holders and competitors alike who rely upon the *inter partes* review scheme to resolve concerns over patent rights.

Appellees and the government argue that like *In re DBC* we should decline to address the Appointments Clause challenge as waived. *DBC* recognized that the court retains discretion to reach issues raised for the first time on appeal, but declined to do so in that case. 545 F.3d 1373, 1380 (Fed. Cir. 2008). The court predicated its decision on the fact that if the issue had been raised before the Board, it could have corrected the Constitutional infirmity because there were Secretary appointed APJs and that Congress had taken “remedial action” redelegating the power of appointment to the Secretary of Commerce in an attempt to “eliminat[e] the issue of unconstitutional appointments going forward.” *Id.* at 1380. As the court noted, “the Secretary, acting under the new statute, has reappointed the administrative patent judges involved in DBC’s appeal.” *Id.* at 1381. Not only had Congress taken remedial action to address the constitutionality issue, the Secretary had already been implementing those remedies limiting the impact. *Id.* No such remedial action has been taken in this case and the Board could not have corrected the problem. Because the Secretary continues to have the

power to appoint APJs and those APJs continue to decide patentability in *inter partes* review, we conclude that it is appropriate for this court to exercise its discretion to decide the Appointments Clause challenge here. This is an issue of exceptional importance, and we conclude it is an appropriate use of our discretion to decide the issue over a challenge of waiver.

B. Appointments Clause

Arthrex argues that the APJs who presided over this *inter partes* review were not constitutionally appointed. It argues the APJs were principal officers who must be, but were not, appointed by the President with the advice and consent of the Senate.

The Appointments Clause of Article II provides:

[The President] . . . shall nominate, and by and with the Advice and Consent of the Senate, shall appoint Ambassadors, other public Ministers and Consuls, Judges of the supreme Court, and all other Officers of the United States, whose Appointments are not herein otherwise provided for, and which shall be established by Law: but the Congress may by Law vest the Appointment of such inferior Officers, as they think proper, in the President alone, in the Courts of Law, or in the Heads of Departments.

U.S. Const. art. II, § 2, cl. 2. APJs are appointed by the Secretary of Commerce, in consultation with the Director of the USPTO. 35 U.S.C. § 6(a). The issue, therefore, is whether APJs are “Officers of the United States” and if so, whether they are inferior officers or principal officers; the latter requiring appointment by the President as opposed to the Secretary of Commerce. We

hold that in light of the rights and responsibilities in Title 35, APJs are principal officers.

An “Officer of the United States,” as opposed to a mere employee, is someone who “exercis[es] significant authority pursuant to the laws of the United States.” *Buckley v. Valeo*, 424 U.S. 1, 125-26 (1976). The Appointments Clause ensures that the individuals in these positions of significant authority are accountable to elected Executive officials. *See Lucia*, 138 S. Ct. at 2056 (Thomas, J., concurring) (citing *The Federalist No. 76*, p. 455 (C. Rossiter ed. 1961) (A. Hamilton)). It further ensures that the President, and those directly responsible to him, does not delegate his ultimate responsibility and obligation to supervise the actions of the Executive Branch. *See Free Enterprise Fund*, 561 U.S. at 496. The Appointments Clause provides structural protection against the President diffusing his accountability and from Congress dispensing power too freely to the same result. “The structural interests protected by the Appointments Clause are not those of any one branch of Government but of the entire Republic.” *Freytag*, 501 U.S. at 880. Because “people do not vote for the ‘Officers of the United States,’” the public relies on the Appointments Clause to connect their interests to the officers exercising significant executive authority. *Free Enterprise Fund*, 561 U.S. at 497-98. Arthrex argues that the APJs exercise the type of significant authority that renders them Officers of the United States. Neither Appellees nor the government dispute that APJs are officers as opposed to employees. We agree that APJs are Officers of the United States. *See John F. Duffy, Are Administrative Patent Judges Constitu-*

tional?, 2007 Patently-O Patent L.J. 21, 25 (2007) (concluding that administrative patent judges are officers as opposed to mere employees).

Under 35 U.S.C. § 6(a), APJs “hold a continuing office established by law . . . to a position created by statute.” *Lucia*, 138 S. Ct. at 2053. The APJs exercise significant discretion when carrying out their function of deciding *inter partes* reviews. They oversee discovery, 37 C.F.R. § 42.51, apply the Federal Rules of Evidence, 37 C.F.R. § 42.62(a), and hear oral arguments, 37 C.F.R. § 42.70. And at the close of review proceedings, the APJs issue final written decisions containing fact findings and legal conclusions, and ultimately deciding the patentability of the claims at issue. See 35 U.S.C. § 318(a). The government itself has recognized that there is a “functional resemblance between *inter partes* review and litigation,” and that the Board uses “trial-type procedures in *inter partes* review.” Br. of United States at 26, 31, *Oil States Energy Servs., LLC v. Greene’s Energy Grp., LLC*, 138 S. Ct. 1365 (2018). The Board’s patentability decisions are final, subject only to rehearing by the Board or appeal to this court. See 35 U.S.C. §§ 6(c), 141(c), 319. Like the special trial judges (“STJs”) of the Tax Court in *Freytag*, who “take testimony, conduct trials, rule on the admissibility of evidence, and have the power to enforce compliance with discovery orders,” 501 U.S. at 881-82, and the SEC Administrative Law Judges in *Lucia*, who have “equivalent duties and powers as STJs in conducting adversarial inquiries,” 138 S. Ct. at 2053, the APJs exercise significant authority rendering them Officers of the United States.

The remaining question is whether they are principal or inferior officers. The Supreme Court explained that

“[w]hether one is an ‘inferior’ officer depends on whether he has a superior,” and “‘inferior officers’ are officers whose work is directed and supervised at some level by others who were appointed by Presidential nomination with the advice and consent of the Senate.” *Edmond v. United States*, 520 U.S. 651, 662-63 (1997). There is no “exclusive criterion for distinguishing between principal and inferior officers for Appointments Clause purposes.” *Id.* at 661. However, the Court in *Edmond* emphasized three factors: (1) whether an appointed official has the power to review and reverse the officers’ decision; (2) the level of supervision and oversight an appointed official has over the officers; and (3) the appointed official’s power to remove the officers. *See id.* at 664-65; *see also Intercollegiate*, 684 F.3d at 1338. These factors are strong indicators of the level of control and supervision appointed officials have over the officers and their decision-making on behalf of the Executive Branch. The extent of direction or control in that relationship is the central consideration, as opposed to just the relative rank of the officers, because the ultimate concern is “preserv[ing] political accountability.” *Edmond*, 520 U.S. at 663. The only two presidentially-appointed officers that provide direction to the USPTO are the Secretary of Commerce and the Director. Neither of those officers individually nor combined exercises sufficient direction and supervision over APJs to render them inferior officers.

1. Review Power

The Supreme Court deemed it “significant” whether an appointed official has the power to review an officer’s decision such that the officer cannot independently “render a final decision on behalf of the United States.” *Edmond*, 520 U.S. at 665. No presidentially-appointed

officer has independent statutory authority to review a final written decision by the APJs before the decision issues on behalf of the United States. There are more than 200 APJs and a minimum of three must decide each *inter partes* review. 35 U.S.C. § 6(c). The Director is the only member of the Board who is nominated by the President and confirmed by the Senate. The Director is however only one member of the Board and every *inter partes* review must be decided by at least three Board judges. At the conclusion of the agency proceeding, the Board issues a final written decision. 35 U.S.C. § 318(a).

There is no provision or procedure providing the Director the power to single-handedly review, nullify or reverse a final written decision issued by a panel of APJs. If parties are dissatisfied with the Board decision, they may request rehearing by the Board or may appeal to this court. 35 U.S.C. §§ 6(c), 141(c), 319. “Only the Patent Trial and Appeal Board may grant hearings,” upon a party’s request. *Id.* § 6(c). Again, the decision to rehear would be made by a panel of at least three members of the Board. And the rehearing itself would be conducted by a panel of at least three members of the Board.

The government argues that the Director has multiple tools that give him the authority to review decisions issued by APJs. The government argues that the Director possesses the power to intervene and become a party in an appeal following a final written decision with which he disagrees. *See* 35 U.S.C. § 143. But that authority offers no actual reviewability of a decision issued by a panel of APJs. At most, the Director can intervene in a party’s appeal and ask this court to vacate the

decision, but he has no authority to vacate the decision himself. And the statute only gives the parties to the *inter partes* review the power to appeal the decision, not the Director. *See id.* § 319. If no party appeals the APJs' decision, the Director's hands are tied. “[T]he Director *shall* issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable. . . .” *Id.* § 318(b) (emphasis added). The Director cannot, on his own, *sua sponte* review or vacate a final written decision.

The government argues that the Director has additional review authority through his institution of the recently created Precedential Opinion Panel. That standing panel, composed of at least three Board members, can rehear and reverse any Board decision and can issue decisions that are binding on all future panels of the Board. *See* Patent Trial and Appeal Board Standard Operating Procedure 2 at 8. The Director's authority is limited to “conven[ing] a Precedential Opinion Panel to review a decision in a case and determine whether to order *sua sponte* rehearing” and to act as one of the three default members of the panel. *Id.* at 4-5. When the Director sits on a panel as a member of the Board, he is serving as a member of the Board, not supervising the Board.

Additionally, the government points out that the Director “may designate any decision by any panel, including the Precedential Opinion Panel, as precedential. . . .” *Id.* at 8. These powers do not, however, provide the type of reviewability over APJs' decisions comparable to the review power principal officers in other cases have had. *See, e.g., Edmond*, 520 U.S. at 664-65; *Masias v. Secretary of Health and Human Servs.*, 634

F.3d 1283, 1294-95 (Fed. Cir. 2011) (special masters under the Vaccine Act were inferior officers in part because their decisions were “subject to review by the Court of Federal Claims” (an Article I court)). To be clear, the Director does not have the sole authority to review or vacate any decision by a panel of APJs. He can only *convene* a panel of Board members to *decide whether* to rehear a case for the purpose of deciding whether it should be precedential. No other Board member is appointed by the President. The government certainly does not suggest that the Director controls or influences the votes of the other two members of his special rehearing panel. Thus, even if the Director placed himself on the panel to decide whether to rehear the case, the decision to rehear a case and the decision on rehearing would still be decided by a panel, two-thirds of which is not appointed by the President. There is no guarantee that the Director would even be in the majority of that decision. Thus, there is no review by other Executive Branch officers who meet the accountability requirements of the Appointments Clause. Moreover, the Standard Operating Procedure makes clear that the Director would convene such a panel only in cases of “exceptional importance”: to potentially set precedent for the Board. In other words, this form of review—constrained to a limited purpose—is still conducted by a panel of APJs who do not meet the requirements of the Appointments Clause and represents the exception.

Finally, the government alleges that the Director has review authority over Board decisions because he can decide not to institute an *inter partes* review in the first instance. We do not agree that the Director’s power to institute (ex ante) is any form of review (ex post). For

the past several years, the Board has issued over 500 *inter partes* review final written decisions each year. The relevant question is to what extent those decisions are subject to the Director's review.

The situation here is critically different from the one in *Edmond*. In *Edmond*, the Supreme Court considered whether military judges on the Coast Guard Court of Criminal Appeals were principal as opposed to inferior officers. 520 U.S. at 655. There, the Court of Appeals for the Armed Forces, an Executive Branch entity, had the power to reverse decisions by the military judges and “review[ed] every decision of the Court of Criminal Appeals in which: (a) the sentence extends to death; (b) the Judge Advocate General orders such review; or (c) the court itself grants review upon petition of the accused.” *Id.* at 664-65. And while the Judge Advocate General (a properly appointed Executive officer) could not reverse decisions of the military judges, he could order any of those decisions be reviewed by the Court of Appeals for the Armed Forces (a presidentially-appointed Executive Branch, Article I court). *Id.* The Court deemed it “significant [] that the judges of the Court of Criminal Appeals ha[d] no power to render a final decision on behalf of the United States unless permitted to do so by other Executive officers.” *Id.* at 665 (emphasis added). That is simply not the case here. Panels of APJs issue final decisions on behalf of the USPTO, at times revoking patent rights, without any principal officers having the right to review those decisions. Thus, APJs have substantial power to issue final decisions on behalf of the United States without any review by a presidentially-appointed officer. We find that there is

insufficient review within the agency over APJ panel decisions. This supports a conclusion that APJs are principal officers.

2. Supervision Power

The extent to which an officer's work is supervised or overseen by another Executive officer also factors into determining inferior versus principal officer status. *See Edmond*, 520 U.S. at 664. The Director exercises a broad policy-direction and supervisory authority over the APJs. The Director is “responsible for providing policy direction and management supervision” for the USPTO. 35 U.S.C. § 3(a)(2)(A). Arthrex argues the Director’s oversight authority amounts to little more than high-level, arms-length control. We disagree.

The Director has the authority to promulgate regulations governing the conduct of *inter partes* review. *Id.* § 316. He also has the power to issue policy directives and management supervision of the Office. *Id.* § 3(a). He may provide instructions that include exemplary applications of patent laws to fact patterns, which the Board can refer to when presented with factually similar cases. Moreover, no decision of the Board can be designated or de-designated as precedential without the Director’s approval. Patent Trial and Appeal Board Standard Operating Procedure 2 at 1. And all precedential decisions of the Board are binding on future panels. *Id.* at 11. In addition to these policy controls that guide APJ-panel decision making, the Director has administrative authority that can affect the procedure of individual cases. For example, the Director has the independent authority to decide whether to institute an *inter partes* review based on a filed petition and any corresponding preliminary response. 35 U.S.C. § 314(a).

And the Director is authorized to designate the panel of judges who decides each *inter partes* review. See 35 U.S.C. § 6(c). Not only does the Director exercise administrative supervisory authority over the APJs based on his issuance of procedures, he also has authority over the APJs' pay. 35 U.S.C. § 3(b)(6).

The Director's administrative oversight authority is similar to the supervisory authority that was present in both *Edmond* and *Intercollegiate*. In *Edmond*, the Judge Advocate General "exercise[d] administrative oversight" and had the responsibility of "prescrib[ing] uniform rules of procedure" for the military judges. 520 U.S. at 664. Likewise, in *Intercollegiate*, the Librarian of Congress was responsible for approving the Copyright Royalty Judges' ("CRJs") "procedural regulations . . . and [] overseeing various logistical aspects of their duties." 684 F.3d at 1338. And the Register of Copyrights, who was subject to the control of the Librarian, had "the authority to interpret the copyright laws and provide written opinions to the CRJs." *Id.* The Director possesses similar authority to promulgate regulations governing *inter partes* review procedure and to issue policy interpretations which the APJs must follow. Accordingly, we conclude that the Director's supervisory powers weigh in favor of a conclusion that APJs are inferior officers.

3. Removal Power

The Supreme Court viewed removal power over an officer as "a powerful tool for control" when it was unlimited. *Edmond*, 520 U.S. at 664. Under the current Title 35 framework, both the Secretary of Commerce and the Director lack unfettered removal authority.

Appellees and the government argue that the Director can remove an APJ based on the authority to designate which members of the Board will sit on any given panel. *See* 35 U.S.C. § 6(c). The government argues that the Director could exclude any APJ from a case who he expects would approach the case in a way inconsistent with his views. The government suggests that the Director could potentially remove all judicial function of an APJ by refusing to assign the APJ to any panel. The government also claims that the Director could remove an APJ from an *inter partes* review mid-case if he does not want that particular APJ to continue on the case. Br. of United States at 3, 41. Section 6(c) gives the Director the power to designate the panel who hears an *inter partes* review, but we note that the statute does not expressly authorize de-designation. The government argues that because Title 35 authorizes the Director to *designate* members of a panel in an *inter partes* review proceeding, he also has the authority to change the panel composition at any time because “removal authority follows appointment authority.” Oral Arg. 35:52-54; *see also* Br. of United States at 3, 41. It is correct that when a statute is silent on removal, the power of removal is presumptively incident to the power of appointment. *See In re Hennen*, 38 U.S. 230 (1839); *Myers v. United States*, 272 U.S. 52 (1926). The government argues by analogy to these cases that the power to de-designate follows the power to designate. We do not today decide whether the Director in fact has such authority.³

³ It is not clear the Director has de-designation authority. To be sure, *someone* must have the power to remove an officer from gov-

The government analogizes the Director's designation power to the Judge Advocate General's power in *Edmond*, which allowed him to remove a military judge "from his judicial assignment without cause." 520 U.S. at 664. The Director's authority to assign certain APJs to *certain panels* is not the same as the authority to remove an APJ *from judicial service* without cause. Removing an APJ from an *inter partes* review is a form of control, but it is not nearly as powerful as the power to remove from office without cause. "[T]he power to remove officers at will and without cause is a powerful tool for control of an inferior." *Free Enterprise Fund.*, 561 U.S. at 501.

The only actual removal authority the Director or Secretary have over APJs is subject to limitations by Title 5. Title 35 does not provide statutory authority for removal of the APJs. Instead, 35 U.S.C. § 3(c) provides, "[o]fficers and employees of the Office shall be subject to the provisions of title 5, relating to Federal employees." No one disputes that Title 5 creates limitations on the Secretary's or Director's authority to remove an

overnment service, so when a statute is silent about removal, we presume that the person who appoints the officer to office has the power to remove him. But it is not clear that Congress intended panels once designated to be able to be de-designated. Such a conclusion could run afoul of Congress' goal of speedy resolution through "quick and cost effective alternatives to litigation." H.R. Rep. No. 112-98, pt. 1, at 48 (2011). Additionally, it is not clear whether this type of mid-case de-designation of an APJ could create a Due Process problem. However, we need not decide whether the Director has such authority or whether such authority would run afoul of the Constitution because even if we accept, for purposes of this appeal, that he does possess that authority, it would not change the outcome.

APJ from his or her employment at the USPTO. Specifically, APJs may be removed “only for such cause as will promote the efficiency of the service.” 5 U.S.C. § 7513(a).⁴ This limitation requires “a nexus between the misconduct and the work of the agency, *i.e.*, that the employee’s misconduct is likely to have an adverse impact on the agency’s performance of its functions.” *Brown v. Department of the Navy*, 229 F.3d 1356, 1358 (Fed. Cir. 2000).⁵ Moreover, § 7513 provides procedural limitations on the Director’s removal authority over APJs. *See, e.g.*, 5 U.S.C. § 7513(b) (entitling the APJ to 30 days advanced written notice stating specific reasons for the proposed removal, an opportunity to answer with documentary evidence, entitlement to representation by an attorney, and a written decision with specific reasons); *Id.* § 7513(d) (right of appeal to the Merit Systems and Protections Board).

⁴ The parties dispute which provision of Title 5 governs removal of APJs. Arthrex argues that 5 U.S.C. § 7521(a) limits removal of the APJs to removal “only for good cause established and determined by the Merit Systems Protection Board on the record after opportunity for hearing before the Board.” Whereas the government argues that § 7521 does not apply to APJs because they are appointed not under 5 U.S.C. § 3105, but under 35 U.S.C. § 6. The government argues therefore that removal of APJs is governed by the section of Title 5 related to federal employees generally, which limits removal “only for such cause as will promote the efficiency of the service.” 5 U.S.C. § 7513(a). We agree with the government that the applicable provision to removal of APJs in Title 5 is § 7513. Section 7513 contains a lower threshold to support removal than does § 7521.

⁵ Under § 7513(b), the Director does not have unfettered authority to remove an APJ from service. We do not, however, express an opinion as to circumstances which could justify a removal for such cause as would promote the efficiency of service.

The government argues that the Secretary's authority to remove APJs from employment for "such cause as will promote efficiency of the service"—the same standard applied to any other federal employee—underscores that APJs are subject to significant supervision and control. It argues that Title 5's removal restrictions are less cumbersome than the restrictions on the Court of Federal Claims' removal authority over the special masters who were deemed inferior officers in *Masias*. In *Masias*, we held that special masters authorized by the Vaccine Act were inferior officers. 634 F.3d. at 1295. The special masters were appointed and supervised by judges of the Court of Federal Claims, who are presidentially-appointed. *Id.* at 1294. The special masters could be removed only "for incompetency, misconduct, or neglect of duty or for physical or mental disability or for other good cause shown." *Id.* (quoting 42 U.S.C. § 300aa-12(c)(2)). Though there were significant limits on removal in *Masias*, our court recognized that "decisions issued by the special masters are subject to review by the Court of Federal Claims." *Id.* at 1294. We held that the review power over the special masters' decisions paralleled the review by the Court of Appeals for the Armed forces in *Edmond*, and although the review was not *de novo*, it favored a finding that the special masters were not principal officers. *Id.* at 1295. That significant power of review does not exist with respect to final written decisions issued by the APJs.

The APJs are in many ways similar to the CRJs in *Intercollegiate* for purposes of determining whether an officer is principal or inferior. The CRJs issued rate-making decisions that set the terms of exchange for musical works. *Intercollegiate*, 684 F.3d at 1338. The

APJs issue written decisions determining patentability of patent claims. Both are intellectual property decisions upon which “billions of dollars and the fates of entire industries can ride.” *Id.* In *Intercollegiate*, the Librarian approved procedural regulations, issued ethical rules, and oversaw logistical aspects of the CRJs’ duties. *Id.* Additionally, the Register of Copyrights provided written opinions interpreting copyright law and could correct any legal errors in the CRJs’ decisions. *Id.* at 1338-39. Similarly, the Director has the authority to promulgate regulations governing *inter partes* review and provides written policy directives. He does not, however, have the ability to modify a decision issued by APJs, even to correct legal misstatements. The Director’s inability to review or correct issued decisions by the APJs likens those decisions to “the CRJs’ rate determinations [which] are not reversible or correctable by any other officer or entity within the executive branch.” *Id.* at 1340. Moreover, the limitations on removal in Title 5 are similar to the limitations on removal in *Intercollegiate*. There, the Librarian could only remove CRJs “for misconduct or neglect of duty.” *Id.* at 1340. Here, APJs can only be removed from service for “such cause as will promote the efficiency of the service,” meaning for “misconduct [that] is likely to have an adverse impact on the agency’s performance of its functions.” 5 U.S.C. § 7513; *Brown*, 229 F.3d at 1358. The D.C. Circuit in *Intercollegiate* determined that given the CRJs’ nonremovability and the finality of their decisions, “the Librarian’s and Register’s supervision functions still fall short of the kind that would render [them] inferior officers.” 684 F.3d at 1339. Likewise, APJs issue decisions that are final on behalf of the Executive

Branch and are not removable without cause. We conclude that the supervision and control over APJs by appointed Executive Branch officials in significant ways mirrors that of the CRJs in *Intercollegiate*.

4. Other Limitations

We do not mean to suggest that the three factors discussed are the only factors to be considered. However, other factors which have favored the conclusion that an officer is an inferior officer are completely absent here. For example, in *Morrison v. Olson*, 487 U.S. 654 (1988), the Court concluded that the Independent Counsel was an inferior officer because he was subject to removal by the Attorney General, performed limited duties, had limited jurisdiction, and had a limited tenure. *Edmond*, 520 U.S. at 661. Unlike the Independent Counsel, the APJs do not have limited tenure, limited duties, or limited jurisdiction.

Interestingly, prior to the 1975 amendment to Title 35, “Examiners-in-Chief”—the former title of the current APJs—were subject to nomination by the President and confirmation by the Senate. 35 U.S.C. § 3 (1952). In 1975, Congress eliminated their Presidential appointment and instead gave the Secretary of Commerce, upon nomination by the Commissioner, the power to appoint. 35 U.S.C. § 3 (1975). There can be no reasonable dispute that APJs who decide reexaminations, *inter partes* reviews, and post-grant reviews wield significantly more authority than their Examiner-in-Chief predecessors. But the protections ensuring accountability to the President for these decisions on behalf of the Executive Branch clearly lessened in 1975.

Having considered the issues presented, we conclude that APJs are principal officers. The lack of any presidentially-appointed officer who can review, vacate, or correct decisions by the APJs combined with the limited removal power lead us to conclude, like our sister circuit in *Intercollegiate*, which dealt with the similarly situated CRJs, that these are principal officers. While the Director does exercise oversight authority that guides the APJs procedurally and substantively, and even if he has the authority to de-designate an APJ from *inter partes* reviews, we conclude that the control and supervision of the APJs is not sufficient to render them inferior officers. The lack of control over APJ decisions does not allow the President to ensure the laws are faithfully executed because “he cannot oversee the faithfulness of the officers who execute them.” *Free Enterprise Fund*, 561 U.S. at 484. These factors, considered together, confirm that APJs are principal officers under Title 35 as currently constituted. As such, they must be appointed by the President and confirmed by the Senate; because they are not, the current structure of the Board violates the Appointments Clause.

C. Severability

Having determined that the current structure of the Board under Title 35 as constituted is unconstitutional, we must consider whether there is a remedial approach we can take to address the constitutionality issue. “In exercising our power to review the constitutionality of a statute, we are compelled to act cautiously and refrain from invalidating more of the statute than is necessary.” *Helman v. Department of Veterans Affairs*, 856 F.3d 920, 930 (Fed. Cir. 2017) (citing *Regan v. Time, Inc.*, 468 U.S. 641, 652 (1984)). Where appropriate, we “try to

limit the solution to the problem, [by] severing any problematic portions while leaving the remainder intact.” *Free Enterprise Fund*, 561 U.S. at 508. Severing the statute is appropriate if the remainder of the statute is “(1) constitutionally valid, (2) capable of functioning independently, and (3) consistent with Congress’ basic objectives in enacting the statute.” *United States v. Booker*, 543 U.S. 220, 258–59 (2005).

The government suggests possible remedies to achieve this goal. As to 35 U.S.C. § 3(c)’s requirement that “Officers and employees of the Office shall be subject to the provisions of title 5,” the government argues that we could construe Title 5’s “efficiency of the service” standard to permit removal in whatever circumstances the Constitution requires. Construing the words “only for such cause as will promote the efficiency of the service” as permitting at-will, without-cause removal is not a plausible construction. *Commodity Futures Trading Commission v. Schor*, 478 U.S. 833, 841 (1986) (“[a]lthough this Court will often strain to construe legislation so as to save it against constitutional attack, it must not and will not carry this to the point of perverting the purpose of a statute . . . or judicially rewriting it.” (citations omitted)); *Jennings v. Rodriguez*, 138 S. Ct. 830, 842 (2018) (“The canon of constitutional avoidance ‘comes into play only when, after the application of ordinary textual analysis, the statute is found to be susceptible of more than one construction. In the absence of more than one *plausible* construction, the canon simply has no application.’” (internal citations omitted)). Moreover, that statutory section pertains to nearly all federal employees. We will not construe 5 U.S.C. § 7513 one way for APJs and a different

way for everyone else to which it applies. The government next argues that we could construe the statute as providing the Director the authority to unilaterally revise a Board decision before it becomes final. We see no language in the statute that could plausibly be so construed. The statute is clear that Board decisions must be rendered by at least three Board judges and that only the Board can grant rehearing. 35 U.S.C. § 6(c) (“Each appeal, derivation proceeding, post-grant review, and inter partes review shall be heard by at least 3 members of the Patent Trial and Appeal Board, who shall be designated by the Director. Only the Patent Trial and Appeal Board may grant rehearsals.”). Indeed, the government recommends in the alternative that we simply sever the “three-member clause.”

Allowing the Director to appoint a single Board member to hear or rehear any *inter partes* review (appeal, derivation proceeding, and post grant review), especially when that Board member could be the Director himself, would cure the Constitutional infirmity. While the Board members would still not be subject to at-will removal, their decision would not be the “final decision on behalf of the United States unless permitted to do so by other Executive officers.” *Edmond*, 520 U.S. at 665. This combined with the other forms of supervision and controlled exercised over APJs would be sufficient to render them inferior officers. We conclude, however, that severing three judge review from the statute would be a significant diminution in the procedural protections afforded to patent owners and we do not believe that Congress would have created such a system. Eliminating three-APJ panels from all Board proceedings would

be a radical statutory change to the process long required by Congress in all types of Board proceedings. The current three-judge review system provides a broader collection of technical expertise and experience on each panel addressing *inter partes* reviews, which implicate wide cross-sections of technologies. The breadth of backgrounds and the implicit checks and balances within each three-judge panel contribute to the public confidence by providing more consistent and higher quality final written decisions.⁶ We are uncomfortable with such a sweeping change to the statute at our hands and uncertain that Congress would have been willing to adopt such a change. And, importantly, we see a far less disruptive alternative to the scheme Congress laid out.

The government also suggested partially severing 35 U.S.C. § 3(c), the provision that applies Title 5 to officers and employees of the USPTO. Br. of United States at 35 (“Alternatively, this Court could hold that

⁶ In 2015, the USPTO requested comments on a proposed pilot program under which institution decisions for *inter partes* reviews would be decided by a single APJ as opposed to three-APJ panels. Multiple commenters expressed concern that such a change would reduce consistency, predictability, and accuracy in the institution decisions. See, e.g., Comments of the American Bar Association Section of Intellectual Property at 3 (Nov. 12, 2015) (“a single judge panel . . . will increase the likelihood of incorrect decisions); Comments of Various Automotive Companies at 3 (Nov. 17, 2015) (“Using just one APJ to decide a particular matter would greatly dilute . . . deliberativeness.”); Comments of Askeladden LLC at 2 (Nov. 18, 2015) (“the inherent safeguard of a three-judge arbiter gives the public confidence”); Comments of Public Knowledge and Electronic Frontier Foundation at 2 (Nov. 18, 2015) (“by changing the institution decision body from a three-judge panel to a single judge, the USPTO risks a decline in quality of institution decisions”).

35 U.S.C. § 3(c)'s provision that USPTO officers and employees are subject to Title 5 cannot constitutionally be applied to Board members with respect to that Title's removal restrictions, and thus must be severed to that extent."). We think this the narrowest viable approach to remedying the violation of the Appointments Clause. We follow the Supreme Court's approach in *Free Enterprise Fund*, similarly followed by the D.C. Circuit in *Intercollegiate*. See 561 U.S. 477; 684 F.3d 1332. In *Free Enterprise Fund*, the Supreme Court held that a "for-cause" restriction on the removal power of the SEC's Commissioners violated the Constitution. *Id.* at 492. The Court invalidated and severed the problematic "for-cause" restriction from the statute rather than holding the larger structure of the Public Company Accounting Oversight Board unconstitutional. *Id.* at 508.

The D.C. Circuit followed this approach in *Intercollegiate*, by invalidating and severing the restriction on the Librarian's removal power over CRJs. 684 F.3d at 1340. The court held unconstitutional all language in the relevant removal statute other than, "[t]he Librarian of Congress may sanction or remove a Copyright Royalty Judge." *Id.* The Court determined that giving the Librarian of Congress unfettered removal power was sufficient such "that the CRJs' decisions will be constrained to a significant degree by a principal officer (the Librarian)." *Id.* at 1341. And the constraint of that power was enough to render the CRJs inferior officers. *Id.*

Severing Title 5's removal restrictions might arguably be achieved either by severing the words "Officers and" or by concluding that those removal restrictions

are unconstitutional as applied to APJs. The government recommends a partial invalidation, namely that we sever the application of Title 5's removal restrictions to APJs. See *United States v. Nat'l Treasury Emps. Union*, 513 U.S. 454 (1995); *United States v. Grace*, 461 U.S. 171 (1983). All parties and the government agree that this would be an appropriate cure for an Appointments Clause infirmity. This as-applied severance is the narrowest possible modification to the scheme Congress created and cures the constitutional violation in the same manner as *Free Enterprise Fund* and *Intercollegiate*. Title 5's removal protections cannot be constitutionally applied to APJs, so we sever that application of the statute.

Severability turns on whether "the statute will function in a manner consistent with the intent of Congress." *Alaska Airlines, Inc. v. Brock*, 480 U.S. 678, 685 (1987) (emphasis omitted). In *Free Enterprise Fund*, the Court severed the removal provision because it concluded that "nothing in the statute's text or historical context" suggested that Congress "would have preferred no Board at all to a Board whose members are removable at will." 561 U.S. at 509. Indeed, we answer affirmatively the question: "Would the legislature have preferred what is left of its statute to no statute at all?" *Ayotte*, 546 U.S. at 330. It is our view that Congress intended for the *inter partes* review system to function to review issued patents and that it would have preferred a Board whose members are removable at will rather than no Board at all.

The narrowest remedy here is similar to the one adopted in *Intercollegiate*, the facts of which parallel

this case. Thus, we conclude that the appropriate remedy to the constitutional violation is partial invalidation of the statutory limitations on the removal of APJs. Title 35 U.S.C. § 3(c) declares the applicability of Title 5 rights to “Officers and employees of the Office.” *See also* Supp. Br. of United States at 9-10 (noting that Title 5 definitions might cover APJs). Title 5 U.S.C. § 7513(a) permits agency action against those officers and employees “only for such cause as will promote the efficiency of the service.” Accordingly, we hold unconstitutional the statutory removal provisions as applied to APJs, and sever that application. Like the D.C. Circuit in *Intercollegiate*, we believe severing the restriction on removal of APJs renders them inferior rather than principal officers. Although the Director still does not have independent authority to review decisions rendered by APJs, his provision of policy and regulation to guide the outcomes of those decisions, coupled with the power of removal by the Secretary without cause provides significant constraint on issued decisions.

The decision to partially invalidate statutory removal protections limits the effect of the severance to APJs and to their removal protections. We are mindful that the alternative of severing the “Officers and” provision from § 3(c) may not have been limited to APJs (there might have been other officers whose Title 5 rights would have been affected) and it might have removed all Title 5 protections, not just removal protections. Severing the application to APJs of removal protections is the narrowest remedy. The choice to sever and excise a portion of a statute as unconstitutional in order to preserve the statute as a whole is limited, and does not permit judicial rewriting of statutes. *Booker*, 543 U.S. at

258 (to address the constitutional infirmity, we consider “*which* portions of the . . . statute we must sever and excise as inconsistent with the Court’s constitutional requirement”); *Ayotte*, 546 U.S. at 329 (“[W]e restrain ourselves from ‘rewrit[ing] . . . law to conform it to constitutional requirements’ even as we strive to salvage it”). “Unless it is evident that the Legislature would not have enacted those provisions which are within its power, independently of that which is not, the invalid part may be dropped if what is left is fully operative as a law.” *Buckley*, 424 U.S. at 108-09 (quoting *Champlin Refining Co. v. Corporation Comm’n of Oklahoma*, 286 U.S. 210, 234 (1932)). We are not, under the guise of severability, permitted to add exceptions for APJs to the language § 3(c) officer protections. *Railroad Retirement Bd. v. Alton R. Co.*, 295 U.S. 330, 362 (1935) (when severing a statute, we must avoid “re-writ[ing] a statute”). We hold that the application of Title 5’s removal protections to APJs is unconstitutional and must be severed. And we are convinced that Congress would preserve the statutory scheme it created for reviewing patent grants and that it intended for APJs to be inferior officers. Our severance of the limits on removal of APJs achieves this. We believe that this, the narrowest revision to the scheme intended by Congress for reconsideration of patent rights, is the proper course of action and the action Congress would have undertaken.

Because the Board’s decision in this case was made by a panel of APJs that were not constitutionally appointed at the time the decision was rendered, we vacate and remand the Board’s decision without reaching the merits. The government argues that while this court

has the discretion to vacate and remand in the event there is an Appointments Clause challenge, we should decline to do so because the challenge was not first brought before the Board. The government argues that Arthrex's challenge was not timely and as such we should decline to award the relief *Lucia* deems appropriate. Arthrex argues it would have been futile to raise the Appointments Clause challenge before the Board because the Board lacked the authority to grant it relief. Arthrex argues it raised the challenge at the first stage where it could have obtained relief and therefore its argument is timely. We agree with Arthrex that the Board was not capable of providing any meaningful relief to this type of Constitutional challenge and it would therefore have been futile for Arthrex to have made the challenge there. “An administrative agency may not invalidate the statute from which it derives its existence and that it is charged with implementing.” *Jones Bros., Inc. v. Sec'y of Labor*, 898 F.3d 669, 673 (6th Cir. 2018) (citing *Mathews v. Diaz*, 426 U.S. 67, 76 (1976); *Weinberger v. Salfi*, 422 U.S. 749, 765 (1975); *Johnson v. Robison*, 415 U.S. 361, 368 (1974); *PUC v. United States*, 355 U.S. 534, 539-40 (1958)). The PTAB itself has declined to examine this issue in other cases. See *Samsung Elecs. Am., Inc. v. Uniloc*, 2017 LLC, No. IPR2018-01653, 2019 WL 343814, at *2 (PTAB Jan. 25, 2019) (declining to consider constitutional challenge to appointments because “administrative agencies do not have jurisdiction to decide the constitutionality of congressional enactments” and “[t]his is especially true when, as here, the constitutional claim asks the agency to act contrary to its statutory charter”) (internal citations and quotation marks omitted); see also *Intel Corp. v VLSI Tech. LLC*, No. IPR2018-01107, 2019 PAT. APP.

LEXIS 4893, at *26-27 (P.T.A.B. Feb. 12, 2019); *Unified Patents Inc. v. MOAEC Techs., LLC*, No. IPR2018-01758, 2019 WL 1752807, at *9 (P.T.A.B. Apr. 17, 2019). The only possibility of correction which the government claims the agency could have made is the Director shutting down the IPR regime by refusing to institute. Petitioners argue that if the Appointments Clause challenge had been raised at the Board, it “could have prompted the PTAB to defer institution decisions on all IPRs” and “[t]he Executive Branch could have then championed legislation to address the alleged constitutional infirmity.” Arthrex sought to have its case decided by a constitutionally appointed board. The PTO could not provide this relief.

We agree with Arthrex that its Appointments Clause challenge was properly and timely raised before the first body capable of providing it with the relief sought—a determination that the Board judges are not constitutionally appointed. Our decision in *DBC* is not to the contrary. In *DBC*, the Appointments Clause challenge was to the particular APJs who were appointed by the Director, rather than the Secretary. We observed that if the issue had been raised before the agency, the agency could have “corrected the constitutional infirmity.” *DBC*, 545 F.3d at 1379. At that time, there were APJs who had been appointed by the Secretary who could have decided the case and thus the agency could have cured the constitutional defect. In *DBC*, we observed that in *LA Tucker* and *Woodford*, had the issue been raised at the agency, the agency could have corrected the problem. See *id.* at 1378 (citing *Woodford v. Ngo*, 548 U.S. 81 (2006); *United States v. LA Tucker Truck Lines*, 344 U.S. 33 (1952)). *Ryder v. United States*,

cited by the government, likewise involved a challenge made to a particular judge, and the problem could have been cured by reassigning the case to a different judge at the trial level. 515 U.S. 177 (1995). In contrast, here the Director is the only Presidentially-appointed, Senate confirmed member of the Board. The Board was not capable of correcting the constitutional infirmity. We conclude that this Constitutional challenge is one in which the Board had no authority to provide any meaningful relief and that it was thus futile for Arthrex to have raise the challenge before the Board.

The *Lucia* court explained that Appointments Clause remedies are designed to advance structural purposes of the Appointments Clause and to incentivize Appointments Clause challenges. *Lucia*, 138 S. Ct. at 2055 n.5. We conclude that both of these justifications support our decision today to vacate and remand. See *Collins v. Mnuchin*, 938 F.3d 553, 593 (5th Cir. 2019) (recognizing, “the Court has invalidated actions taken by individuals who were not properly appointed under the Constitution.”). The Supreme Court held in *Freytag* that Appointments Clause challenges raise important structural interests and separation of powers concerns. We conclude that challenges under these circumstances should be incentivized at the appellate level and accordingly the remedy provided is appropriate. We have decided only that this case, where the final decision was rendered by a panel of APJs who were not constitutionally appointed and where the parties presented an Appointments Clause challenge on appeal, must be vacated and remanded. Appointments Clause challenges are “nonjurisdictional structural constitutional objections” that can be waived when not presented. *Freytag*, 501

U.S. at 878-79. Thus, we see the impact of this case as limited to those cases where final written decisions were issued and where litigants present an Appointments Clause challenge on appeal.

Finally, on remand we hold that a new panel of APJs must be designated and a new hearing granted. *See* Appellant's Supp. Br. at 12 ("This Court should thus order a remand to a new PTAB panel for a new oral argument.") The Supreme Court has explained that when a judge has heard the case and issued a decision on the merits, "[h]e cannot be expected to consider the matter as though he had not adjudicated it before. To cure the constitutional error, another ALJ . . . must hold the new hearing." *Lucia*, 138 S. Ct. at 2055. *Lucia* suggests that the remedy is not to vacate and remand for the same Board judges to rubber-stamp their earlier unconstitutionally rendered decision. Like *Lucia*, we hold that a new panel of APJs must be designated to hear the *inter partes* review anew on remand. To be clear, on remand the decision to institute is not suspect; we see no constitutional infirmity in the institution decision as the statute clearly bestows such authority on the Director pursuant to 35 U.S.C. § 314. Finally, we see no error in the new panel proceeding on the existing written record but leave to the Board's sound discretion whether it should allow additional briefing or reopen the record in any individual case.

VACATED AND REMANDED

COSTS

The parties shall bear their own costs.

APPENDIX B

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2018-1831

POLARIS INNOVATIONS, LIMITED, APPELLANT

v.

KINGSTON TECHNOLOGY COMPANY, INC., APPELLEE
UNITED STATES, INTERVENOR

Decided: Jan. 31, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00116

Before REYNA, WALLACH, and HUGHES, *Circuit
Judges*.

Opinion for the court filed PER CURIAM.

Concurring opinion filed by *Circuit Judge* HUGHES, in
which *Circuit Judge* WALLACH joins.

PER CURIAM.

In its opening brief, Polaris Innovations Limited argues that the final written decision at issue in this appeal exceeds the scope of the Patent Trial and Appeal Board's authority and violates the Constitution's Appointments Clause. *See* Appellant's Br. 53 (citing U.S. Const. art. II, § 2, cl. 2). This court recently decided

this issue in *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320 (Fed. Cir. 2019). Accordingly, the Board's decision in No. IPR2017-00116 is vacated, and the case is remanded to the Board for proceedings consistent with this court's decision in *Arthrex*.

VACATED AND REMANDED

COSTS

No costs.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2018-1831

POLARIS INNOVATIONS, LIMITED, APPELLANT

v.

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UNITED STATES, INTERVENOR

Filed: Jan. 31, 2020

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in No. IPR2017-00116

HUGHES, *Circuit Judge*, concurring, in which WAL-
LACH, *Circuit Judge*, joins.

I concur because we are bound by the prior panel decision in *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320 (Fed. Cir. 2019).¹ However, I write separately to note that I disagree with the merits and question the

¹ The parties have raised the same arguments on the merits of the Appointments Clause issue in both *Polaris* cases before this panel, Nos. 2018-1768 and 2018-1831. However, the government contends that Polaris waived its Appointments Clause challenge in No. 2018-1768 because it failed to make the argument before the Board in the first instance. I need not address the waiver issue because this concurrence addresses only the merits of the Appointments Clause argument. And I address this concurrence to No. 2018-1831 because the parties agree the issue was preserved there.

remedy of the *Arthrex* panel decision. I believe that viewed in light of the Director's significant control over the activities of the Patent Trial and Appeal Board and Administrative Patent Judges, APJs are inferior officers already properly appointed by the Secretary of Commerce.

But if APJs are properly considered principal officers, I have grave doubts about the remedy *Arthrex* applied to fix their unconstitutional appointment. In the face of an unconstitutional statute, our role is to determine whether severance of the unconstitutional portion would be consistent with Congress's intent. Given the federal employment protections APJs and their predecessors have enjoyed for more than three decades, I find no legislative intent to divest APJs of their Title 5 removal protections to cure any alleged constitutional defect. Because the bar to find non-severability is so high, though, I reluctantly agree with *Arthrex*'s remedy.

I

None of the parties here or in *Arthrex* dispute that APJs are officers who exercise "significant authority pursuant to the laws of the United States." *Buckley v. Valeo*, 424 U.S. 1, 126 (1976) (per curiam). But "significant authority" marks the line between an officer and an employee, not a principal and an inferior officer. Despite being presented with the opportunity to do so, the Supreme Court has declined to "set forth an exclusive criterion for distinguishing between principal and inferior officers for Appointments Clause purposes." *Edmond v. United States*, 520 U.S. 651, 661 (1997).

Instead, the pertinent cases make clear that the hallmark of an inferior officer is whether a presidentially-

nominated and senate-confirmed principal officer “direct[s] and supervise[s] [her work] at some level.” *Id.* at 663. *Edmond* does not lay out a more exacting test than this, and we should not endeavor to create one in its stead. The cases employ an extremely context-specific inquiry, which accounts for the unique systems of direction and supervision in each case. *See infra* Section I. Finally, *Edmond* also makes clear that the Appointments Clause seeks to “preserve political accountability relative to important government assignments.” 520 U.S. at 663. The current structure for appointing, directing and supervising, and removing APJs allows such political accountability through the Director’s significant, substantive supervision of APJs’ work, and the ability to discipline and terminate APJs to promote the efficiency of the service.

Arthrex, in my view, pays insufficient attention to the significant ways in which the Director directs and supervises the work of the APJs and, instead, focuses on whether the Director can single-handedly review and reverse Board decisions, and whether APJs are removable at will. In doing so, the *Arthrex* panel essentially distills the Supreme Court’s direction and supervision test into two discrete questions: (1) are an officer’s decisions reviewable by a principal officer and (2) is the officer removable at will? Because I believe that the Supreme Court would have announced such a simple test if it were proper, I respectfully disagree with the *Arthrex* panel decision that APJs are principal officers. The Director’s power to direct and supervise the Board and individual APJs, along with the fact that APJs are already removable under the efficiency of the service standard, suffices to render APJs inferior officers.

A

The Director may issue binding policy guidance, institute and reconsider institution of an *inter partes* review, select APJs to preside over an instituted *inter partes* review, single-handedly designate or de-designate any final written decision as precedential, and convene a panel of three or more members of his choosing to consider rehearing any Board decision. The *Arthrex* panel categorized some of these as “powers of review” and others as “powers of supervision,” but I view them all as significant tools of direction and supervision.

As *Arthrex* recognized, “[t]he Director is ‘responsible for providing policy direction and management supervision’ for the [United States Patent and Trademark Office].” 941 F.3d at 1331 (quoting 35 U.S.C. § 3(a)(2)(A)). Not only can the Director promulgate regulations governing *inter partes* review procedures, but he may also prospectively issue binding policy guidance “interpreting and applying the patent and trademark laws.” Gov’t. Br. 21. APJs must apply this guidance in all subsequent *inter partes* review proceedings. Such guidance might encompass, for instance, exemplary application of the law to specific fact patterns, such as those posed in pending cases. These powers provide the Director with control over the process and substance of Board decisions. Gov’t. Br. 8, 21. And though the Director cannot directly reverse an individual Board decision that neglects to follow his guidance, APJs who do so risk discipline or removal under the efficiency of the service standard applicable under Title 5. *See infra*

Section I C. Such binding guidance, and the consequences of failing to follow it, are powerful tools for control of an inferior officer.²

The Director also has unreviewable authority to institute *inter partes* review. 35 U.S.C. § 314(a), (d). *Cf. Free Enter. Fund v. Pub. Co. Accounting Oversight Bd.*, 561 U.S. 477, 504 (2010) (discussing the importance of the ability to “start, stop, or alter individual [PCAOB] investigations,” even where the reviewing principal officer already had significant “power over [PCAOB] activities”). Though the *Arthrex* panel did not address the Director’s ability to reconsider an institution decision, our precedent also holds that the Board³ may reconsider and reverse its initial institution decision. *See, e.g., Medtronic, Inc. v. Robert Bosch Healthcare Sys., Inc.*, 839 F.3d 1382, 1385-86 (Fed. Cir. 2016) (explaining that “§ 318(a) contemplates that a proceeding can be ‘dismissed’ after it is instituted, and, as our prior cases have held, administrative agencies possess inherent authority to reconsider their decisions, subject to certain limitations, regardless of whether they possess

² To be sure, I do not mean to suggest that the Director’s extensive powers of supervision mean that he can dictate the outcome of a specific *inter partes* proceeding. Rather, his ability to issue guidance and designate precedential opinions provides the general type of supervision and control over APJs’ decision-making that renders them inferior, not principal, officers.

³ The Director’s delegation of his institution power to the Board does not diminish its existence. 37 C.F.R. § 42.4(a) (stating that “[t]he Board institutes the trial on behalf of the Director”). *See also Ethicon Endo-Surgery, Inc. v. Covidien LP*, 812 F.3d 1023, 1033 (Fed. Cir. 2016).

explicit statutory authority to do so” (internal quotation and citation omitted)).

The Director also controls which APJs will hear any given instituted *inter partes* review. 35 U.S.C. §6(c). In my view, this power of panel designation is a quintessential method of directing and controlling a subordinate. Importantly, I do not believe that in stating that the power to remove an officer at-will from federal employment is “a powerful tool for control of an inferior,” *Free Enterprise*, 561 U.S. at 510 (internal quotation omitted), the Supreme Court meant that such removal power is the only effective form of control in the context of the Appointments Clause. For example, the Judge Advocate General in *Edmond* could remove the Court of Criminal Appeal judges from judicial service without cause, but not necessarily federal employment altogether. *Edmond*, 520 U.S. at 664. *See also Free Enterprise*, 561 U.S. at 510 (relying on both at-will removal authority and “the [SEC’s] other oversight authority” in finding with “no hesitation” that the PCAOB members are inferior officers). That is akin to the Director’s authority to designate which APJs will consider a certain case. And despite acknowledging that “when a statute is silent on removal, the power of removal is presumptively incident to the power of appointment[,]” the *Arthrex* panel declined to opine on the Director’s ability to de-designate APJs from a panel under § 6(c). *Arthrex*, 941 F.3d at 1332. But *Edmond* referenced the ability to remove the judges there “from [their] judicial assignment[s],” followed by a recognition of the potent power of removal. 520 U.S. at 664. If the Director’s ability to control APJs plays a significant part in the unconstitutionality at issue, such that the remedy is to make

APJs removable at will, the panel should have definitively addressed the Director's de-designation authority. Moreover, as outlined in Section I C, *infra*, APJs already may be disciplined or removed from federal employment under the routine efficiency of the service standard, which is not incompatible with discipline or removal for failing to follow the Director's binding guidance.

And the Director may continue to provide substantial direction and supervision after the Board issues its final written decision. As *Arthrex* discusses, the Director may convene a Precedential Opinion Panel (POP), of which the Director is a member, to consider whether to designate a decision as precedential. *Arthrex*, 941 F.3d at 1330. But I read the Standard Operating Procedures more broadly, such that the Director may also make a precedential designation or de-designation decision single-handedly,⁴ thereby unilaterally establishing binding agency authority on important constitutional questions and other exceptionally important issues. Standard Operating Procedure 2, at 3-4. Indeed, it appears that the Director has done so in at least sixteen cases in 2018 and 2019. See USPTO, *Patent Trial and Appeal Board Precedential and informative decisions*, available at <https://www.uspto.gov/patents-application-process/patent->

⁴ “No decision will be designated or de-designated as precedential or informative without the approval of the Director. This SOP does not limit the authority of the Director to designate or de-designate decisions as precedential or informative, or to convene a Precedential Opinion Panel to review a matter, in his or her sole discretion without regard to the procedures set forth herein.” Patent Trial and Appeal Board, Standard Operating Procedure 2 (Revision 10) at 1 (Standard Operating Procedure 2), available at <https://www.uspto.gov/sites/default/files/documents/SOP2%20R10%20FINAL.pdf>.

trial-and-appeal-board/precedential-informative-decisions (listing decisions designated as precedential in the past year, where some are labeled as “Precedential Opinion Panel decision” and others are not). The Director may also convene a POP of his choice, of which he is by default a member, to consider whether to rehear and reverse any opinion. Standard Operating Procedure 2, at 4. And, the Director may “determine that a panel of more than three members is appropriate” and then choose those additional members as well. *Id.* Though the *Arthrex* panel recognized these powers, it dismissed them because the Director has only one vote out of at least three. 941 F.3d at 1331-32. This assessment, however, fails to recognize the practical influence the Director wields with the power to hand-pick a panel, particularly when the Director sits on that panel. The Director’s ability to unilaterally designate or de-designate a decision as precedential and to convene a POP of the size and composition of his choosing are therefore important tools for the direction and supervision of the Board even after it issues a final written decision.⁵

⁵ The *Arthrex* panel’s underestimation of the Director’s power is particularly evident in light of this court’s prior *en banc* decision in *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994), abrogated on other grounds by *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008). *Alappat* contained strong language about the ability to control the composition and size of panels. See, e.g., *id.* at 1535 (noting that “the Board is merely the highest level of the Examining Corps, and like all other members of the Examining Corps, the Board operates subject to the Commissioner’s overall ultimate authority and responsibility”). While the duties of the Board and the Director have changed since *Alappat* was decided, the authority to determine the Board’s composition for reconsideration of an examiner’s patentability determina-

Combined, all of these powers illustrate that the Director has constitutionally significant means of direction and supervision over APJs—making them inferior officers under the rule of *Edmond*.

B

Despite the Director’s significant powers of direction and supervision, the *Arthrex* panel concluded that APJs are principal officers in large part because no principal officer may “single-handedly review, nullify or reverse” the Board’s decisions. *Arthrex*, 941 F.3d at 1329. But Supreme Court precedent does not require such power. And in the cases in which the Court emphasized a principal officer’s power of review, that principal officer had less authority to direct and supervise an inferior officer’s work ex ante than the Director has here.

In *Edmond*, for instance, the Court of Appeals for the Armed Forces, an Article I court, could review decisions of the Court of Criminal Appeals judges at issue. However, its scope of review was limited. *Edmond*, 520 U.S. at 665 (explaining that the Court of Appeals for the Armed Forces may only reevaluate the facts when there is no “competent evidence in the record to establish each element of the offense beyond a reasonable doubt”).

tion mirrors the current authority with respect to *inter partes* review. Compare 35 U.S.C. § 6(c) (2012) (giving the Director authority to designate “at least 3 members of the Patent Trial and Appeal Board” to review “[e]ach appeal, derivation proceeding, post-grant review, and *inter partes* review”), with 35 U.S.C. § 7(b) (1988) (giving the Commissioner power to designate “at least three members of the Board of Appeals and Interferences” to review “adverse decisions of examiners upon applications for patents”). Therefore, I believe the panel should have at least discussed how *Alappat*’s view of the power to control the Board might impact the Appointments Clause analysis.

And while the Judge Advocate General “exercise[d] administrative oversight” and could “prescribe uniform rules of procedure,” he could “not attempt to influence (by threat of removal or otherwise) the outcome of individual proceedings.” *Id.* at 664. Nonetheless, the Supreme Court found that the Court of Criminal Appeals judges were inferior, not principal, officers. In comparison, while the Director may not unilaterally decide to rehear or reverse a Board decision, he has many powers to direct and supervise APJs both *ex ante* and *ex post*, Section I A, *supra*, that no principal officer had in *Edmond*.

Similarly, in *Freytag v. Comm'r*, 501 U.S. 868 (1991), the Supreme Court considered the status of special trial judges appointed by the Tax Court, whose independent decision-making varied based on the type of case before them. The Court held that the special trial judges were inferior officers—not employees—when presiding over “declaratory judgment proceedings and limited-amount tax cases” because they “render[ed] the decisions of the Tax Court” in those cases. *Id.* at 882. In doing so, the Court distinguished between cases in which the special trial judges acted as “inferior officers who exercise independent authority,” and cases in which they still had significant discretion but less independent authority. *Id.* The Court’s analysis distinguished between inferior officer and employee; nowhere did the Court suggest that special trial judges’ “independent authority” to decide declaratory judgment proceedings and limited-amount cases rendered them principal officers. *See id.* at 881-82. Most recently, the Court applied the framework of *Freytag* in deciding whether administrative law

judges (ALJs) of the Securities and Exchange Commission (SEC) are inferior officers or employees. *Lucia v. S.E.C.*, 138 S. Ct. 2044, 2053 (2018). The Court reasoned that SEC ALJs and *Freytag*'s special trial judges are extremely similar, but SEC ALJs arguably wield more power because their decisions become final if the SEC declines review. *Id.* at 2053-54. But again, the Court found this structure still only rendered SEC ALJs officers, not employees. *Id.* at 2054. No mention was made of SEC ALJs being principal officers.⁶ *See id.* at 2051 n.3 (explaining that the distinction between principal and inferior officers was "not at issue here"). Just as the special trial judges in *Freytag* and the SEC ALJs in *Lucia* were inferior officers, so too are APJs.

Nor does this court's precedent require unfettered review as a marker of inferior officer status. In *Masias v. Sec'y of Health & Human Servs.*, we rebuffed the argument that because the Court of Federal Claims does not review decisions of the Vaccine Program's special masters de novo, the special masters are principal officers. 634 F.3d 1283, 1293-94 (Fed. Cir. 2011). There, we recognized that the Court of Federal Claims may only "set aside any findings of fact or conclusions of law of the special master found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. . . ." *Id.* at 1294. This limited review

⁶ In fact, the Court declined "to elaborate on *Buckley*'s 'significant authority' test" marking the line between officer and employee, citing two parties' briefs which argued that the test between officer and employee, not principal and inferior officer, should include some measure of the finality of decision making. *Lucia*, 138 S. Ct. at 2051-52.

means that many of the special masters' decisions are effectively final because the Court of Federal Claims has no basis to set aside findings of fact or conclusions of law. We reasoned that such limited review of special masters' decisions by the Court of Federal Claims resembled the review in *Edmond*, and that "the fact that the review is limited does not mandate that special masters are necessarily 'principal officers.'" *Id.* at 1295.

Finally, the panel analogized the *Arthrex* issue to the one addressed by the D.C. Circuit in *Intercollegiate Broad. Sys., Inc. v. Copyright Royalty Bd.*, 684 F.3d 1332 (D.C. Cir. 2012). See *Arthrex*, 941 F.3d at 1334. But the facts of *Intercollegiate* are significantly different than those in *Arthrex*, or here. The Librarian of Congress—the principal officer who supervises the Copyright Royalty Judges (CRJs) at issue—was much more constrained in her ability to direct and supervise the CRJs than the Director. The governing statute grants CRJs broad discretion over rate-making. See 17 U.S.C. § 802(f)(1)(A)(i) (stating that "[CRJs] shall have full independence in making" numerous copyright rate-related decisions). The Librarian "approv[es] the CRJs' procedural regulations, . . . issu[es] ethical rules for the CRJs, [and] . . . oversee[s] various logistical aspects of their duties," such as publishing CRJs' decisions and providing administrative resources. *Intercollegiate*, 684 F.3d at 1338. In fact, it appears the only way the Librarian can exercise substantive control over the CRJs' ratemaking decisions is indirectly through the Register of Copyrights, whom she, not the President, appoints. See 17 U.S.C. § 701(a). The Register corrects any legal errors in the CRJs' ratemaking decisions, 17 U.S.C. § 802(f)(1)(D), and provides

written opinions to the CRJs on “novel question[s] of law,” 17 U.S.C. § 802(f)(1)(B), or when the CRJ requests such an opinion. 17 U.S.C. § 802(f)(1)(A)(ii). But the CRJs may not consult with the Register about a question of fact. 17 U.S.C. § 802(f)(1)(A)(i). The Librarian therefore exerts far less control over CRJs than the Director can over APJs using all the powers of direction and supervision discussed in Section I A, *supra*.

The ill-suited comparison to *Intercollegiate* in *Arthrex* again highlights how the unique powers of direction and supervision in each case should be viewed in totality, rather than as discrete categories weighing in favor of inferior officer status or not. In particular, by breaking up the analysis into three discrete categories —Review, Supervision, and Removal—the *Arthrex* panel overlooks how the powers in each category impact each other. Again, for example, whereas *ex post* the Court of Appeals for the Armed Forces has more power to review the Court of Criminal Appeals judges’ decisions than the Director has to review a Board decision, neither the JAG nor the Court of Appeals for the Armed Forces have the Director’s *ex ante* control, such as the power to decide whether to hear a case at all or to issue binding guidance on how to apply the law in a case. Viewed through this integrated lens, I believe APJs comfortably fit with prior Supreme Court precedent that has never found a principal officer in a challenged position to date.

C

Finally, to the extent that the *Arthrex* panel decision is based on the lack of review along with perceived impermissible restrictions on removal of APJs, I believe it misapprehends the applicable efficiency of the service

standard that protects APJs. The efficiency of the service standard allows discipline and removal for “misconduct [that] is likely to have an adverse impact on the agency’s performance of its functions.” *See Brown v. Dep’t of the Navy*, 229 F.3d 1356, 1358 (Fed. Cir. 2000). To be sure, the efficiency of the service standard does not allow discipline or removal of APJs “without cause,” as in *Edmond*. *See Arthrex*, 941 F.3d at 1333. But neither the Supreme Court nor this court has required that a civil servant be removable at will to qualify as an inferior officer. To the contrary, the Supreme Court and this court have upheld for-cause removal limitations on inferior officers. *See, e.g., Morrison v. Olson*, 487 U.S. 654, 692-93 (1988) (holding that the “good cause” restriction on removal of the independent counsel, an inferior officer, is permissible); *Masias*, 634 F.3d at 1294 (stating that the Court of Federal Claims can remove special masters for “incompetency, misconduct, or neglect of duty or for physical or mental disability or for other good cause shown”). *See also Free Enterprise*, 561 U.S. at 494 (explaining that the Court previously “adopted verbatim the reasoning of the Court of Claims, which had held that when Congress “vests the appointment of inferior officers in the heads of Departments[,] it may limit and restrict the power of removal as it deems best for the public interest” (alteration in original) (quoting *United States v. Perkins*, 116 U.S. 483, 485 (1886) (itself quoting *Perkins v. United States*, 20 Ct. Cl. 438, 444 (1885)))).

The efficiency of the service standard allows supervisors to discipline and terminate employees for arguably even a wider range of reasons than the standards above,

including failure or refusal to follow the Director's policy or legal guidance. Together with the significant authority the Director wields in directing and supervising APJs' work, the ability to remove an APJ on any grounds that promote the efficiency of the service supports finding that APJs are inferior officers.

II

Assuming for the sake of argument that APJs are principal officers, a remedy is required to cure the constitutional violation arising from their present appointment scheme. However, I do not believe that the remedy proposed by the *Arthrex* panel comports with congressional intent as evidenced by the employment protections provided to APJs and their predecessors for over thirty years. The *Arthrex* panel makes APJs removable at will by partially severing 35 U.S.C. § 3(c) as it applies Title 5's removal protections to APJs. *Arthrex*, 941 F.3d at 1337-38. I question whether Congress would have wanted to leave APJs without the removal protections of Title 5. But, given the high standard for finding non-severability, I cannot say that the *Arthrex* panel's remedy was improper.

A

Before proceeding to the traditional severance analysis, I must note several concerns about the panel's purported "severance." In traditional severance cases, both the unconstitutional language being severed and the remaining language are usually part of one statute enacted at the same time. In what appears to be a smaller number of cases, an unconstitutional amendment was severed from the original statute. *E.g., Reitz v. Mealey*, 314 U.S. 33, 38-39 (1941), *overruled in part*

on other grounds by *Perez v. Campbell*, 402 U.S. 637 (1971). But here the “severance” is far more convoluted —to the extent that I question whether “severance” is even the appropriate characterization of the *Arthrex* remedy.

A court may sever the application of a particular statute without striking language explicitly. *See, e.g., Nat'l Fed'n of Indep. Bus. v. Sebelius*, 567 U.S. 519, 586 (2012) (invalidating the application of a statute to cure a constitutional defect). But the *Arthrex* panel did not simply sever the application of 35 U.S.C. § 3(c) to APJs. It severed § 3(c)'s application of Title 5 protections, but only with respect to Title 5's removal protections, and only to APJs. *See Arthrex*, 941 F.3d at 1337-38. In doing so, it severed the application of a separate statute, indeed, a section in a separate title of the United States Code. *Id.* Further, the Title 5 employment protections afforded by 35 U.S.C. § 3(c) already existed when Congress significantly amended other portions of Title 35, but made no changes to § 3(c), with the America Invents Act in 2011. *See infra* Section II C. I question whether it is appropriate to solve the alleged constitutional infirmity at issue in *Arthrex* and in this case by severing the application of a statute that Congress left untouched in its most recent revision, the substance of which had applied in various forms for over 30 years. *See infra* Section II B.

B

When faced with an unconstitutional statute, we must determine whether severing the offending portion is possible. To do so, we must determine if the remaining

statute “will function in a manner consistent with the intent of Congress.” *Alaska Airlines, Inc. v. Brock*, 480 U.S. 678, 685 (1987) (emphasis removed).

The question of severability is a weighty one and the bar for finding an unconstitutional provision non-severable is high. We “must refrain from invalidating more of the statute than is necessary. Indeed, we must retain those portions of the Act that are (1) constitutionally valid, (2) capable of ‘functioning independently,’ and (3) consistent with Congress’ basic objectives in enacting the statute.” *United States v. Booker*, 543 U.S. 220, 258-59, (2005) (internal citations omitted).

Because the statute as severed by *Arthrex* can function independently and is constitutionally valid, the key question is whether the statute as excised “remains consistent with Congress’ initial and basic . . . intent.” *Id.* at 264. Here, I question whether the *Arthrex*-excised statute does so. Congress afforded federal employment protections to APJs and their predecessors for over thirty years. And it seems unlikely to me that Congress, faced with this Appointments Clause problem, would have chosen to strip APJs of their employment protections, rather than choose some other alternative. However, because the bar for non-severability is so high, and Congress can, at the end of the day, make another legislative choice if it disagrees with the outcome here, I reluctantly conclude that § 3(c) can be severed as it applies to the removal protections for APJs.

To be sure, I do not question the ability to sever an unconstitutional provision lightly. But our touchstone must remain the intent of Congress, and in this case, Congress has maintained federal employment protections for USPTO officers and employees, including APJs

and their predecessors, from 1975 to today. This long-standing statutory protection leads me to believe that Congress intended for APJs to have removal protections, such as those incorporated through Title 5 in 35 U.S.C. § 3(c), regardless of changes made to the Board’s duties in the AIA.

C

As the *Arthrex* panel noted, examiners-in-chief—“the former title of the current APJs”—were in fact nominated by the President and confirmed by the Senate until 1975. *Arthrex*, 941 F.3d at 1344. *See also* 35 U.S.C. § 3 (1952). But the 1975 amendment did not simply remove Presidential nomination and Senate confirmation; it instead provided for the appointment of examiners-in-chief (1) by the Secretary of Commerce (2) “under the classified civil service.” An Act To Amend Title 35, United States Code, “Patents”, and For Other Purposes, Pub. L. No. 93-601, secs. 1-2, §§ 3, 7, 88 Stat. 1956, 1956 (1975) (codified as amended at 35 U.S.C. §§ 3, 7 (1976)). This amendment provided federal employment protections to examiners-in-chief. *See, e.g., Arnett v. Kennedy*, 416 U.S. 134, 150-51 (1974), *overruled in part on other grounds by Cleveland Bd. of Educ. v. Loudermill*, 470 U.S. 532 (1985) (explaining that the Lloyd-LaFollette Act’s “efficiency of the service” standard governed the dismissal of a competitive civil service employee); *Cole v. Young*, 351 U.S. 536, 543 (1956) (describing dismissal of federal employees as governed by “general personnel laws,” such as the Lloyd-LaFollette Act’s “efficiency of the service” standard).

Two reasons for this change appear in the legislative history. First, due to the growing number of examiners-

in-chief, Presidential nomination and Senate confirmation posed a “burden.” H.R. REP. No. 93-856, at 2 (1974). In an early case discussing the Appointments Clause, the Supreme Court said that this was exactly the reason for providing for appointment of inferior officers by people other than the President. *United States v. Germaine*, 99 U.S. 508, 509-10 (1878). Second, the position of examiner-in-chief “requir[es] unique legal and technical qualifications and experience.” An Act To Amend Title 35, United States Code, “Patents”, and For Other Purposes: Hearing on S. 645, H.R. 5237, S. 1253 and S. 1254 Before Subcomm. No. 3 of the H. Comm. on the Judiciary, 92d Cong. 28-29 (1974) (letter from William N. Letson, Acting General Counsel of the Dep’t of Commerce, to Emanuel Celler, Chairman of the H. Comm. on the Judiciary). In making this change, Congress implicitly recognized that APJs belonged in the civil service, where expertise and nonpartisan decision-making are expected of all civil servants. Indeed, such ideas motivated the passage of the Civil Service Reform Act (CSRA) only three years after Congress provided for the appointment of APJs through the civil service system. *Lovshin v. Dep’t of Navy*, 767 F.2d 826, 832 (Fed. Cir. 1985) (citing the Senate’s discussion of the public’s right to a government that is both “efficient and effective” and “impartially administered”).

Congress then maintained these federal employment protections through several amendments over more than three decades. In 1985, Congress amended 35 U.S.C. § 7, creating the Board of Patent Appeals and Interferences (BPAI) from the existing Board of Appeals, and again provided that the examiners-in-chief “shall be

appointed to the competitive service.”⁷ Patent Law Amendment Acts of 1984, Pub. L. 98-622, title II, sec. 201, § 7(a), 98 Stat. 3383, 3386 (1984) (codified as amended at 35 U.S.C. § 7 (1988)). Though the 1978 CSRA replaced the Lloyd-LaFollette Act between the 1975 and 1985 amendments to 35 U.S.C. § 7, the CSRA maintained the “efficiency of the service” standard for discipline and dismissal of federal employees in the competitive service. 5 U.S.C. § 7513 (1978). See also *Cornelius v. Nutt*, 472 U.S. 648, 669 (1985) (“The statutory phrase ‘such cause as will promote the efficiency of the service’ pre-dates the Civil Service Reform Act’s recognition of federal sector collective bargaining.”) (Marshall, J., dissenting).

In 1999, Congress made four changes significant here. First, Congress modified the statutory language governing the BPAI, moving the Board’s governing language from § 7 to its current location in § 6. See Patent and Trademark Office Efficiency Act, Pub. L. 106-113, ch. 1, sec. 4717, 113 Stat. 1501, 1501A-580 (1999) (codified at 35 U.S.C. § 6 (2000)). Second, it introduced the terminology of administrative patent judge, in place of examiners-in-chief. *Id.* at 1501A-580-81. Third, Congress removed the previous language appointing examiners-in-chief under the competitive service, but added the current § 3(c), giving Title 5 protections to USPTO employees and officers. *Id.* at sec. 4713, § 3(c), 113 Stat. at 1501A-577 (codified as amended at 35 U.S.C.

⁷ For the Appointments Clause analysis here, I treat the terms “competitive service” and “classified civil service” as interchangeable. See, e.g., 5 U.S.C. § 2102(c) (2018) (“As used in other Acts of Congress, ‘classified civil service’ or ‘classified service’ means the ‘competitive service[.]’”).

§ 3(c) (2000)). This meant that even though their title changed, APJs remained subject to discipline or dismissal subject to the efficiency of the service standard. *See* 5 U.S.C. § 7513 (2000). Fourth, the amendment transferred the power to appoint APJs from the Secretary of Commerce to the Director. Patent and Trademark Office Efficiency Act, Pub. L. 106-113, ch. 1, sec. 4717, 113 Stat. 1501, 1501A-581 (1999) (codified at 35 U.S.C. § 6(a) (2000)).

This fourth change is particularly significant because only a few years later, Congress explicitly considered the constitutionality of this choice—whether APJs were employees that could be appointed by the Director or officers that must be appointed by the Secretary of Commerce. Congress chose the latter. Consideration of this issue was prompted by an intellectual property law scholar’s suggestion in 2007 that APJs were inferior officers, not employees, and therefore must be appointed by the President, a Court of Law, or the Head of a Department. *See* John F. Duffy, *Are Administrative Patent Judges Unconstitutional?*, 2007 PATENTLY-O PAT. L.J. 21, 25 (2007). Congress responded swiftly, amending the law in 2008 to give the power to appoint APJs back to the Secretary of Commerce. Patent and Trademark Administrative Judges Appointment Authority Revision, Pub. L. 110-313, sec. 1, § 6, 122 Stat. 3014, 3014 (2008) (codified as amended at 35 U.S.C. § 6(a) (2012)). While some legislators viewed the fix as unnecessary, none suggested that APJs were in fact principal officers appointable only by the President. *Compare* 154 Cong. Rec. H7234 (daily ed. Jul. 29, 2008 edition) (statement of Rep. King) (“[A] straightforward reading of article II, section 2, which I strongly endorse,

suggests the 1999 authority that Congress bestowed on the Patent and Trademark Office Director to appoint administrative law judges is unconstitutional, inconsistent with article II, section 2. Instead, this right is more properly reserved for . . . the Secretary of Commerce. . . .”), *with id.* (statement of Rep. Cohen) (“We firmly believe that appointments made by the Director are constitutional.”). That Congress explicitly considered the constitutionality of APJ appointments just four years before passing the AIA, and confirmed their appointment by the Head of a Department, strongly suggests that Congress believed APJs were inferior officers in 2000, 2007, and 2011, and thus, could be constitutionally appointed by the Secretary, even with restrictions on their removal.

Finally, though Congress made significant changes to Title 35 through the AIA, it did not modify § 3(c)’s application of Title 5 protections to USPTO employees and officers.⁸ 35 U.S.C. § 3(c) (2012). Yet again, APJs remained subject to the efficiency of the service removal standard applicable to many federal employees.

Further confirmation regarding Congressional intent comes from the fact that § 3 provides specific, and limited, removal procedures for the Director and the Commissioner for Patents, as opposed to all other officers and employees subject to § 3(c). The Director may be removed only by the President. 35 U.S.C. § 3(a)(4). The Commissioner may be removed “for misconduct or

⁸ The AIA did amend 35 U.S.C. § 3(b), *see* Leahy-Smith America Invents Act, Pub. L. 112-29, sec. 21, § 3(b), 125 Stat. 284, 336 (2011) (governing the Director’s ability to fix pay for APJs), and 35 U.S.C. § 3(e)(2), *id.* at sec. 20 § 3(e)(2), 125 Stat. at 334 (technical amendment changing “this Act” to “that Act”).

nonsatisfactory performance” under her performance agreement, “without regard to the provisions of title 5.” 35 U.S.C. § 3(b)(2)(C). That Congress described specific removal procedures for these two positions strongly implies it intended that all other USPTO employees and officers enjoy the Title 5 protections provided in § 3(c).

Given this unbroken line of federal employment protection afforded to APJs and their predecessors for over three decades, I question whether severing § 3(c)’s Title 5 removal protections for APJs “remains consistent with Congress’ initial and basic . . . intent.” *Booker*, 543 U.S. at 264. My concerns are not alleviated by the *Arthrex* panel’s focus on Congress’s intent as it pertained to the importance of *inter partes* review, without considering why Congress chose to provide Title 5 employment protections to APJs for decades. See *Arthrex*, 941 F.3d at 1337-38.

D

Finally, I am mindful of the Supreme Court’s guidance that:

Our ability to devise a judicial remedy that does not entail quintessentially legislative work often depends on how clearly we have already articulated the background constitutional rules at issue and how easily we can articulate the remedy. . . . But making distinctions in a murky constitutional context, or where line-drawing is inherently complex, may call for a ‘far more serious invasion of the legislative domain’ than we ought to undertake.

Ayotte v. Planned Parenthood of N. New England, 546 U.S. 320, 329-30 (2006) (quoting *United States v. Nat'l*

Treasury Emps. Union, 513 U.S. 454, 479 n.26 (1995)). Given the limited extent of Appointments Clause jurisprudence and Congress's repeated decisions to provide federal employment protections to APJs for decades, I am particularly concerned that *Arthrex*'s remedy constitutes an unwise invasion of the legislative domain.

I recognize that the *Arthrex* panel considered several potential fixes and chose the one it viewed both as constitutional and minimally disruptive. But removing long-standing employment protections from hundreds of APJs is quite disruptive. Given no clear evidence that Congress would have intended such a drastic change, I would defer to Congress to fix the problem. This is a legislative problem best left to a legislative solution. Congress faces fewer constraints than we do in fixing an unconstitutional statute. For example, Congress might choose to: grant the Director unilateral review over all Board decisions; make the Chief PTAB Judge a presidential appointee and grant her review of all Board decisions; provide for review of Board decisions by a panel of three Presidential appointees at the USPTO (having created at least two such positions in addition to the Director); or provide for presidential appointment of all APJs.

In sum, I believe the Director currently exercises sufficient oversight and supervision of APJs to render them inferior officers under the Appointments Clause. But if APJs must be viewed as principal officers, I question curing the ensuing constitutional violation by removing their Title 5 removal protections because I believe it conflicts with Congress's intent.

APPENDIX C

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case IPR2017-00275
Patent 9,179,907 B2

SMITH & NEPHEW, INC. AND ARTHROCARE CORP.,
PETITIONERS

v.

ARTHREX, INC., PATENT OWNER

Entered: May 10, 2017

DECISION

Granting Institution of *Inter Partes* Review
37 C.F.R. § 42.108

Before WILLIAM V. SAINDON, BARRY L. GROSSMAN, and
TIMOTHY J. GOODSON, *Administrative Patent Judges*.

GOODSON, *Administrative Patent Judge*.

I. INTRODUCTION

Petitioners filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1, 4, 8, 10-12, 15, 16, 18, 25-28, and 30 of U.S. Patent No. 9,179,907 B2 (Ex. 1001, “the ’907 patent”). Patent Owner filed a Preliminary Response to the Petition. Paper 6 (“Prelim. Resp.”).

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” We decide whether to institute an *inter partes* review on behalf of the Director. Upon consideration of the Petition and Patent Owner’s Preliminary Response, we institute an *inter partes* review on claims 1, 4, 8, 10-12, 16, 18, and 25-28 of the ’907 patent.

Our factual findings and conclusions at this stage of the proceeding are preliminary, and based on the evidentiary record developed thus far. This is not a final decision as to the patentability of claims for which *inter partes* review is instituted. Our final decision will be based on the record as fully developed during trial.

A. Related Matters

Patent Owner is asserting the ’907 patent against Petitioners in a civil action in the U.S. District Court for the Eastern District of Texas, *Arthrex, Inc. v. Smith & Nephew, Inc.*, Consolidated Civil Action Nos. 2:15-cv-01047 and 2:15-cv-01756. Pet. 7-8; Paper 3, 1.¹

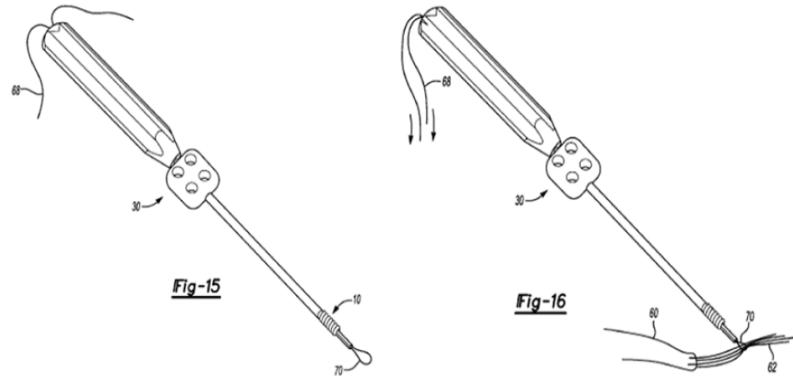
B. The ’907 Patent

The ’907 patent describes a knotless suture securing assembly. Ex. 1001, at [54], [57]. The Background

¹ Petitioners assert, and Patent Owner does not dispute, that Petitioners were first served with a complaint alleging infringement of the ’907 patent on November 20, 2015, which is less than a year before they filed the Petition in this proceeding. Pet. 8 n.4 (citing Ex. 1021).

explains that suture anchors are one type of fixation device that can be used for reattaching soft tissue that has become detached from bone. *Id.* at 1:20-33. A drawback of prior art suture anchors, however, is that a surgeon is “generally require[d] . . . to tie knots in the suture to secure the tissue to the bone, which is tedious and time-consuming.” *Id.* at 1:33-36. The Summary section states that the disclosed embodiments “are useful for securing soft tissue to bone with excellent pullout strength without requiring a surgeon to tie suture knots to secure the suture in place or to secure the tissue to the bone.” *Id.* at 1:43-46.

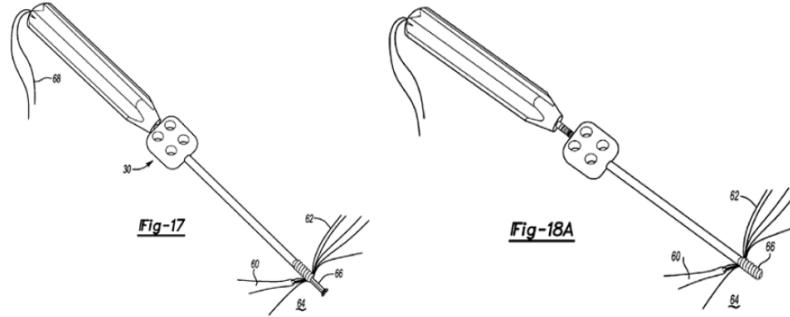
Figures 15 and 16 of the '907 patent are reproduced below:



In the embodiment shown in Figures 15 and 16, driver 30 is pre-loaded with screw 10, and traction suture 68 is passed into the cannula of driver 30 until looped end 70 is exposed at the distal end. *Id.* at 5:48-53. Sutures 62, which are attached to graft 60, are passed through traction suture loop 70. *Id.* at 5:53-55. By drawing on

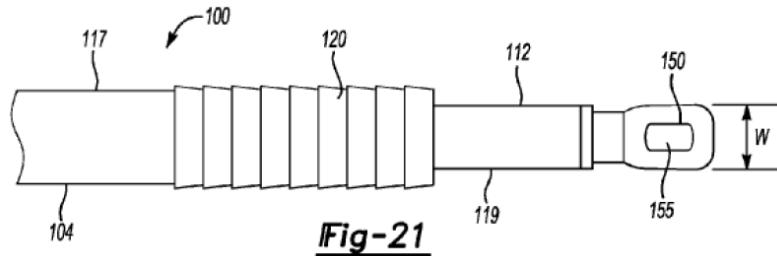
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traction suture 68, suture loop 70 is tightened and tension is applied to graft sutures 62. *Id.* at 5:62-64. Driver 30 is positioned such that screw 10 engages bone 64 at the edge of hole 66, as shown in Figure 17, reproduced below:



Rotating driver 30 causes screw 10 to be inserted into hole 66 until fully installed, as shown in Figure 18A, reproduced above. *Id.* at 6:8-13. In that position, “sutures 62 or the graft 60 [is] pinned and/or wound between the base and sidewall of socket 66 and interference screw 10.” *Id.* at 6:13-15. Driver 30 can then be removed. *Id.* at 6:18-19.

Figure 21, reproduced below, shows another embodiment, which includes driver 100, interference device 120, and eyelet implant 150. *Id.* at 6:47-55, 7:4-5.



As shown in Figure 21, eyelet implant 150 includes “aperture 155 for receiving a suture attached to a graft to pass through the eyelet implant 150.” *Id.* at 7:12-14. Interference device 120 can be a screw or an interference plug, and is “preferably formed of a bioabsorbable material such as PLLA.” *Id.* at 6:55-57. “[E]yelet implant 150 is made of a material similar to that of the interference device 120.” *Id.* at 7:10-12. Figures 24, 25, and 27 are reproduced below:

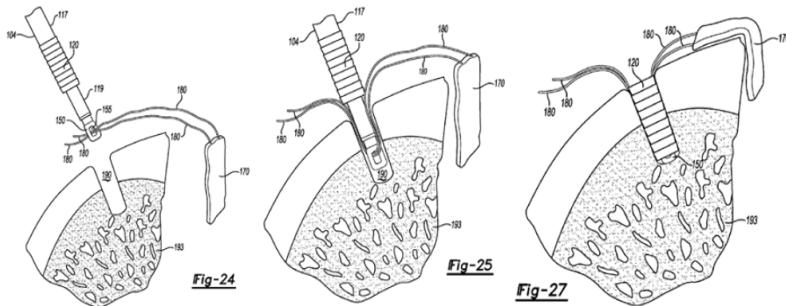


Figure 24 depicts suture 180, which is attached to graft 170, passing through aperture 155. *Id.* at 7:44-49. Implant 150 is then inserted into bone socket 190, as shown in Figure 25. *Id.* at 7:50-53. As can be seen in Figure 27, “interference device 120 is then impacted into the pilot hole 190 so that the interference device 120 advances toward the distal end 112 of driver 100 and securely engages and locks in the eyelet implant 150 with the sutures 180.” *Id.* at 7:59-63. The driver is removed and the suture ends are clipped, “leaving the graft 170 securely fastened to bone 193.” *Id.* at 7:64-67.

C. Challenged Claims

The Petition challenges claims 1, 4, 8, 10-12, 15, 16, 18, 25-28, and 30. Of these, claims 1 and 16 are independent. After the Petition was filed, Patent Owner disclaimed claims 15 and 30. See Ex. 2001; Prelim. Resp. 20 n.6, 65. Claim 1 is reproduced below, with italics emphasizing the language on which the parties' dispute focuses:

1. A suture securing assembly, comprising:
 - an inserter including a distal end, a proximal end, and a longitudinal axis between the distal end and the proximal end;
 - a first member including an eyelet* oriented to thread suture across the longitudinal axis, the first member being situated near the distal end of the inserter, the first member being configured to be placed in bone; and
 - a second member situated near the distal end of the inserter, the second member being moveable by a portion of the inserter relative to the first member in the distal direction toward the eyelet into a suture securing position where the second member locks suture in place.

Ex. 1001, 10:21-34 (emphasis added).

D. Cited References

The Petition relies on the following references:

ElAttrache US 2002/0013608 A1 Jan. 31, 2002 Ex. 1010
 Martinek WO 02/21999 A2 Mar. 21, 2002 Ex. 1011

E. Alleged Grounds of Unpatentability

Petitioners assert the following grounds of unpatentability:

Reference	Basis	Claims Challenged
ElAttrache	§ 102	1, 4, 8, 10-12, 16, 18, and 25-28
Martinek	§ 102	1, 15, 16, and 30

Petitioners also rely on the declaration of David R. McAllister, M.D. (Ex. 1019).

II. ANALYSIS

A. Claim Construction

We interpret the claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 2131, 2144-46 (2016). Under that standard, a claim term generally is given its ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. See *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Petitioners argue that “[l]ittle construction is needed here” because the reference on which Petitioners rely for most of its challenges has substantial overlap with the disclosure of the ’907 patent. Pet. 17. Similarly, Patent Owner

argues that for purposes of this Decision, “the Board does not need to resolve any claim interpretation issues.” Prelim. Resp. 18. Based on the current record, resolution of the disputed issues at this stage of the proceeding does not require an express interpretation of any claim term. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

B. Statutory Disclaimer of Claims 15 and 30

Claims 15 and 30 are among the claims that the Petition challenges as being anticipated by Martinek. *See* Pet. 59. On February 28, 2017, the same day Patent Owner filed its Preliminary Response, Patent Owner filed a Disclaimer Under 37 C.F.R. § 1.321(a) that disclaimed claims 15 and 30. *See* Ex. 2001; Prelim. Resp. 20 n.6, 65. Our rule pertaining to preliminary responses in *inter partes* review proceedings provides that “[t]he patent owner may file a statutory disclaimer under 35 U.S.C. 253(a) in compliance with § 1.321(a) of this chapter, disclaiming one or more claims in the patent. No *inter partes* review will be instituted based on disclaimed claims.” 37 C.F.R. § 42.107(e). Accordingly, we do not institute an *inter partes* review based on claims 15 or 30, and our decision on institution is “based solely on the remaining claims” that are challenged in the Petition. Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,764-65 (Aug. 14, 2012). For convenience, our references to the “challenged claims” in the remainder of this Decision refer only to claims 1, 4, 8, 10-12, 16, and 25-28 and do not include disclaimed claims 15 and 30.

C. Anticipation Ground Based on ElAttrache

Petitioners argue that claims 1, 4, 8, 10-12, 16, 18, and 25-28 are anticipated by ElAttrache. Pet. 45-59.

ElAttrache is the published version of one of the applications to which the '907 patent claims priority. Ex. 1010, at [21]; Ex. 1001, 1:13-14; Pet. 46; Prelim. Resp. 62. Whether ElAttrache qualifies as prior art to the challenged claims is discussed in Section II.E. below. ElAttrache describes a knotless suture anchor. Ex. 1010 ¶¶ 6-7. Figures 14-19 and the accompanying disclosure in ElAttrache are similar, if not identical, to the figures and description of the suture loop embodiment of the '907 patent, summarized above. *Compare* Ex. 1010 ¶¶ 45-48 *with* Ex. 1001, 5:35-6:22.

Petitioners argue that ElAttrache discloses every limitation of the challenged claims. For example, with respect to claim 1, Petitioners assert that ElAttrache's driver 30 corresponds to the "inserter," ElAttrache's traction suture 68 and suture loop 70 corresponds to the "first member," and ElAttrache's screw 10 corresponds to the "second member." Pet. 47-49. Petitioners also provide a detailed explanation of how ElAttrache discloses the limitations of the other challenged claims. *Id.* at 50-59.

In the Preliminary Response, Patent Owner disputes that ElAttrache qualifies as prior art, but does not challenge Petitioners' contention that ElAttrache discloses the subject matter of the challenged claims. Prelim. Resp. 62.

For purposes of this Decision, Petitioners have adequately explained how ElAttrache discloses each limita-

tion of claims 1, 4, 8, 10-12, 16, 18, and 25-28. As discussed in Section II.E. below, we also determine that Petitioners have made a sufficient threshold showing that ElAttrache qualifies as prior art to the challenged claims. It is not inconsistent for Petitioners to maintain, in their arguments regarding priority, that the application that published as ElAttrache fails to provide sufficient written description support under § 112 for the challenged claims while also arguing that ElAttrache discloses each limitation of the challenged claims under § 102. *See* Pet. 46 (arguing that ElAttrache does not support the challenged claims but that it does disclose the flexible loop species, which anticipates the claims). This is because “the description of a single embodiment of broadly claimed subject matter constitutes a description of the invention for anticipation purposes . . . , whereas the same information in a specification might not alone be enough to provide a description of that invention for purposes of adequate disclosure.” *In re Lukach*, 442 F.2d 967, 970 (CCPA 1971). Based on the current record, Petitioners have demonstrated a reasonable likelihood that they will prevail in showing that claims 1, 4, 8, 10-12, 16, 18, and 25-28 are anticipated by ElAttrache.

D. Anticipation by Martinek

Petitioners argue that claims 1 and 16 are anticipated by Martinek. Pet. 59-65.

Martinek describes a knotless suture anchor. Ex. 1011, 2. Figure 8 of Martinek is reproduced below:

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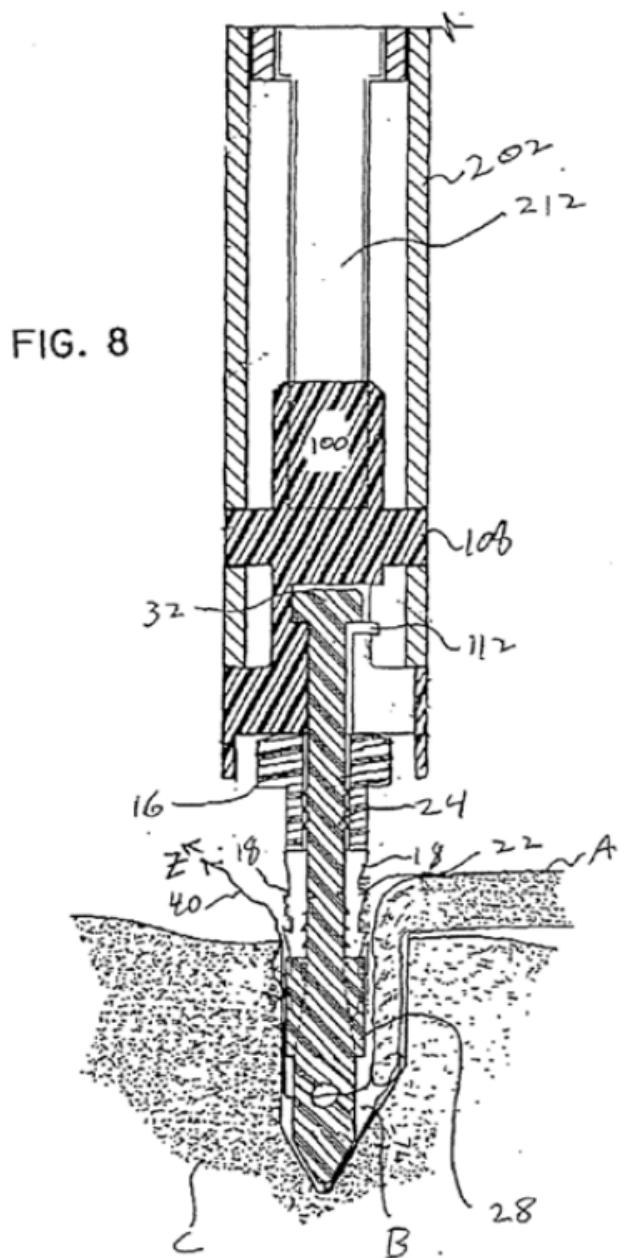


Figure 8 depicts a cross-sectional view of implantation apparatus 200 positioned in bore B drilled in shoulder bone C, with tissue section A secured to setting pin 24. *Id.* at 6, 12. Once in position, apparatus 200 is actuated, driving expandable member 12 distally and causing the distal ends of legs 18 to be driven radially outward by setting pin 24. *Id.* at 12-13. “As legs 18 are driven radially outward, barbs 22 engage and secure a portion of suture 40 against the bone C within bore B.” *Id.* at 13.

Petitioners contend that Martinek discloses every limitation of claims 1 and 16. Specifically, Petitioners argue that Martinek’s implantation apparatus 200 corresponds to the “inserter” of claim 1 and the “driver” of claim 16. Pet. 62, 64. Petitioners correlate Martinek’s setting pin 24 to the “first member” of claims 1 and 16, and Martinek’s expandable body 12 to the “second member” of claims 1 and 16. *Id.* at 62-64.

Patent Owner’s Preliminary Response does not identify any limitation in claims 1 or 16 that is not disclosed in Martinek. Instead, Patent Owner argues that Martinek is not prior art, and that we should exercise our discretion to decline to institute on this ground under 35 U.S.C. § 325(d) because Martinek was overcome during prosecution when Patent Owner argued that Martinek is not prior art. Prelim. Resp. 62-64. As discussed in Section II.E. below, Petitioners have made a sufficient threshold showing that Martinek qualifies as prior art to claims 1 and 16.

We also do not deem it appropriate to deny institution under § 325(d) in the circumstances of this case. The prosecution history indicates that after the Exam-

iner rejected the claims as anticipated by Martinek, Patent Owner conducted a telephonic interview with the Examiner and filed a Response in which it argued that Martinek is not prior art because “Applicant’s filing date is earlier [than the earliest filing date of the Martinek reference]. This application claims the benefit of U.S. Provisional Application No. 60/213,263, which was filed June 22, 2000.” Ex. 1002, 221-25, 271. In the next Office Action, the Examiner did not comment on Patent Owner’s arguments and applied different references to reject the claims. *Id.* at 295-302. Patent Owner’s Preliminary Response does not point to, and we do not find, any submission by Patent Owner or any analysis by the Examiner during the prosecution detailing why the subject matter of claims 1 and 16 is adequately supported by the June 2000 provisional application or any other document in the priority chain.

Under § 325(d), “the Director may take into account whether, and reject the petition . . . because, the same or substantially the same prior art or arguments previously were presented to the Office.” The permissive language in the statute signals that we are not required to reject a petition, or a particular ground presented in a petition, simply because it relies on art that was before the Office previously. We decline to do so in this case because we cannot assess from the record before us the complete basis for any determination by the Examiner that Martinek does not constitute prior art to claims 1 and 16 of the ’907 patent.

Based on the current record, Petitioners have demonstrated a reasonable likelihood that they will prevail in showing that claims 1 and 16 are anticipated by Martinek.

E. Priority Date of the Challenged Claims

The '907 patent claims priority to a chain of five applications reaching back to June 2001, as well as a provisional application filed in June 2000. The priority claim in the '907 patent is reproduced below:

This is a continuation of U.S. patent application Ser. No. 13/765,218 filed Feb. 12, 2013, which is a divisional of U.S. application Ser. No. 13/182,893, filed Jul. 14, 2011, now U.S. Pat. No. 8,430,909, which is a continuation of U.S. application Ser. No. 12/022,868, filed Jan. 30, 2008, now U.S. Pat. No. 7,993,369, which is a continuation-in-part of U.S. application Ser. No. 10/405,707, filed Apr. 3, 2003, now U.S. Pat. No. 7,329,272, which is a continuation-in-part of U.S. application Ser. No. 09/886,280, filed Jun. 22, 2001, now U.S. Pat. No. 6,544,281, which claims the benefit of U.S. Provisional Application No. 60/213,263, filed Jun. 22, 2000.

Ex. 1001, 1:6-16. The ElAttrache and Martinek references that form the bases for Petitioners' challenges were published in January 2002 and March 2002, respectively. See Ex. 1010, at [43]; Ex. 1011, at [43]. Petitioners argue that these references qualify as "pre-AIA § 102(b) and post-AIA § 102(a)(1) prior art"² to the challenged claims unless the claims have an effective filing

² Petitioners' position is that the first-inventor-to-file provisions of the AIA apply because the challenged claims are not entitled to priority to any date before May 8, 2014, the actual filing date of the application that issued as the '907 patent. Pet. 15 n.5. However, Petitioners contend that the cited references would qualify as prior art under either the pre-AIA or post-AIA version of § 102. *Id.* Patent Owner's Preliminary Response does not take a position on which version of § 102 applies to the '907 patent. Thus, at this stage

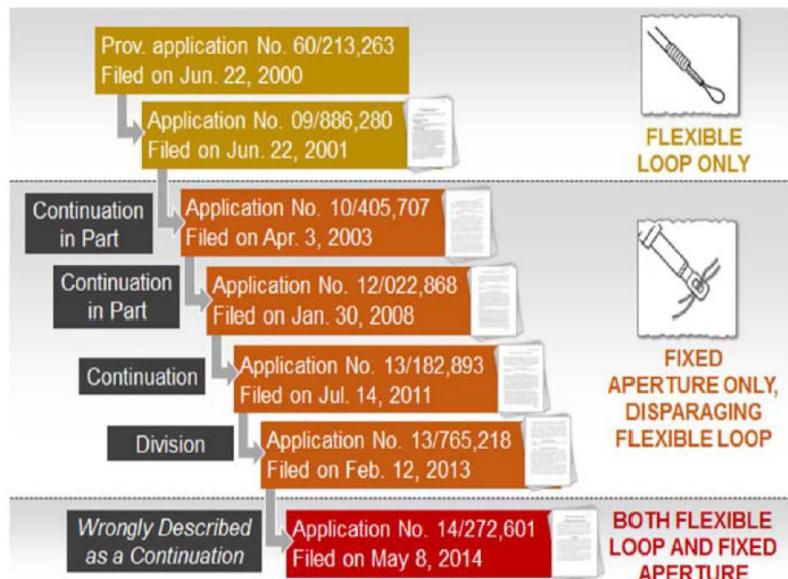
date at least as early as June 22, 2001, which is the filing date of the earliest nonprovisional application in the priority chain. Pet. 15, 45, 59. Petitioners contend that the challenged claims are not entitled to priority to any of the priority documents, as discussed below.

Because Patent Owner seeks to antedate the allegedly anticipatory references cited in the Petition, Patent Owner bears the burden to argue or produce evidence that the challenged claims of the '907 patent are entitled to the benefit of a filing date that pre-dates those references. See *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1379-80 (Fed. Cir. 2015); *Research Corp. Technologies, Inc. v. Microsoft Corp.*, 627 F.3d 859, 870-71 (Fed. Cir. 2010). For a claim in a later-filed application to be entitled to the filing date of an earlier application, the earlier application must provide written description support for the claimed subject matter. *Anascape, Ltd. v. Nintendo of America Inc.*, 601 F.3d 1333, 1337 (Fed. Cir. 2010). Moreover, when a priority claim involves a chain of priority documents, “each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. § 112.” *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1571 (Fed. Cir. 1997). To satisfy the written description requirement, “the disclosure of the earlier application, the parent, must reasonably convey to one of skill in the art that the inventor possessed the later-claimed subject matter at the time

of the proceeding, neither party contends that the version of § 102 that applies materially affects the analysis of Petitioners’ asserted grounds of unpatentability. As such, for purposes of this Decision, we need not determine whether or not the '907 patent is subject to the first-inventor-to-file provisions of the AIA.

the parent application was filed.” *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158 (Fed. Cir. 1998).

Petitioners argue that claims 1-13 and 16-28 of the ’907 patent are not entitled to the filing date of any of the priority documents because none of them support a generic “first member” that can be either a flexible loop or a rigid implant. Pet. 20. Petitioners provide the following diagram that summarizes their position on the ’907 patent’s priority claim:



Id. at 4. The diagram illustrates the relationship of seven patent applications to which the ’907 patent claims priority. As indicated in the diagram, Petitioners contend that “Patent Owner’s applications in 2000 and 2001 described only the flexible loop embodiment, whereas subsequent applications in 2003, 2008, 2011, and 2013 de-

scribed only the rigid implant embodiment and *disparaged* the suture loop as a problematic prior concept.” *Id.* at 20. Petitioners further assert that the application filed in 2014, which is the application that issued as the ’907 patent, is inaccurately denominated as a continuation because it made substantial changes to the disclosure of the applications between 2003 and 2013, including additional description of the flexible loop approach and deletion of the criticism of the flexible loop approach. *Id.* at 1-3, 22-23.

With these general assertions as background, Petitioners present four reasons why claims 1-13 and 16-28 are not entitled to priority. First, Petitioners contend that the provisional application filed in 2000 and U.S. Application No. 09/886,280 (Ex. 2004, “the ’280 Application”) filed in 2001 disclose only the flexible loop species and do not support generic claims that would cover both the flexible loop species and the rigid implant species. Pet. 24-28 (citing Ex. 1003; Ex. 1004). According to Petitioners, the disclosure in these applications of a flexible loop species does not support claims to a generic “first member” because an ordinarily skilled artisan would not “readily discern that other [species] of the genus would perform similarly to the disclosed members.” *Id.* at 25 (quoting *Synthes USA, LLC v. Spinal Kinetics, Inc.*, 734 F.3d 1332, 1344-45 (Fed. Cir. 2013)). In support of that position, Petitioners rely on disclosure from Patent Owner’s subsequent applications in the priority chain that the rigid implant improves on the flexible loop eyelet because “suture attached to the graft is allowed to freely slide through the aperture of the eyelet implant to allow precise advancement and guiding of the plug or screw.” *Id.* at 27 (quoting Ex. 1005 ¶ 29).

In response to Petitioners' first argument, Patent Owner argues that disclosure of a species generally provides adequate support for a later filed claim directed to the genus, particularly in the predictable field of the mechanical arts. Prelim. Resp. 25-26 (citing *Bilstad v. Wakapoulos*, 386 F.3d 1116, 1125-26 (Fed. Cir. 2004)). Patent Owner presents evidence that by the time of the provisional application, both soft and hard eyelets were known for suture anchors, and these eyelets "perform[ed] similarly by capturing tissue-securing suture to facilitate soft tissue repair or reattachment to bone." *Id.* at 27; *see also id.* at 14-17 (citing Ex. 2002; Ex. 2004; Ex. 2003). Patent Owner further argues that the '280 Application as filed disclosed a genus broader than the suture loop species by virtue of its original claims. *Id.* at 37-40.

Petitioners' second argument focuses on Application No. 10/405,707 (Ex. 1005, "the '707 Application") filed in 2003. Petitioners argue that the '707 Application only supports claims to the rigid implant species, not the flexible loop species or genus claims that would encompass the flexible loop species, because it disparages the flexible loop species. Pet. 28-39. Petitioners contend that based on the disclosure of the '707 Application, an ordinarily skilled artisan would have understood the flexible loop configuration as problematic prior art that the inventors had moved beyond. *Id.* at 30. According to Petitioners, "a specification that criticizes a prior art configuration in the Background and never otherwise discusses it does not support generic claims encompassing the very same configuration that the Background criticizes as 'undesirable.'" *Id.* at 31 (citing *Anascape*, 601 F.3d at 1340; *Tronzo*, 156 F.3d at 1159).

Patent Owner counters Petitioners' second argument on the basis that "mere recognition in the specification that an aspect of a prior art system is 'inconvenient' does not constitute 'disparagement' sufficient to limit the described invention. . . ." Prelim. Resp. 50 (quoting *ScriptPro LLC v. Innovation Assocs.*, 833 F.3d 1336, 1341 (Fed. Cir. 2016)). Further, Patent Owner points out that the '707 Application claims priority to the '280 Application and incorporates it by reference, and Patent Owner argues that there would have been no reason to do so if the inventors were leaving the soft eyelet species behind. *Id.* at 47-49. Additionally, Patent Owner relies on original claim 1 of the '280 Application, which recites "an aperture provided at the distal end of the driver." *Id.* at 42 (quoting Ex. 1005, 11). According to Patent Owner, "[t]hat claimed aperture is a generic expression of a first member including an eyelet" and "the generic way in which an eyelet was included in the originally filed claims . . . demonstrates the inventors had possession of an eyelet genus." *Id.* at 42, 43.

Petitioners' third argument is based on U.S. Application No 14/272,601 ("the '601 Application"), which was filed in 2014 and issued as the '907 patent. Petitioners contend that the '601 Application broadened the disclosure of the preceding applications in order to support the generic claims, such that any generic claims are not entitled to priority before the filing of the '601 Application. *Id.* at 39-41. Petitioners cite a redline comparison between the '601 Application and the immediately prior application in the priority chain that Petitioners say shows deletion of the criticism of the suture loop approach and other revisions. *Id.* at 39 (citing Ex. 1009).

According to Petitioners, these changes to the '601 Application constitute new matter, like the deletion of criticism of prior art in *Anascape*. *Id.* at 39-40 (citing *Anascape*, 601 F.3d at 1336-37). Because the applications before the '601 Application attribute unique properties to the rigid implant species as compared to the flexible loop species, Petitioners urge that Patent Owner is not entitled to a priority date for the genus any earlier than the filing date of the '601 Application. *Id.* at 41 (citing *In re Curtis*, 354 F.3d 1347, 1356-57 (Fed. Cir. 2004)).

Responding to this third argument, Patent Owner argues that the removal of the criticism of the suture loop species in the Background was not new matter because the deleted material was commentary on the inventors' own work, which was not prior art. Prelim. Resp. 58-60. With respect to other changes in the Specification, Patent Owner explains that these changes are consistent with the different subject matter claimed in the '601 Application compared to the earlier applications. *Id.* at 60-61.

Finally, Petitioners' fourth argument is that affording claims 1-13 and 15-28 a priority date of June 2000 would allow Patent Owner to improperly evade prior art disclosing rigid implants. Pet. 41-45. Relying on a disclosure from the parallel district court litigation, Petitioners assert that Patent Owner claims a priority date of June 2000 for the broad genus claims of the '907 patent, but only claims priority to April 2003 for dependent claims 15 and 30. *Id.* at 42 (citing Ex. 1018). Claims 15 and 30 are the now-disclaimed dependent claims that recited that "the first member is a rigid implant defining the eyelet." Ex. 1001, 11:16-17, 12:42-43; Ex. 2001.

Petitioners argue that the June 2000 priority date for the genus claims would disqualify certain references that are prior art to the narrower rigid implant claims from being prior art to the broader genus claims. *Id.* at 44-45. Thus, according to Petitioners, “Patent Owner’s approach would allow for the paradoxical result of a dependent claim being anticipated or obvious without the corresponding independent claim also necessarily being invalid.” *Id.* at 45.

On this fourth argument, Patent Owner responds that priority is evaluated on a claim-by-claim basis, and as a consequence, “it is entirely possible to have intervening prior art between the effective filing dates rendering the later-filed claims invalid while leaving those with the earlier effective filing date valid.” Prelim. Resp. 63.

After considering the evidence and arguments summarized above, the priority issue in this case presents a close question. Both parties have offered some factual and legal support for their positions. At this juncture of the proceeding, we need only decide whether there is a reasonable likelihood that Petitioners would prevail in their challenge to at least one claim. 35 U.S.C. § 314; *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,765 (Aug. 14, 2012) (“The ‘reasonable likelihood’ standard is a somewhat flexible standard that allows the Board room to exercise judgment.”). Prevailing in the priority dispute is a predicate to the success of any of Petitioners’ challenges. On the current record, we determine that Petitioners have made a sufficient threshold showing that ElAttrache and Martinek both qualify as prior art to the challenged claims. We

will make our final determination regarding the disputed priority issue based on the full record of evidence and arguments developed during trial.

III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted on the following grounds:

Whether claims 1, 4, 8, 10-12, 16, 18, and 25-28 are anticipated by ElAttrache; and

Whether claims 1 and 16 are anticipated by Martinek;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, the trial commencing on the entry date of this decision; and

FURTHER ORDERED that the trial is limited to the grounds identified above.

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APPENDIX D

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case IPR2017-00275
Patent 9,179,907 B2

SMITH & NEPHEW, INC. AND ARTHROCARE CORP.,
PETITIONERS

v.

ARTHREX, INC., PATENT OWNER

Entered: May 2, 2018

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

Before WILLIAM V. SAINDON, BARRY L. GROSSMAN, and
TIMOTHY J. GOODSON, *Administrative Patent Judges*.

GOODSON, *Administrative Patent Judge*.

I. INTRODUCTION

Petitioners filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1, 4, 8, 10-12, 15, 16, 18, 25-28, and 30 of U.S. Patent No. 9,179,907 B2 (Ex. 1001, “the ’907 patent”). Patent Owner filed a Preliminary Response. Paper 6. We instituted an *inter partes* review of claims 1, 4, 8, 10-12, 16, 18, and 25-28 on the following grounds under 35 U.S.C. § 102:

Reference	Claims
ElAttrache ¹	1, 4, 8, 10-12, 16, 18, and 25-28
Martinek ²	1 and 16

See Paper 7 (“Dec. on Inst.”).

After institution of trial, Patent Owner filed a Patent Owner Response. (Paper 17, “PO Resp.”), and Petitioners filed a Reply (Paper 21, “Reply”). Patent Owner also filed a motion to exclude (Paper 25), which we address in Section VI below. We held a hearing, a transcript of which is included in the record. Paper 33 (“Tr.”). Following the hearing, and after receiving our authorization to do so, the parties filed supplemental briefs to address a decision the Federal Circuit issued after the hearing. *See* Paper 34; Paper 35.

We have jurisdiction under 35 U.S.C. § 6. Petitioners bear the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioners must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioners have shown by a preponderance of

¹ U.S. Patent App. Pub. No. US 2002/0013608 A1, published Jan. 31, 2002, Ex. 1010.

² Int'l Patent App. Pub. No. WO 02/21999 A2, published Mar. 21, 2002, Ex. 1011.

the evidence that claims 1, 4, 8, 10-12, 16, 18, and 25-28 of the '907 patent are unpatentable. *See* 35 U.S.C. § 316(e).

We note at the outset that the central question in this case is whether the challenged claims are entitled to the earliest priority date claimed in the '907 patent. In particular, the parties dispute whether the entire chain of priority documents provides adequate written description support for a generic "first member including an eyelet" that includes both a flexible suture loop species and a rigid implant species. We address that question in Section V of this Decision. The priority issue is dispositive because Patent Owner agrees that if the cited references qualify as prior art, the challenged claims are anticipated. *See* Tr. 53:21-54:9.

A. Related Matters

Patent Owner asserted the '907 patent against Petitioners in a civil action in the U.S. District Court for the Eastern District of Texas, *Arthrex, Inc. v. Smith & Nephew, Inc.*, Consolidated Civil Action Nos. 2:15-cv-01047 and 2:15-cv-01756. Pet. 7-8; Paper 3, 1. After trial in that case, a jury found that Patent Owner proved by a preponderance of the evidence that Petitioners infringed claims 4, 8, 16, and 27 of the '907 patent, and that Petitioners did not prove by clear and convincing evidence that any of those claims were invalid as anticipated. Paper 19, 1; Ex. 2038, 2. The district court entered judgment finding that Petitioners willfully infringed claims 4, 8, 16, and 27 of the '907 patent and further finding those claims not invalid. Paper 19, 1; Ex. 2039, 1. The parties then entered a settlement agreement and filed a Joint Stipulated Motion for Dismissal with Prejudice. Paper 19, 1-2; Ex. 2040. The district

court granted the motion, dismissing all claims and counterclaims with prejudice. Paper 19, 1-2; Ex. 2041.

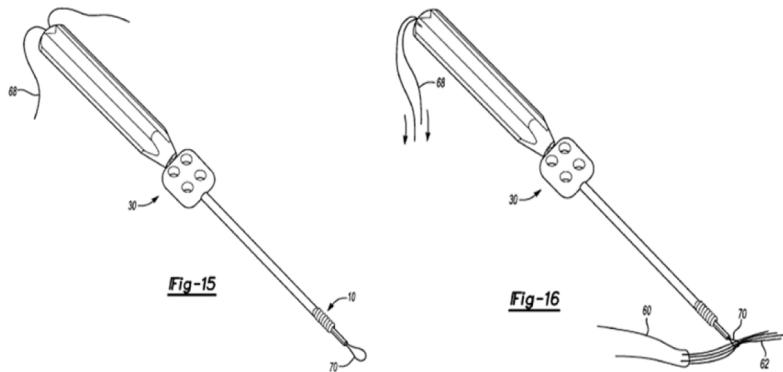
Neither party has argued that the Dismissal with Prejudice, or any other ruling of the district court, presents a bar to this proceeding. *See* Tr. 5:18-6:21; 52:10-19. The Federal Circuit has explained that a dismissal with prejudice is a judgment on the merits for purposes of claim preclusion, but that the parties can, in a separate agreement, reserve the right to litigate a claim that would otherwise be barred by res judicata. *Pactiv Corp. v. Dow Chem. Co.*, 449 F.3d 1227, 1230-31 (Fed. Cir. 2006). The parties' settlement agreement that resulted in the Dismissal with Prejudice is not of record in this proceeding, but the parties indicated at the hearing that their settlement agreement provides for this proceeding to continue. Tr. 6:19-21; 52:20-53:3. In the absence of any argument that this proceeding is precluded, and in view of the parties' agreement that their earlier settlement allows this proceeding to continue, we are satisfied that the Dismissal with Prejudice does not bar this proceeding.

B. The '907 Patent

The '907 patent describes a knotless suture securing assembly. Ex. 1001, at [54], [57]. The Background explains that suture anchors are one type of fixation device that can be used for reattaching soft tissue that has become detached from bone. *Id.* at 1:20-33. A drawback of prior art suture anchors, however, is that a surgeon is "generally require[d] . . . to tie knots in the suture to secure the tissue to the bone, which is tedious and time-consuming." *Id.* at 1:33-36. The Summary section states that the disclosed embodiments "are useful for securing soft tissue to bone with excellent pullout

strength without requiring a surgeon to tie suture knots to secure the suture in place or to secure the tissue to the bone.” *Id.* at 1:43-46. As relevant to the issues in this proceeding, the ’907 patent describes two main embodiments: a flexible suture loop embodiment and a rigid implant embodiment.

Figures 15 and 16, reproduced below, depict the flexible suture loop embodiment:

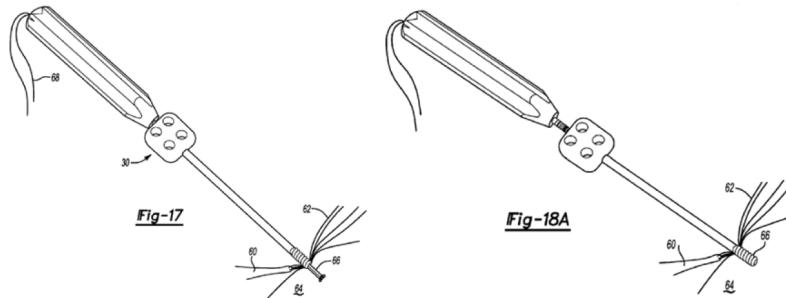


Figures 15 and 16 illustrate a driver, screw, suture loop and graft with graft sutures attached.

Id. at 2:46-50.

In that embodiment, as shown in Figures 15 and 16, driver 30 is pre-loaded with screw 10, and traction suture 68 is passed into the cannula of driver 30 until looped end 70 is exposed at the distal end. *Id.* at 5:48-53. Sutures 62, which are attached to graft 60, are passed through traction suture loop 70. *Id.* at 5:51-55. By drawing on traction suture 68, suture loop 70 is tightened and tension is applied to graft sutures 62. *Id.* at 5:62-64.

Figures 17 and 18 are reproduced below:



Figures 17 and 18A illustrate the driver, screw and suture loop engaging graft sutures in a bone socket.

Id. at 2:52-57.

As shown in Figure 17, driver 30 is positioned such that screw 10 engages bone 64 at the edge of hole 66. Rotating driver 30 causes screw 10 to be inserted into hole 66 until fully installed, as shown in Figure 18A. *Id.* at 6:8-13. In that position, “sutures 62 or the graft 60 [is] pinned and/or wound between the base and sidewall of socket 66 and interference screw 10.” *Id.* at 6:13-15. Driver 30 can then be removed. *Id.* at 6:18-19.

The rigid implant embodiment is shown in Figure 21, reproduced below:

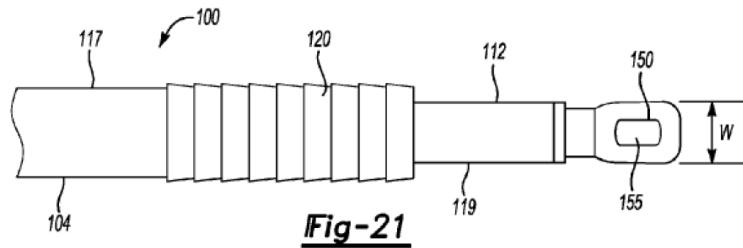
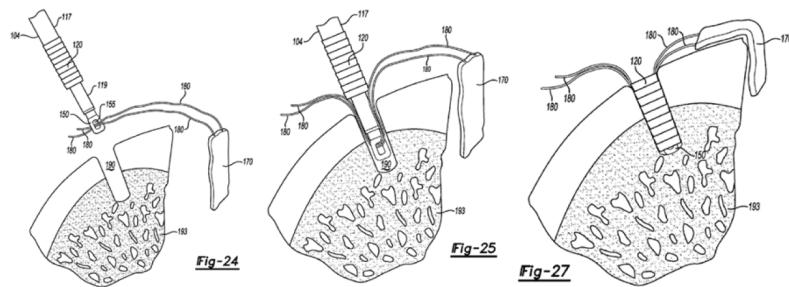


Figure 21 depicts driver 100, interference device 120, and eyelet implant 150. *Id.* at 6:47-55, 7:4-5.

Eyelet implant 150 includes “aperture 155 for receiving a suture attached to a graft to pass through the eyelet implant 150.” *Id.* at 7:12-14. Interference device 120 can be a screw or an interference plug, and is “preferably formed of a bioabsorbable material such as PLLA.” *Id.* at 6:55-57. “[E]yelet implant 150 is made of a material similar to that of the interference device 120.” *Id.* at 7:10-12.

Figures 24, 25, and 27 are reproduced below:



Figures 24, 25, and 27 are schematic views of the surgical site undergoing a graft fixation with a push lock driver. *Id.* at 3:8-23.

Figure 24 depicts suture 180, which is attached to graft 170, passing through aperture 155. *Id.* at 7:44-49. Implant 150 is then inserted into bone socket 190, as shown in Figure 25. *Id.* at 7:50-53. As can be seen in Figure 27, “interference device 120 is then impacted into the pilot hole 190 so that the interference device 120 advances toward the distal end 112 of driver 100 and securely engages and locks in the eyelet implant 150 with

the sutures 180.” *Id.* at 7:59-63. The driver is removed and the suture ends are clipped, “leaving the graft 170 securely fastened to bone 193.” *Id.* at 7:64-67.

C. Claims Challenged in Instituted Grounds

As noted above, we instituted trial as to claims 1, 4, 8, 10-12, 16, 18, and 25-28. See Dec. on Inst. 20. Of these, only claims 1 and 16 are independent claims. Claims 4, 8, and 10-12 depend from claim 1, and claims 18 and 25-28 depend from claim 16. Claim 1 is representative, and is reproduced below with emphasis indicating the language on which the parties’ dispute focuses:

1. A suture securing assembly, comprising:

an inserter including a distal end, a proximal end, and
a longitudinal axis between the distal end and the
proximal end;

a first member including an eyelet oriented to thread
suture across the longitudinal axis, the first mem-
ber being situated near the distal end of the in-
serter, the first member being configured to be
placed in bone; and

a second member situated near the distal end of the
inserter, the second member being moveable by a
portion of the inserter relative to the first member
in the distal direction toward the eyelet into a su-
ture securing position where the second member
locks suture in place.

Ex. 1001, 10:21-34 (emphasis added).

We note that in their Petition, Petitioners also challenged claims 15 and 30. *See* Pet. 59-60, 65. Those dependent claims recited that “the first member is a rigid implant defining the eyelet.” Ex. 1001, 11:16-17, 12:42-43. However, on the same day Patent Owner filed its Preliminary Response, Patent Owner filed a statutory disclaimer of claims 15 and 30. *See* Ex. 2001; Prelim. Resp. 20 n.6, 65. Consequently, in accordance with 37 C.F.R. § 42.107(e), claims 15 and 30 were not included in the grounds on which we instituted trial and our institution decision was based solely on the remaining claims. *See* Dec. on Inst. 7-8. Because claims 15 and 30 have been disclaimed, we do not address them in this Decision. *See SAS Institute Inc. v. Iancu*, No. 16-969, __ U.S. __, 2018 WL 1914661, at *7 (Apr. 24, 2018) (“[T]he claims challenged ‘in the petition’ will not always survive to the end of the case; some may drop out thanks to the patent owner’s actions. And in that light it is plain enough why Congress provided that only claims still challenged ‘by the petitioner’ at the litigation’s end must be addressed by the Board’s final written decision.”).

II. CLAIM CONSTRUCTION

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 2131, 2144-46 (2016) (upholding the use of the broadest reasonable interpretation standard). In our Institution Decision, we determined that resolution of the disputed issues at that stage of the proceeding did not require an express interpretation of any claim term. *See* Dec. on Inst. 7 (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d

795, 803 (Fed. Cir. 1999)). In its Patent Owner Response, Patent Owner states that no construction is necessary because it is undisputed that the phrase “first member including an eyelet” includes both the flexible and rigid eyelet species. PO Resp. 6. Petitioners do not present any claim construction arguments in their Reply. Based on our review of the complete record, we agree with the parties that no express construction is necessary to resolve the disputed issues in this proceeding.

III. LEVEL OF ORDINARY SKILL IN THE ART

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co., Inc. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioners propose that a person of ordinary skill in the art of the ’907 patent would have had

- (a) a master’s degree in mechanical engineering or equivalent, or a bachelor’s degree in such field and at least two years of experience designing suture anchors; or (b) a medical degree and at least two years of experience performing surgeries that involve suture anchors and/or advising engineers on suture anchor design.

Pet. 16 (citing Ex. 1019 ¶¶ 91-94). Patent Owner does not contest Petitioners’ proposal in its Patent Owner

Response, and Dr. Geoffrey Higgs, Patent Owner’s declarant, states that he agrees with the proposed level of ordinary skill in the art. Ex. 2037 ¶ 39. We adopt Petitioners’ unopposed statement of the level of ordinary skill in the art.

IV. ANTICIPATION ANALYSIS

A. Legal Standard

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. Inc., v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). “Because the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008).

B. Anticipation Based on ElAttrache

Petitioners argue that claims 1, 4, 8, 10-12, 16, 18, and 25-28 are anticipated by ElAttrache. Pet. 45-59.

ElAttrache is the published version of one of the applications to which the ’907 patent claims priority. Ex. 1010 at [21]; Ex. 1001, 1:13-14; Pet. 46. ElAttrache published on January 31, 2002. Ex. 1010 at [43]. Patent Owner has not established entitlement to a priority date before ElAttrache’s publication. For the reasons discussed in Section V below, the challenged claims are not entitled to priority to any of the applications before May 8, 2014, the filing date of the application that issued as the ’907 patent. See Ex. 1001 at [22]; 35 U.S.C.

§ 100(i)(1). Thus, ElAttrache qualifies as prior art under 35 U.S.C. § 102(a)(1).³

ElAttrache describes a knotless suture anchor. Ex. 1010 ¶¶ 6-7. Figures 14-19 and the accompanying disclosure in ElAttrache are similar, if not identical, to the figures and description of the flexible suture loop embodiment of the '907 patent, summarized above. *Compare* Ex. 1010 ¶¶ 45-48, with Ex. 1001, 5:35-6:22.

Petitioners argue that ElAttrache discloses every limitation of the challenged claims. For example, with respect to claim 1, Petitioners assert that ElAttrache's driver 30 corresponds to the "inserter," ElAttrache's traction suture 68 and suture loop 70 correspond to the "first member," and ElAttrache's screw 10 corresponds to the "second member." Pet. 47-49. Petitioners also provide a detailed explanation of how ElAttrache discloses the limitations of the other challenged claims. *Id.* at 50-59. Patent Owner agrees that if ElAttrache qualifies as prior art, ElAttrache discloses the subject matter of each of the challenged claims. See Tr. 53:23-54:5. After reviewing Petitioners' unrebutted evidence and argument, we find that ElAttrache discloses, arranged as in the claims, each limitation of claims 1, 4, 8, 10-12, 16, 18, and 25-28.

³ Because the effective filing date of at least one claim of the '907 patent is after March 16, 2013, the first inventor to file version of 35 U.S.C. § 102 is applicable under the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"). See AIA § 3(n)(1).

There is no inconsistency between our finding that ElAttrache discloses each limitation of the challenged claims under § 102 and our determination that ElAttrache qualifies as prior art to the challenged claims. Indeed, Patent Owner does not argue that there is any such inconsistency. As the Federal Circuit’s predecessor court explained, “the description of a single embodiment of broadly claimed subject matter constitutes a description of the invention for anticipation purposes . . . , whereas the same information in a specification might not alone be enough to provide a description of that invention for purposes of adequate disclosure.” *In re Lukach*, 442 F.2d 967, 970 (CCPA 1971). In application here, we find that the broad recitation of an “eyelet” is anticipated by the narrower disclosure in ElAttrache of the suture loop.

C. Anticipation Based on Martinek

Petitioners argue that claims 1 and 16 are anticipated by Martinek. Pet. 59-65.

Martinek describes a knotless suture anchor. Ex. 1011, 2. Figure 8 of Martinek is reproduced below:

96a

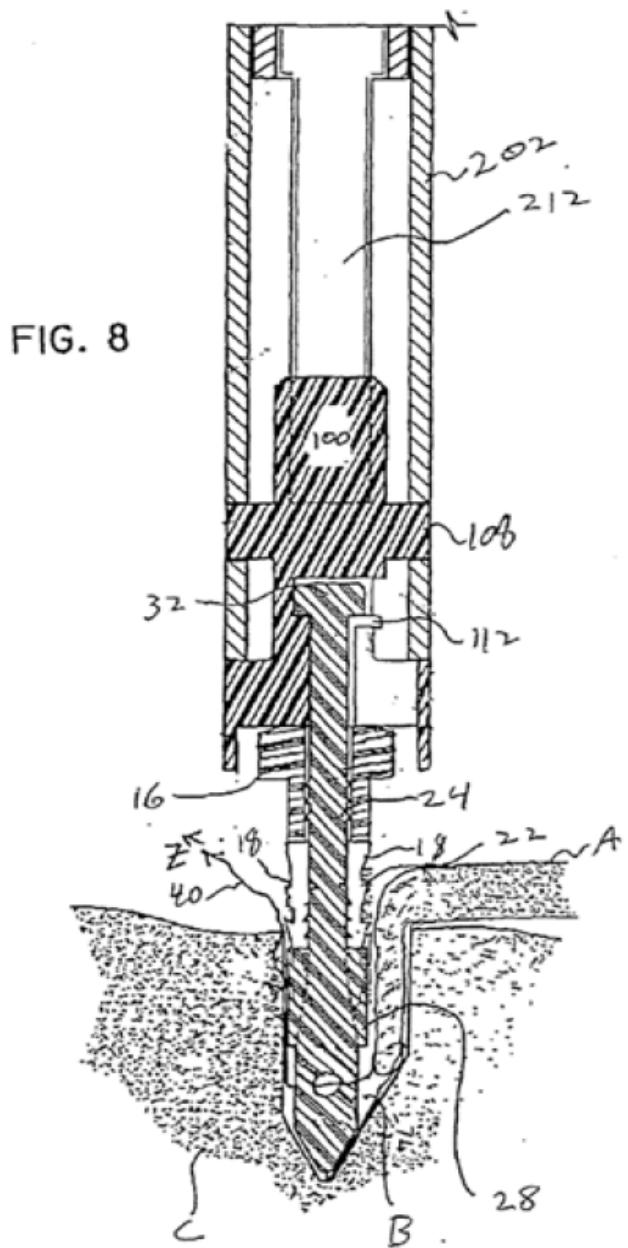


Figure 8 depicts a cross-sectional view of implantation apparatus 200 positioned in bore B drilled in shoulder bone C, with tissue section A secured to setting pin 24. *Id.* at 6, 12. Once in position, apparatus 200 is actuated, driving expandable member 12 distally and causing the distal ends of legs 18 to be driven radially outward by setting pin 24. *Id.* at 12-13. “As legs 18 are driven radially outward, barbs 22 engage and secure a portion of suture 40 against the bone C within bore B.” *Id.* at 13.

Petitioners contend that Martinek discloses every limitation of claims 1 and 16. Specifically, Petitioners argue that Martinek’s implantation apparatus 200 corresponds to the “inserter” of claim 1 and the “driver” of claim 16. Pet. 62 (citing Ex. 1011, 10), 64. Petitioners correlate Martinek’s setting pin 24 to the “first member” of claims 1 and 16, and Martinek’s expandable body 12 to the “second member” of claims 1 and 16. Pet. 62-64 (citing Ex. 1011, 4, 8, 13). As with ElAttrache, Patent Owner agrees that if Martinek qualifies as prior art, Martinek discloses the subject matter of claims 1 and 16. *See* Tr. 54:6-9. After reviewing Petitioners’ unrebutted evidence and argument, we find that Martinek discloses, arranged as in the claims, each limitation of claims 1 and 16.

We also determine that Martinek qualifies as prior art under § 102(a)(1). Patent Owner has not established entitlement to a priority date before Martinek’s publication on March 21, 2002. Ex. 1011, at [43]. As discussed in greater detail in Section V below, the effective filing date of claims 1 and 16 of the ’907 patent is May 8, 2014. Accordingly, Petitioners have established that Martinek anticipates claims 1 and 16 of the ’907 patent.

V. PRIORITY ANALYSIS

A. Priority Claim in the '907 Patent

The application that issued as the '907 patent was filed on May 8, 2014, as U.S. Patent App. No. 14/272,601 (“the '601 application”⁴). See Ex. 1001 at [21], [22]; see also Ex. 1002, 11-58 (reproducing the '601 application as filed in the file history of the '907 patent).

The '907 patent claims priority to a chain of continuation, continuation-in-part, and divisional applications reaching back to June 22, 2001, as well as a provisional application filed on June 22, 2000. In particular, the '907 patent contains the following priority claim, with bracketed labels and indentations added for clarity:

This is a continuation of U.S. patent application Ser. No. 13/765,218 [Ex. 1008, “the '218 application”] filed Feb. 12, 2013,

which is a divisional of U.S. application Ser. No. 13/182,893 [Ex. 1007, “the '893 application”], filed Jul. 14, 2011, now U.S. Pat. No. 8,430,909,

⁴ The parties followed different conventions in referring to the applications at issue, with Patent Owner generally using the last three digits of the application’s serial number (*see, e.g.*, PO Resp. 4 (“The '907 patent . . . issued from the '601 application. . . .”)) and Petitioners alternating between the application’s abbreviated serial number (*see, e.g.*, Pet. 39 (“The '601 Application . . . purports to be a ‘continuation’ of the '218.”) and the year in which the application was filed (*see, e.g.*, Reply 1 (“Arthrex wrongly maintains that the one species . . . disclosed in its 2001 application. . . .”)). Citations in this Decision use the abbreviated serial number except in quotations.

which is a continuation of U.S. application Ser. No. 12/022,868 [Ex. 1006, “the ’868 application”], filed Jan. 30, 2008, now U.S. Pat. No. 7,993,369,

which is a continuation-in-part of U.S. application Ser. No. 10/405,707 [Ex. 1005, “the ’707 application”], filed Apr. 3, 2003, now U.S. Pat. No. 7,329,272,

which is a continuation-in-part of U.S. application Ser. No. 09/886,280 [Ex. 1004, “the ’280 application”], filed Jun. 22, 2001, now U.S. Pat. No. 6,544,281,

which claims the benefit of U.S. Provisional Application No. 60/213,263 [Ex. 1003, “the ’263 provisional”], filed Jun. 22, 2000.

Ex. 1001, 1:6-16.

B. Summary of the Disputed Priority Issue

Petitioners argue that the challenged claims are not entitled to a priority date before May 8, 2014, because the applications to which the ’907 patent claims priority do not provide written description support for a generic “first member” that can be either a flexible loop or a rigid implant. Pet. 20. Although the priority chain at issue here is lengthy and the parties have presented extensive evidence and argument, the priority dispute is circumscribed to a single issue: it focuses solely on the “first member” limitation in claims 1 and 16⁵ and solely on the written description requirement of 35 U.S.C. § 112. PO Resp. 6-7; Tr. 5:4-17.⁶

⁵ The “first member” limitation is also present in each of the other challenged claims, by virtue of their dependency from claims 1 or 16.

⁶ Petitioner criticizes Patent Owner’s written description arguments for allegedly blending enablement standards and case law into

C. Allocation of Burden to Establish Entitlement to Priority

Because Patent Owner seeks to antedate the ElAttrache and Martinek references cited in the Petition, Patent Owner bears the burden to argue or produce evidence that the challenged claims of the '907 patent are entitled to the benefit of a filing date that pre-dates those references. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1379-80 (Fed. Cir. 2015); *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 870-71 (Fed. Cir. 2010). Our Decision on Institution articulated this same burden allocation, and Patent Owner did not contest it in the Patent Owner Response. *See* Dec. on Inst. 14. At the hearing, Patent Owner acknowledged that “we have the burden to demonstrate that we can show priority back to the original disclosure.” Tr. 57:9-11.

D. Legal Standards Governing Disputed Priority Issue

For a claim in a later-filed application to be entitled to the filing date of an earlier application, the earlier application must provide written description support for the claimed subject matter. *Anascape, Ltd. v. Nintendo of Am. Inc.*, 601 F.3d 1333, 1337 (Fed. Cir. 2010). Moreover, when a priority claim involves a chain of priority documents, “each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. § 112.”

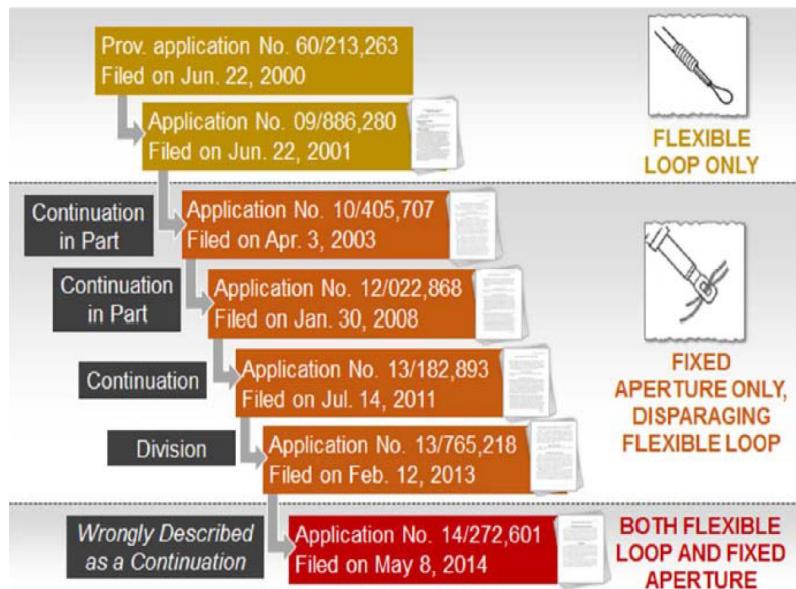
the written description analysis (*see* Tr. 5:15-17; Reply 17 n.11), but Petitioner’s only challenge to the '907 patent’s priority claim is based on the written description requirement.

Lockwood v. Am. Airlines, Inc., 107 F.3d 1565, 1571 (Fed. Cir. 1997).

The written description requirement “guards against the inventor’s overreaching by insisting that he recount his invention in such detail that his future claims can be determined to be encompassed within his original creation.” *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed. Cir. 1991). To satisfy the written description requirement, “the disclosure of the earlier application, the parent, must reasonably convey to one of skill in the art that the inventor possessed the later-claimed subject matter at the time the parent application was filed.” *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158 (Fed. Cir. 1998).

E. Analysis

Petitioners provide the following diagram that summarizes their position on the ’907 patent’s priority claim:



Pet. 4. The diagram illustrates the relationship of the applications to which the '907 patent claims priority. As indicated in the diagram, Petitioners contend that "Patent Owner's applications in 2000 and 2001^[7] described only the flexible loop embodiment, whereas subsequent applications in 2003, 2008, 2011, and 2013 described only the rigid implant embodiment and *disparaged* the suture loop as a problematic prior concept." *Id.* at 20. Petitioners further assert that the '601 application filed in 2014 is inaccurately denominated as a continuation because it made substantial changes to the disclosure of the applications between 2003 and 2013, including additional description of the flexible loop approach and deletion of the criticism of the flexible loop approach. *Id.* at 1-3, 22-23.

Petitioners present several arguments for why the challenged claims are not entitled to priority, but our analysis below focuses on Petitioners' argument concerning the '707 application and the other applications appearing in orange labels in the diagram above (i.e., the '707, '868, '893, and '218 applications). Petitioners argue that the '707 application and other applications in this group only support claims to the rigid implant species, not the flexible loop species or genus claims that would encompass the flexible loop species. Pet. 28-39. We find that argument persuasive. Further, because the absence of written description support in the '707 application for a generic first member covering both the flexible loop and rigid implant embodiments cuts off the

⁷ We note that the ElAttrache reference Petitioners rely on for their anticipation challenge is the printed publication of the '280 application filed in June of 2001, i.e., the latter of Petitioners' so-called flexible loop only disclosures.

chain of priority such that Patent Owner cannot antedate the cited references, this deficiency is dispositive.

Patent Owner acknowledges that “[t]he ’707 application is the first in the priority chain to explicitly disclose a rigid eyelet embodiment.” PO Resp. 19.⁸ Patent Owner maintains that the earlier ’263 provisional and ’280 application do not limit the suture-capturing eyelet to a flexible loop and their disclosure is sufficient to support a generic first member, but there is no dispute that the only embodiment of the first member actually described in those earlier applications is the flexible suture loop embodiment. *See id.* at 13 (“In the embodiments of the provisional application, a looped end 38 of suture is exposed at the distal end of the driver 36 and receives another suture 32, which is used to reattach tissue back to bone.”) (citing Ex. 1003, 5, 9, 13); *id.* at 15 (“In the detailed description of the ’280 application, the eyelet is described much like it was in the provisional application as, a looped end 70 of traction suture 68 exposed at the distal end of the driver.”) (citing Ex. 1004, 11-12); Pet. 24 (asserting that the ’263 provisional and ’280 application disclose only the flexible loop species).

⁸ Consistent with that acknowledgement, Patent Owner’s disclosures under the local rules for patent cases in the parallel district court case listed April 3, 2003, the filing date of the ’707 application, as the priority date for the now-disclaimed claims 15 and 30. Ex. 1018. Those claims depended from claims 1 and 16, respectively, and added the requirement that “the first member is a rigid implant defining the eyelet.” Ex. 1001, 11:16-17, 12:42-43. At the hearing in this proceeding, Patent Owner was asked whether now-disclaimed claim 15 requiring a rigid implant would have written description support in the ’263 Provisional and responded that “that specific subspecies was not disclosed with respect to any expressed terms of a rigid eyelet.” Tr. 40:18-20.

The '707 application summarizes the '280 application's disclosure in its "Background of the Invention" section. Ex. 1005 ¶ 4. The '707 application explains that in the technique described in the '280 application, "a cannulated plug or screw is pre-loaded onto the distal end of a cannulated driver, and a suture or wire loop is passed through the cannula of the driver so that a looped end of the suture or wire is exposed at the distal end of the driver." *Id.* After suture strands attached to the tissue graft are fed through the loop, "tension [is] applied to the suture or wire loop to keep the graft at the desired location relative to the bone hole, [and] the screw or plug is then fully advanced into the hole." *Id.* Having summarized the technique of the '280 application, the Background of the '707 application then warns against its drawbacks:

Although the above-described technique provides an improved method of graft fixation to bone, the flexible loop configuration at the end of the driver ***disadvantageously impedes sliding of the suture or graft which is fed through the suture loop.*** In addition, because the cannulated driver of [the '280 application] is provided with a flexible loop at its distal end, placement of the suture or graft at the bottom of the blind hole or socket and the cortical bone must be approximated, thus sometimes necessitating additional removal, tapping and insertion steps to ensure full insertion of the plug or screw into the blind hole or socket. This, in turn, may abrade the adjacent tissue and/or damage the bone or cartilage.

Id. ¶ 5 (emphasis added). Based on these disadvantages, the '707 application explains that "a need exists

for an improved surgical technique and associated device for securing soft tissue to bone which *allows the free sliding of the suture ends* attached to a graft to ensure the positioning of the graft at an appropriate distance from the device.” *Id.* ¶ 6 (emphasis added).

The “Summary of the Invention” section presents the invention as an improvement that solves the problems of the suture loop described in the ’280 application:

The instruments and methods of the present invention *overcome the disadvantages of the prior art, such as those noted above*, by providing an eyelet implant at the distal end of a driver that securely engages and locks into a cannulated ribbed body of an interference plug or screw. The eyelet implant includes a *fixed aperture* for receiving a suture attached to a graft, such that the *suture is able to freely slide through the aperture*.

Id. ¶ 7 (emphases added).

After describing in the Background that the flexible suture loop disadvantageously impedes sliding and explaining in the Summary that the invention remedies that deficiency by providing a fixed aperture through which suture can freely slide, the remainder of the ’707 application never suggests that a flexible suture loop is a potential embodiment of the disclosed invention. *See id.* ¶¶ 7-34; *see also* Ex. 1019 ¶ 123 (Petitioner’s expert, Dr. David McAllister, testifying that “the ’707 application never mentions the ‘flexible loop’ configuration aside from this criticism” in the Background section). Instead, the Detailed Description repeatedly emphasizes the ability of suture to freely slide through the

aperture—the same feature that the '707 application described as absent in the flexible loop of the '280 application. *See Ex. 1005 ¶ 28* (“The suture 80 freely slides though aperture 55 of the eyelet implant 50, allowing the graft 70 to be positioned close to the edge of the pilot hole 90.”); *id.* ¶ 29 (describing advantages of the invention, the most important of which is “the suture attached to the graft is allowed to freely slide through the aperture of the eyelet implant”).

Finally, at the close of the Detailed Description, the '707 application notes that configurations other than the embodiments specifically disclosed are possible, but underscores that the ability of suture to slide freely though the aperture is a critical feature of the invention: “[T]he present invention also contemplates implants affixed to or detachable from a preloaded driver and having an aperture of any configuration of any geometrical shape, ***as long as it captures suture and allows the captured suture to freely slide*** within the aperture.” *Id.* ¶ 33 (emphasis added).

We find credible the testimony of Petitioners’ expert, Dr. David McAllister, that an ordinarily skilled artisan reviewing the '707 application “would understand that the ‘flexible loop’ configuration was a problematic prior art concept that that the inventors had moved beyond when proposing the rigid implant as their ‘present invention’ that ‘overcome[s] the disadvantages of the prior art’ described in the Background section.” Ex. 1019 ¶ 124 (quoting Ex. 1005 ¶ 7); *see also* Pet. 30. As Dr. McAllister correctly notes, “the only ‘disadvantages’ of any sort discussed in the ‘Background of the Invention’ section” are the disadvantages of the flexible loop. Ex. 1019 ¶ 124; *see* Ex. 1005 ¶¶ 3-6. We also credit Dr.

McAllister's testimony that an ordinarily skilled artisan reading the '707 application "would have come away with the understanding that the suture securing assembly described in the '707 application cannot rely on a flexible loop as the eyelet [and] would understand a flexible loop to be contrary to the invention's stated purpose to allow suture to freely slide within the aperture." Ex. 1019 ¶ 123 (citing Ex. 1005 ¶ 33).

We further agree with Petitioners that this case presents a close analog to the operative facts of *Tronzo*. See Pet. 31-32. Like this case, *Tronzo* concerned a mechanical medical device—specifically, an artificial hip socket that included cup implants adapted for insertion into an acetabular bone. *Tronzo*, 156 F.3d at 1156. The application that issued as the patent in suit (the '262 patent) was filed as a continuation-in-part. *Id.* at 1157. After a jury trial, the district court determined that the asserted claims of the '262 patent were infringed and were not invalid. *Id.* at 1155. The Federal Circuit reversed the judgment of no invalidity for two of the asserted claims "[b]ecause claims 1 and 9 are not entitled to the filing date of the '262 patent's parent application and are anticipated by intervening prior art." *Id.*

In particular, the Federal Circuit held that the specification of the parent patent failed to provide written description support for claims 1 and 9 of the '262 patent because those claims were generic as to the shape of the cup. *Id.* at 1158-60. The Federal Circuit noted that parent patent described the invention as a trapezoid, a truncated cone, or a cup of conical shape, which labels applied to the same cup. *Id.* at 1159. The court further explained:

[T]he **only reference in the [parent] patent's specification to different shapes is a recitation of the prior art.**

. . . Instead of suggesting that the [parent] patent encompasses additional shapes, the specification specifically **distinguishes the prior art as inferior and touts the advantages of the conical shape** of the [parent patent's] cup. . . . Such statements make clear that the [parent] patent discloses only conical shaped cups and nothing broader. The disclosure in the [parent patent's] specification, therefore, does not support the later-claimed, generic subject matter in claims 1 and 9 of the '262 patent.

Id. (emphases added).

Similar to the disclosure of the parent patent in *Tronzo*, the '707 application discusses flexible suture loops only in its Background in order to distinguish that technique as inferior and to tout the advantages of the rigid eyelet, which allows the captured suture to freely slide within the aperture. Ex. 1005 ¶¶ 5-7. Thus, *Tronzo* supports Petitioners' argument that the '707 application's criticism of the flexible loop species and the invention's ability to overcome the deficiencies of the flexible loop signify a lack of written description support in the '707 application for the generic "first member" limitation in the challenged claims of the '907 patent.

Anascape provides further support for Petitioners' contention that "a specification that criticizes a prior art configuration in the Background and never otherwise discusses it does not support generic claims encompassing the very same configuration that the Background criticizes as undesirable." Pet. 31. *Anascape* was another case in which the Federal Circuit reversed a district court's judgment, after a jury trial, of infringement

and no invalidity because the Federal Circuit determined that the asserted patent was not entitled to the priority date it claimed, such that intervening prior art anticipated the claims. *Anascape*, 601 F.3d at 1334-35, 1341.

Anascape concerned hand-operated controllers for use in video games, allowing an operator to move images on the screen in six general directions called degrees of freedom or DOF: “linear movement along three axes (forward/backward, left/right, or up/down), and rotational movement about the three linear axes (roll, pitch, or yaw).” *Id.* at 1334. The asserted patent, the ’700 patent, was filed as a continuation-in-part of an application that issued as the ’525 patent. *Id.* The ’700 patent claimed controllers having multiple input members that together operate in six degrees of freedom, but the specification of the ’525 patent described only a single input member that operates in six degrees of freedom. *Id.* at 1335.

In determining that the ’525 patent’s specification did not provide written description support for the claims of the ’700 patent, the Federal Circuit noted that “[t]he ’525 specification does not describe a controller with input members limited to fewer than six degrees of freedom.” *Id.* at 1336. Moreover, “[t]he ’525 patent stresses the advantages of using a single input member operable in six degrees of freedom, and describes the use of multiple input members as having ‘significant disadvantages.’” *Id.* at 1337. In these respects, the deficiencies of the ’707 application as a priority document supporting claims to a generic “first member” are similar to those of the ’525 specification in *Anascape*: the

'707 application does not describe the flexible loop species other than in the Background to describe its disadvantages in impeding free sliding, and the '707 application stresses as a benefit of the invention that it overcomes that deficiency and permits free sliding within the aperture. Ex. 1005 ¶¶ 5-7, 29, 33.

Another parallel to the facts of this case resides in changes the patentee in *Anascape* made when filing the '700 patent specification. The patentee changed references in the '525 specification to a "single input member" to instead reference "at least one output member" in the '700 patent specification. *Anascape*, 601 F.3d at 1338. "The '700 specification also deleted all mention of the prior art Chang controller [i.e., the controller the '525 patent described as having significant disadvantages due to its use of multiple input members] and its deficiencies." *Id.* Noting that "[a] description can be broadened by removing limitations," the Federal Circuit found the changes made to the '700 specification to be "classical new matter." *Id.*

Similarly, returning to the present case, in the '601 application that issued as the '907 patent, Patent Owner made several changes relative to the '707 application (and the other intervening applications in the priority chain). *See generally* Ex. 1009 (presenting a redline version of the '601 application reflecting changes relative to the '218 application, which is the immediately preceding application in the priority chain). These changes were extensive, resulting in a 48-page specification with 81 paragraphs and 35 figures—significantly longer than the preceding applications in the priority chain, such as the '707 application, which included 34 paragraphs of description and 10 figures. *Compare*

Ex. 1002, 11-58, *with* Ex. 1005. One change Patent Owner made in the '601 application was deletion of the criticism of the suture loop species in the Background section, as well as deletion of the statement in the Summary section that the invention overcomes those disadvantages and provides a fixed aperture through which suture is able to freely slide. *Compare* Ex. 1002, 11-12, *with* Ex. 1005 ¶¶ 4-7. Another change was the addition of figures and description of the suture loop species in the Detailed Description section. *See* Ex. 1002, 18-19, 40-45.

Similar to the changes made in the '700 patent in *Anascape*, Patent Owner's changes in the '601 application signal an effort to broaden the disclosure to support a generic "first member" encompassing a flexible loop, in contrast to earlier applications in the priority chain such as the '707 application, which had criticized the flexible loop as a problematic technique that the invention sought to overcome. Consistent with that view, we note that in his testimony in the parallel district court proceeding, Dr. ElAttrache agreed that the '907 patent application was the first application to include both the suture loop and the rigid eyelet. Ex. 1035, 381:6-15.

Petitioners' briefing cites additional decisions from the Federal Circuit and other courts and tribunals to buttress its contention that the claimed priority documents do not provide written description support for a generic "first member," but in our view, the pertinent facts of this case align most closely with *Tronzo* and *Anascape*.⁹

⁹ Patent Owner's arguments seeking to distinguish *Tronzo* and *Anascape* are discussed below.

We have considered Patent Owner’s arguments as to why the ’707 application provides written description support for a generic “first member” that encompasses a flexible loop, but those arguments are not persuasive for the reasons that follow. Patent Owner argues that the ’707 application incorporates the disclosure of the ’280 application by reference, and “[b]y virtue of that incorporation by reference, the ’707 application discloses the very same suture loop eyelet species disclosed in the ’280 application.” PO Resp. 17-18 (citing Ex. 1005, 2; Ex. 2037 ¶¶ 155-156). Patent Owner points out that the ’868, ’893, and ’218 applications also include the same incorporation by reference of the ’280 application as the ’707 application. *See id.* at 21-22 (citing Ex. 1006, 3; Ex. 1007; Ex. 1008; Ex. 2037 ¶¶ 181-183, 189-192). According to Patent Owner, “[g]iven that every application in the priority chain discloses the same suture loop eyelet species and that species conveys possession of a first member including an eyelet to a POSA, every application satisfies the general rule in *Bilstad* that disclosing a single species provides written description support for a genus including a species.” PO Resp. 23.

Patent Owner’s mechanistic application of a “general rule” from *Bilstad* does not accord with the Federal Circuit’s repeated emphasis that “written description questions are intensely factual, and should be dealt with on a case-by-case basis, without the application of wooden rules.” *Paice LLC v. Ford Motor Co.*, 881 F.3d 894, 910 (Fed. Cir. 2018) (quoting *Union Oil Co. of Cal. v. Atl. Richfield Co.*, 208 F.3d 989, 1000 (Fed. Cir. 2000)); *see also Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (“[W]e do not try here to predict and adjudicate all the factual scenarios

to which the written description requirement could be applied. Nor do we set out any bright-line rules governing, for example, the number of species that must be disclosed to describe a genus claim, as this number necessarily changes with each invention, and it changes with progress in a field.”). The Federal Circuit has explained that “while we did state in *Bilstad* that the mechanical field was ‘fairly predictable,’ we did not hold that all inventions that may be characterized as ‘mechanical’ allow claiming a genus based on disclosure of a single species.” *Synthes USA, LLC v. Spinal Kinetics, Inc.*, 734 F.3d 1332, 1345 (Fed. Cir. 2013). As Petitioners point out, in several cases addressing mechanical technology, the Federal Circuit has held that disclosure of one species did not support a broader genus. Reply 2-3 (citing *Synthes*, 734 F.3d at 1335-36; *Tronzo*, 156 F.3d at 1156; *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1478-1479 (Fed. Cir. 1998)).

Moreover, Patent Owner’s argument looks at the incorporation by reference statement in isolation without taking account of the ’707 application’s disclosure as a whole. Considered in its entirety, the ’707 application’s disclosure undermines Patent Owner’s argument that the incorporation by reference establishes written description support for the flexible loop species or a generic “first member.” The incorporation by reference of the ’280 application’s disclosure appears in the Background section of the ’707 application. Ex. 1005 ¶ 4. The ’707 application discusses the flexible loop of the ’280 application only in the Background section, and only in order to introduce the disadvantage of that structure that the invention overcomes. *Id.* ¶¶ 4-7.

In this context, the incorporation by reference of the '280 application does not demonstrate to a skilled artisan reviewing the entire disclosure of the '707 application that the application embraced a generic “first member” that could be either a suture loop or a rigid implant. *See Ex. 1019 ¶¶ 123-124; see also Tronzo*, 156 F.3d at 1159 (explaining that a reference in the parent patent to cup shapes other than conical did not support later claims to a generic cup shape because that reference “served the narrow purpose of reviewing the prior art and did not describe the invention”); *Anascape*, 601 F.3d at 1336-37 (rejecting argument that parent specification supported input members with fewer than six degrees of freedom because the cited sentence “is not a description of the ’525 invention; it is a description of prior art joysticks”). Indeed, as Petitioners point out in Reply, Dr. ElAttrache, a named inventor of the '907 patent and each of the applications in the priority chain, testified in the parallel district court proceeding that the '707 application disclosed only a rigid eyelet and not a suture loop. *See Reply* 18-19; *Ex. 1035*, 379:24-380:4.¹⁰

Patent Owner argues that Petitioners “overstate the effect of the background discussion” in the '707 application and that “the alleged disparaging statements at best amount to a difference of degree between embodiments rather than of kind.” PO Resp. 50; *see also id.* at 56-57. In this regard, Patent Owner’s expert, Dr. Higgs, testifies that a person of ordinary skill would not understand the '707 application to indicate that the inventors had moved beyond the flexible eyelet:

¹⁰ Patent Owner’s motion to exclude Exhibit 1035 is addressed in Section VI.

The point a person of skill would take away from those statements is that the inventors had improved on their invention with the additional embodiments disclosed for the first time in the '707 Application because those embodiments did not impede sliding *as much* as their previously preferred embodiment. The *difference in degree* of slideability of suture between eyelet embodiments in the same disclosure would certainly not cause a person of ordinary skill in the art to conclude the inventors "walked away" from the suture loop eyelet because this embodiment still works to achieve knotless fixation, the primary object of the invention.

Ex. 2037 ¶ 175 (emphasis added). This argument and testimony do not square with the disclosure of the '707 application itself. *See Anascape*, 601 F.3d at 1339 (dismissing expert testimony because it "cannot override the objective content of these [priority] documents"). The '707 application does not present the suture loop and the rigid implant as alternative embodiments with different degrees of slideability. Rather, in the '707 application, the background suture loop technique is said to impede sliding and the invention overcomes that deficiency by allowing free sliding. Ex. 1005 ¶¶ 5-7.

Relatedly, Patent Owner argues that "[i]f the inventors were leaving the flexible eyelet species behind . . . and moving on to 'only' the rigid eyelet species, there would have been no reason to rely on the '280 application for priority" or to incorporate it by reference. PO Resp. 58-59 (citing Ex. 2037 ¶¶ 155, 160, 178, 273). Petitioners respond that the priority claim to, and incorporation of, the '280 application in the '707 application may have been an effort to hold open the possibility of

claims focusing on other aspects of the '280 application, such as the second member. Tr. 9:23-10:20. In our view, the potential reasons why an application contains a priority claim or includes an incorporation by reference rather than simply citing an earlier application are technical matters of patent drafting and prosecution strategy. These questions may affect how a patent attorney interprets the '707 application's disclosure, but a person of ordinary skill in the art reading the '707 application is less likely to be influenced by those legalistic curiosities. *See Ariad*, 598 F.3d at 1351 ("[T]he test [for written description] requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art. Based on that inquiry, the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed."). To the extent that the '707 application's priority claim and incorporation by reference send a subtle signal of continuing allegiance to some aspect of the disclosure in the '280 application, the '707 application speaks with a much louder voice when it describes the suture loop as a problematic background technique that the invention seeks to remedy.

Patent Owner further argues that the '707 application does not disrupt the priority chain with respect to the suture loop species because "[m]ere recognition in the specification that an aspect of a prior art system is 'inconvenient' does not constitute 'disparagement' sufficient to limit the described invention. . . ." PO Resp. 45 (quoting *ScriptPro*, 833 F.3d at 1341). Patent Owner points out that "a specification's focus on one par-

ticular embodiment or purpose cannot limit the described invention where that specification expressly contemplates other embodiments or purposes.” *Id.* at 49 (quoting *ScriptPro*, 833 F.3d at 1341). Patent Owner’s reliance on *ScriptPro* is inapposite because a significant factor there was that “the same specification expressly contemplates that some embodiments of the described invention incorporate the ‘inconvenient’ aspect.” *ScriptPro*, 833 F.3d at 1341. That is not the case here. The ’707 application repeatedly emphasizes the need for captured suture to be able to freely slide within the aperture and indicates that free sliding was something that the flexible suture loop did not provide. Ex. 1005 ¶¶ 5-7, 29, 33. Patent Owner does not point to, and we do not find, any disclosure in the ’707 application contemplating that some embodiments of the invention of the ’707 application do not allow the captured suture to freely slide within the aperture.

Similarly, Patent Owner relies on *Spine Solutions, Inc. v. Medtronic Sofamor Danek USA, Inc.*, 620 F.3d 1305, 1315 (Fed. Cir. 2010), abrogated on other grounds by *Halo Electronics, Inc. v. Pulse Electronics, Inc.*, 136 S. Ct. 1923, 1930, 1934 (2016), for the proposition that where a specification notes it is “particularly difficult” to achieve something with the prior art, such a statement “does not rise to the level of an express disclaimer sufficient to limit the scope of the claims.” PO Resp. 46 (quoting *Spine Solutions*, 620 F.3d at 1315). But beyond simply noting a disadvantage of a prior art approach, as in *Spine Solutions*, the ’707 application goes on to state in the Summary of the Invention that “the present invention overcome[s] the disadvantages of the prior art” by permitting free sliding. Ex. 1005 ¶ 7.

The Detailed Description also specifically provides that “the present invention” can include other configurations than the embodiments specifically discussed “as long as” it provides for the ability of captured suture to freely slide within the aperture. *Id.* ¶ 33. These factual distinctions make *Spine Solutions* less relevant to the analysis here than the *Tronzo* and *Anascape* cases discussed above.

Patent Owner also argues that the statements in the Background section of the ’707 application relating to the inventors’ own previous work—the flexible loop of the ’280 application—are not a disparagement of a prior art approach because the ’707 application’s priority claim means that “the flexible loop of the ’280 application cannot be prior art to the ’707 application.” PO Resp. 47-48; *see also id.* at 33-34 (arguing that “the commentary on the ’280 application in the ’707 application is not a discussion of *prior art*, but, instead, is merely commentary on the inventors’ own earlier work”). Yet as Petitioners point out in their Reply, the ’707 application itself describes the flexible suture loop of the ’280 application as “prior art” having “disadvantages” overcome by the invention of the ’707 application. Ex. 1005 ¶¶ 5-7; Ex. 1019 ¶ 124; Reply 20. In any event, Patent Owner’s argument appears to be circular or question-begging, since it assumes that the ’707 application provides continuity of written description support for the flexible loop species through its priority claim to the ’280 application, which is the very question at issue. The ’280 application published on January 31, 2002, more than twelve months before the April 3, 2003 filing date of the ’707 application. Ex. 1010, at [43]; Ex. 1001, 1:12. Thus, despite the common inventorship of the ’280 and

'707 applications, the published version of the '280 application would constitute pre-AIA § 102(b) prior art for subject matter in the '707 application that is not entitled to priority.

In another argument for why the '707 application conveys possession of the flexible loop species or a generic first member encompassing that species, Patent Owner focuses on the original claims of the '707 application. *See* PO Resp. 51, 58. Claim 1 as filed in the '707 application recites a driver having a shaft, a preloaded interference device, and “an aperture provided at the distal end of the driver.” Ex. 1005, claim 1. The other independent claims as originally filed include the same or similar quoted phrase. *Id.* at claim 12 (“capturing the suture attached to the graft with an aperture provided at a distal end of the driver”), claim 25 (“feeding a suture attached to the soft tissue graft through an aperture of the implant”).

Patent Owner argues that “the originally filed claims of the '707 application, which generically recite an aperture at a distal end of the driver, encompass flexible eyelets even if they do inconveniently inhibit sliding or approximation of suture in some circumstances.” *Id.* at 51 (citing Ex. 2037 ¶¶ 238, 243-245). Patent Owner argues that “[t]here is no dispute that such an aperture includes the flexible eyelet embodiment of the '280 application as well as the rigid eyelet embodiment introduced in the '707 application.” *Id.* at 58 (citing Ex. 1019, ¶ 112; Ex. 2037 ¶¶ 159-162).

Petitioners disagree that this issue is undisputed. Reply 22 n.14; Pet. 34-35. Petitioners argue that the aperture recited in the original claims of the '707 application does not encompass the flexible suture loop given

the statements in the specification that the invention allows suture to freely slide and that the suture loop disadvantageously impedes sliding. *Id.* at 22-23 (citing Ex. 1005 ¶¶ 5, 7, 33). Petitioners cite several cases in which seemingly broad claim language was narrowed by the specification's characterizations of "the present invention" or its descriptions of prior art problems overcome by the invention because "the public 'is entitled to take a patentee at his word.' Here, the word for ten years (2003-2013) was that the invention required free sliding of suture, which a flexible loop did not permit." Reply 23-24 (quoting *Honeywell v. ITT*, 452 F.3d 1312, 1318 (Fed. Cir. 2006)); *see also id.* at 22-23 (citing *Edwards Lifesciences v. Cook*, 582 F.3d 1322, 1330 (Fed. Cir. 2009); *In re East*, 495 F.2d 1361, 1366 (CCPA 1974)); Pet. 34-35 (citing *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1343-44 (Fed. Cir. 2005); *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1581 (Fed. Cir. 1997)).

After considering the parties' arguments and evidence on this point, we are not persuaded that the claim phrase "an aperture at the distal end of the driver" would indicate to a skilled artisan reviewing the entirety of the '707 application possession of the flexible suture loop described in the '280 application. As Petitioners correctly point out, the specification is unambiguous in describing the disadvantages of the suture loop in impeding sliding and stating that the invention allows free sliding. Ex. 1005 ¶¶ 5, 7, 33. The Detailed Description of the '707 application describes two embodiments for capturing suture: a rigid eyelet and a horseshoe-shaped implant. *See* Ex. 1005 ¶¶ 24, 30, Fig. 1, Fig. 9.

These two embodiments are separately claimed as different types of apertures in dependent claims. *See id.* at claims 5, 6, 16, 18, 27, 28. When the '707 application teaches that configurations other than the rigid eyelet of Figure 1 or the horseshoe-shaped implant of Figure 9 can be used, it states that "the present invention also contemplates implants . . . having an aperture of any configuration or geometrical shape, **as long as it** captures suture and **allows the captured suture to freely slide** within the aperture." *Id.* ¶ 33 (emphasis added). Considering the specification and original claims as a whole, the breadth of the claim phrase "an aperture" does not convey possession of the disadvantageous flexible loop that does not allow free sliding, but instead reflects that the phrase could include an aperture in the shape of a horseshoe, an eyelet, or some other shape or configuration that allows captured suture to freely slide.

Furthermore, even if we were to agree with Patent Owner that written description support for a generic "first member" exists in the '707 application by virtue of the broad "aperture" term in the original claims, a separate problem arises for Patent Owner in the original claims of the '893 application. As Petitioners note, the original claims of the '893 application expressly require an aperture that allows suture to "slide freely." *See* Reply 24. Specifically, claims 1 and 9, the only two independent claims originally filed in the '893 application, recite that "the suture can freely slide through the aperture of the implant." Ex. 1007, claims 1, 9. Just like the '707 application, the Background section of the '893 application states that the flexible loop configuration of the '280 application "disadvantageously impedes sliding of the suture or graft which is fed through the suture

loop.” *Id.* ¶ 5. Since written description support for a generic “first member” must be present in each application in the priority chain, the absence of written description support in the ’893 application is sufficient by itself to prevent Patent Owner from antedating the ElAttrache and Martinek references. *See Lockwood*, 107 F.3d at 1571-72.¹¹

Turning to Patent Owner’s comments regarding the cases on which Petitioners rely, Patent Owner seeks to distinguish *Tronzo* on the ground that the specification in *Tronzo* described the shape of the cup as an “extremely important aspect of the present device.” PO Resp. 54-55 (quoting *Tronzo*, 156 F.3d at 1159). Patent Owner argues that “[t]here is no such statement in Patent Owner’s specification(s)” (*id.* at 55), but Patent Owner does not address the ’707 application’s repeated emphasis that the invention permits captured suture to freely slide within the aperture. *See Ex. 1005 ¶¶ 6, 7, 29, 33.* Patent Owner also argues that unlike *Tronzo*, where only one embodiment with a critical feature was disclosed, “the ’707 application contains both eyelet embodiments because of the incorporation of the ’280 application by reference. With both eyelets disclosed and originally filed claims that encompass both generically, the ’707 application is not limited to just a rigid eyelet.”

¹¹ When asked about this issue at the hearing, Patent Owner explained that the ’893 application does not break the priority chain because it includes the priority claim back to the ’280 application and it incorporates the ’280 application by reference. *See Tr. 48:7-49:13.* Patent Owner’s arguments regarding the priority claim and incorporation by reference have already been discussed. To the extent Patent Owner is relying on the language of the original claims of the ’707 application to establish written description support, the ’893 application presents a separate impediment.

PO Resp. 56 (citing Ex. 2037 ¶¶ 155-174). Patent Owner's reliance on the '707 application's incorporation by reference statement and its original claims is unpersuasive for the reasons discussed above.

As for *Anascape*, Patent Owner argues that a "key factor in the court's decision in that case was that *all original claims* of the earlier application *required* a 'single input member' and the claims of the CIP broadened beyond that so that more than one input member could provide the six degrees of freedom." PO Resp. 32 (citing *Anascape*, 601 F.3d at 1335). Patent Owner is correct that the Federal Circuit noted that the original claims of the parent application recited a single input member, but it does not appear to have been a key factor in the court's decision. After pointing out this fact in a single sentence, the court spent the next two pages detailing the many passages in the parent patent's specification indicating that the invention was directed to a single input member. *Anascape*, 601 F.3d at 1335-37. Those passages included the specification's teaching that a primary object of the invention was to provide a 6DOF controller including a single input member, the absence of any description in the specification of controllers with input members limited to fewer than six degrees of freedom, and description of the prior art's use of multiple input members as having "significant disadvantages." *Id.* at 1336-37.

In these respects, the deficiencies of the parent specification in *Anascape* parallel the '707 application's criticism of the suture loop and its emphasis on the invention's ability to allow suture to freely slide. See Ex. 1005 ¶¶ 5-7, 29, 33. Moreover, to the extent that Patent

Owner is correct that the original claims of the '707 application present a distinction with the operative facts of *Anascape*, that distinction is absent in the '893 application. As discussed above, the original claims of the '893 application expressly require an aperture that allows suture to slide freely, which feature is absent in the suture loop according to the '893 application's description. Ex. 1007 ¶ 5, claims 1, 9.

Patent Owner also notes that the patentee in *Anascape* made numerous changes in the child specification relative to the parent specification to broaden "single input member" to "at least one input member." PO Resp. 33. According to Patent Owner, "there was no such change in the '907 Patent compared to its parent applications" because the suture loop description from the '280 application that was incorporated by reference in the '707 application "remained that way in the '907 Patent" and the rigid implant description in the '707 application was unchanged. *Id.*

This argument overlooks several significant changes in the '601 application that became the '907 patent at issue in this case. As discussed above, compared to the '707 application, the '601 application deleted criticism of the suture loop species in the Background section, and deleted the statement in the Summary section that the invention overcomes those disadvantages and provides a fixed aperture through which suture is able to freely slide. *Compare* Ex. 1002, 11-12, *with* Ex. 1005 ¶¶ 4-7. The '601 application also added figures and description of the suture loop species in the Detailed Description section. *See* Ex. 1002, 18-19, 40-45. Even if Patent Owner is correct that this content is the same as what was in the '280 application, that material was previously

incorporated in the Background section of the '707 application describing the problematic technique that impeded sliding. Ex. 1005 ¶¶ 4-5. Its appearance in the Detailed Description of the '601 application, in conjunction with the other changes in the '601 application, signals that the suture loop is an alternative embodiment rather than a problematic prior art technique that the invention improves upon. Indeed, Dr. ElAttrache agreed, in his testimony in the parallel district court proceeding, that the '601 application was the first application to include both the suture loop and the rigid eyelet. Ex. 1035, 381:6-15. Accordingly, we disagree with Patent Owner's argument that “[n]o *Anascape*-like modification was made to the specification of the '601 application for the '907 Patent.” PO Resp. 33.¹²

F. Conclusion Regarding Priority

For the reasons discussed above, we find that '707 application does not provide written description support for a generic “first member” that encompasses a flexible loop. The absence of written description support in the '707 application for the “first member” limitation in each of the independent claims of the '907 patent means that Patent Owner cannot establish entitlement to a priority date antedating the cited references. *Lockwood*, 107 F.3d at 1571.

¹² Patent Owner also argues that the parent application in *Anascape* distinguished the single input member from prior art, whereas the '707 application's discussion of the '280 application “is merely commentary on the inventors' own earlier work,” not a discussion of prior art. PO Resp. 33-34. Patent Owner's argument that common inventorship prevents the '280 application from being prior art to the '707 application is unpersuasive for the reasons discussed above.

Further, the '868, '893, and '218 applications lack written description support for a generic “first member” for the same reasons. The passages from the '707 application indicating that the suture loop impedes free sliding and that the invention overcomes that deficiency and allows captured suture to freely slide are present in each of the '868, '893, and '218 applications. Ex. 1006 ¶¶ 5-7, 32, 41; Ex. 1007 ¶¶ 5-7, 32, 41; Ex. 1008 ¶¶ 5-7, 32, 41. Thus, we determine that the challenged claims are not entitled to priority to any earlier application.

Accordingly, under 35 U.S.C. § 100(i)(1)(A), the effective filing date of the challenged claims is May 8, 2014, the actual filing date of the '601 application.

VI. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner moved to exclude Exhibit 1035 on the grounds that it is irrelevant under Rules 401-403 of the Federal Rules of Evidence. *See* Paper 25, 3-6.¹³ Exhibit 1035 is an excerpt of the testimony of Dr. Neal ElAttrache, one of the named inventors of the '907 patent, from the trial in the parallel district court case in the U.S. District Court for the Eastern District of Texas. *Id.* at 1. Petitioners opposed the motion, and Patent Owner filed a reply in support of its motion. Paper 27; Paper 29.

The test for relevance is whether the evidence “has any tendency to make a fact more or less probable than it would be without the evidence” and “the fact is of consequence in determining the action.” Fed. R. Evid.

¹³ Patent Owner's motion also included an argument that Exhibit 1035 constitutes inadmissible hearsay, but Patent Owner withdrew its hearsay objection in light of Petitioners' arguments in opposition. *See* Paper 25, 1-3; Paper 29, 1.

401. Here, Dr. ElAttrache's sworn testimony, in pertinent part, tends to show that the '707 application describes rigid eyelets as the invention and does not describe flexible suture loop eyelets, and that the '601 application that issued as the '907 patent was the first application to include both the suture loop and the rigid eyelet. Ex. 1035, 379:24-380:5, 381:6-15. These facts are of consequence to the priority analysis for the reasons discussed above in Section V.E.

Patent Owner argues that the cited testimony was part of a cross-examination focusing on certain figures, and that Dr. ElAttrache may have been responding based on those figures rather than his review of the entire application. Paper 25, 4-5; Paper 29, 2. This argument goes to the weight to be given Dr. ElAttrache's testimony, not its admissibility. Patent Owner also argues that the written description analysis focuses on the content of the patent applications themselves, not the inventor's recollection of them. Paper 25, 6; Paper 29, 2-3. Patent Owner is correct that the written description inquiry turns on what the four corners of a specification convey to a hypothetical person of ordinary skill. *See Ariad*, 598 F.3d at 1351. Dr. ElAttrache's testimony is probative on that issue for at least the reason that his testimony sheds light on what a person of ordinary skill in the art would have understood. *See* Ex. 1035, 316:22-317:6 (testifying that he has been practicing as an orthopedic surgeon since completion of his fellowship in sports medicine in 1990).

As Petitioners point out, Dr. ElAttrache's trial testimony in Exhibit 1035 runs counter to some of the positions Patent Owner has staked out in this proceeding. Paper 27, 11-12. In *Ultratec, Inc. v. CaptionCall, LLC*,

872 F.3d 1267, 1275 (Fed. Cir. 2017), the Federal Circuit held that the Board abused its discretion when it refused to admit the testimony of a witness from a parallel district court proceeding that was allegedly inconsistent with testimony the same witness provided in the Board proceeding. Unlike the witness in *Ultratec*, Dr. ElAttarache did not testify in this proceeding, but he is nevertheless closely associated with Patent Owner through his status as an inventor of the '907 patent, his continuing work for Patent Owner, and the \$38 million in compensation he has received from Patent Owner over their 20 year relationship. See Ex. 1035, 344:17-345:15, 348:23-349:5. We conclude that his testimony as a witness called by Patent Owner in the district court proceeding on the same topics that are being disputed here is relevant and admissible.

For the foregoing reasons, we deny Patent Owner's motion to exclude Exhibit 1035.

VII. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 4, 8, 10-12, 16, 18, and 25-28 have been shown to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude Exhibit 1035 is denied; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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APPENDIX E

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case IPR2017-00116
Patent 7,334,150 B2

KINGSTON TECHNOLOGY COMPANY, INC., PETITIONER

v.

POLARIS INNOVATIONS LTD., PATENT OWNER

Entered: Mar 29, 2017

DECISION

Granting Institution of *Inter Partes* Review
37 C.F.R. § 42.108

Before SALLY C. MEDLEY, BARBARA A. PARVIS, and
MATTHEW R. CLEMENTS, *Administrative Patent
Judges*.

PARVIS, *Administrative Patent Judge*.

I. INTRODUCTION

Kingston Technology Company, Inc. (“Petitioner”) filed a Petition for *inter partes* review of claims 1-3, 5, 6, and 8-11 of U.S. Patent No. 7,334,150 B2 (Ex. 1001, “the ‘150 Patent”). Paper 2 (“Pet.”). Polaris Innovations Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); *see* 37 C.F.R. § 42.108. Upon consideration of the Petition and Preliminary Response, we conclude Petitioner demonstrates a reasonable likelihood of prevailing in demonstrating the unpatentability of the challenged claims of the ’150 Patent and, therefore, we institute an *inter partes* review as to these claims on the grounds specified below.

A. Related Matters

The parties state that the ’150 Patent is the subject of a pending lawsuit in the Central District of California, i.e., *Polaris Innovations Ltd. v. Kingston Tech. Co.*, Case No. 8:16-cv-300 (C.D. Cal.)¹ and the lawsuit includes assertions against Petitioner. Pet. 2; Paper 3 (Patent Owner’s Mandatory Notices), 1.

B. The ’150 Patent

The ’150 Patent is directed to a semiconductor memory module that includes a register circuit and a clock signal regeneration circuit. Ex. 1001, 1:9-16. Figure 2 is reproduced below.

¹ This lawsuit is referred to herein as the “companion district court lawsuit.”

132a

FIG 2

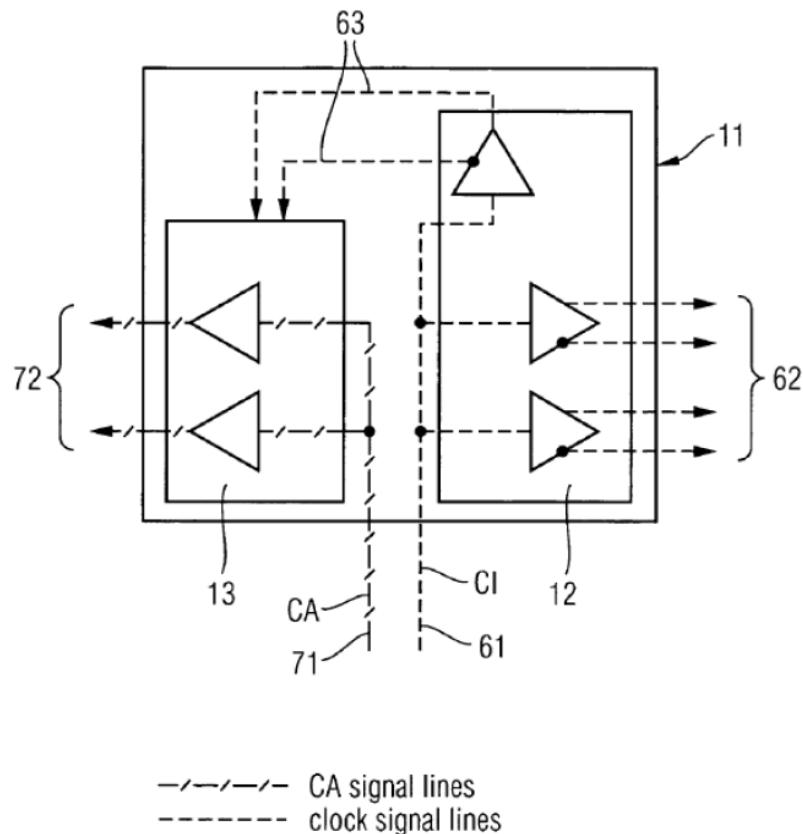


Figure 2 shows a top view of a clock signal regeneration circuit and register circuit in a common chip packing.

As shown in Figure 2 above, chip packing 11 contains clock signal regeneration circuit 12 and register circuit 13. Ex. 1001, 4:30-33. Differential clock signal input line 61 supplies clock signal Cl to common chip packing 11.

Id. at 4:41-43. Line section 71 supplies command and address input signals “CA.” *Id.* at 4:43-45. Differential clock signal lines 62 from clock signal regeneration circuit 12 supply the conditioned clock signal to memory chips 4 and 4a. *Id.* at 4:49-53. Differential clock signal lines 63 supply the conditioned clock signal to register circuit 13. *Id.* at 4:54-56. From register circuit 13, temporarily stored command and address signals are supplied by differential command and address signal lines 72 to memory chips 4 and 4a. *Id.* at 4:56-60.

C. Illustrative Claim

Petitioner challenges claims 1-3, 5, 6, and 8-11 of the '150 Patent. Claim 1 is an independent claim. Claims 2, 3, 5, 6, and 8-11 depend directly from claim 1. Independent claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A memory module comprising:
 - a plurality of memory chips arranged on the memory module;
 - a plurality of bus signal lines operable to supply an incoming clock signal and incoming command and address signals to at least the memory chips;
 - a clock signal regeneration circuit configured to generate a plurality of copies of the incoming clock signal and to supply the copies of the incoming clock signal to the memory chips, the copies of the incoming clock signal having a same frequency as the incoming clock signal; and
 - a register circuit arrange[d] on the memory module in a common chip packing with the clock regeneration circuit and configured to receive one of the

copies of the incoming clock signal from the clock regeneration circuit, the register circuit being further configured to temporarily store the incoming command and address signals and to generate a plurality of copies of the incoming command and address signals and supply the copies of the incoming command and address signals to the memory chips, the copies of the incoming command and address signals having a same frequency as the incoming command and address signals.

Id. at 7:1-25.

D. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–3, 5, 6, and 8–11 are unpatentable based on the following grounds (Pet. 4):

Reference(s)	Basis	Challenged Claim(s)
Dodd ²	§ 103(a)	1, 2, 5, 6, and 8-10
Dodd and Keeth ³	§ 103(a)	3 and 11
Lee ⁴	§ 103(a)	1, 2, 5, 6, and 8-10
Lee and Keeth	§ 103(a)	3 and 11

² U.S. Patent No. 6,530,006 B1, issued Mar. 4, 2003 (Ex. 1003) (“Dodd”).

³ U.S. Patent No. 7,123,046 (B2, issue Oct. 17, 2006 (Ex. 1016) (“Keeth”).

⁴ U.S. Patent No. 6,898,726 B1, issued May 24, 2005 (Ex. 1008) (“Lee”).

As support, Petitioner proffers a Declaration of Dr. Vivek Subramanian, who has been retained by Petitioner for the instant proceeding. Ex. 1011 ¶¶ 1-3.

II. DISCUSSION

A. Overview

A patent claim is unpatentable if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103(a). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. See *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). In that regard, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” See *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

B. Person of Ordinary Skill in the Art

Petitioner proposes that a person of ordinary skill in the art had a Master’s degree in Electrical Engineering and at least 2 years’ experience working in the field of semiconductor memory design. Ex. 1003 ¶¶ 17-19 (cited e.g., in Pet. 7). Patent Owner does not dispute Petitioner’s proposal. See generally Prelim. Resp. We

adopt Petitioner's proposed definition for the purposes of this Decision.

We also consider the level of skill implied by the disclosures of the prior art references. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself can reflect the appropriate level of skill in the art). Additionally, this person is of ordinary creativity, not an automaton. *KSR*, 550 U.S. at 421.

C. Claim Construction

Petitioner provides proposed constructions for certain terms, set forth below (Pet. 12-17).

Term	Petitioner's Proposed Construction
“memory module”	“[a] removable circuit board, cartridge, or other carrier that contains one or more memory chips.”
“having a same frequency”	“with no intended modification from the frequency of the incoming signal.”
“RDIMM”	“A Dual In-Line Memory Module that has circuitry to buffer control signals, addresses, or data.”

Patent Owner makes two arguments in response: (1) Petitioner should be held to its previous arguments in the companion district court lawsuit (Prelim. Resp. 5-26, 31-32); and (2) certain of Petitioner's constructions interject vague terms, i.e., “removable” and “intended” (*id.* 27-31).

1. Whether Petitioner Should Be Held to Companion District Court Lawsuit Positions

We turn to Patent Owner’s contention that Petitioner should be held to its previous arguments in the companion district court lawsuit. Prelim. Resp. 5-26, 31-32. Patent Owner, more specifically, points to Petitioner’s alleged previous arguments in the companion district court lawsuit that (1) “clock signal regeneration circuit” and “a register . . . configured to . . . generate a plurality of copies of the incoming command and address signals” are means-plus-function limitations (*id.* at 5-16); (2) claim 6 is indefinite (*id.* at 16-26); and (3) “RDIMM” register circuitry buffers only command and address signals, not data (*id.* at 31-32).

Claims that include the language “means” or “means for” are presumed to invoke 35 U.S.C. § 112 ¶ 6.⁵ *See Williamson v. Citrix Online, LLC*, Case No. 2013-1130, slip op. 16 (Fed. Cir. June 16, 2015) (en banc in relevant part) (“use of the word ‘means’ creates a presumption that § 112, ¶ 6 applies.”). However, the terms “clock signal regeneration circuit” and “a register . . . configured to . . . generate a plurality of copies of the incoming command and address signals” do not contain the language “means” or “means for.”

As Petitioner correctly contends (Pet. 11), and Patent Owner acknowledges (*see, e.g.*, Prelim. Resp. 10, 30) in an *inter partes* review, we construe claim terms in an

⁵ Section 4(c) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”) re-designated 35 U.S.C. § 112 ¶ 6, as 35 U.S.C. § 112(f). Because the ’150 Patent has a filing date before September 16, 2012, the effective date of § 4(c) of the AIA, we will refer to the pre-AIA version of 35 U.S.C. § 112.

unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b). In the instant proceeding, neither party contends that the independent claims recite “means” or “means for,” or contends that 35 U.S.C. § 112, ¶ 6 should apply to “clock signal regeneration circuit” or “a register . . . configured to . . . generate a plurality of copies of the incoming command and address signals.” Pet. 11-16; Prelim. Resp. 5-16. Furthermore, Patent Owner has provided only partial evidence of the parties’ claim construction contentions in the companion district court. Prelim. Resp. ix; Ex. 2002.

Based on the record before us at this juncture of the proceeding, we are not persuaded that either “clock signal regeneration circuit” or “a register . . . configured to . . . generate a plurality of copies of the incoming command and address signals” invokes § 112 ¶ 6. This determination is sufficient to resolve the only dispute between the parties at this juncture, which is whether Petitioner has satisfied 37 C.F.R. § 42.104(b)(3).⁶ Accordingly, we determine that it is not necessary to provide an express interpretation of “clock signal regeneration circuit” or “a register . . . configured to . . . generate a plurality of copies of the incoming command and address signals.” See *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355,

⁶ Under 37 C.F.R. § 42.104(b)(3) “Where the claim to be construed contains a means-plus-function . . . limitation . . . the construction of the claim must identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.”

1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed ‘to the extent necessary to resolve the controversy’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Regarding Patent Owner’s contention that Petitioner should be held to its previous arguments in the companion district court lawsuit that claim 6 is indefinite, in the instant proceeding, neither party contends that claim 6 is indefinite. *See, generally*, Pet.; Prelim. Resp. 16-26. Furthermore, Patent Owner again has provided only partial evidence of the parties’ claim construction contentions in the companion district court lawsuit and has not submitted a decision in the companion district court lawsuit determining that claim 6 is indefinite. Prelim. Resp. ix; Exs. 2001, 2003. We determine that it is not necessary to provide an express interpretation of the term to resolve a dispute between the parties at this juncture of the proceeding.

We turn to Patent Owner’s contention that Petitioner should be held to its previous arguments in the companion district court lawsuit that “RDIMM” register circuitry buffers only control and address signals, not data. Prelim. Resp. 31-32. Neither of the parties contends that this construction is appropriate in the instant case. Instead, Petitioner contends that “RDIMM” stands for registered dual in line memory module. Pet. 37. Patent Owner does not disagree and, further, does not dispute that RDIMMs were known prior art devices. Prelim. Resp. 48.

Additionally, we need not limit “RDIMM” to register circuitry that buffers only control and address signals to address Patent Owner’s asserted inconsistency with respect to Dr. Subramanian’s testimony. *Id.* at 31 (citing

Ex. 1011 ¶ 32). Dr. Subramanian testifies that “the BRI of the term ‘RDIMM’ is ‘a DIMM that has register circuitry to buffer control signals.’” Ex. 1011 ¶ 32. Independent claim 1 recites that a “memory module, comprising” “a register circuit,” and, claim 10, which depends directly from claim 1, further recites that the “memory module comprises an RDIMM module.” Based on the record before us, including the aforementioned express recitations of the claims, at this juncture of the proceeding, we determine that it is not necessary to provide an express interpretation of the term “RDIMM” to resolve a dispute.

*2. Whether Petitioner’s Proposed Constructions
Introduce Vague Terms*

We now turn to Patent Owner’s argument that certain of Petitioner’s proposed constructions interject vague terms, i.e., “removable” and “intended” (Prelim. Resp. 27-31). Regarding “removable” in Petitioner’s proposed construction of “memory module” (Pet. 12-13) recited in claim 1, Patent Owner does not dispute that the asserted prior art teaches a memory module. *See generally* Prelim. Resp. Additionally, Patent Owner specifically contends that “Patent Owner acquiesces” to Petitioner’s proposal “for present purposes.” *Id.* at 28. Accordingly, we determine no express construction of the term “memory module” is needed to resolve a dispute between the parties based on the current record at this juncture.

With respect to “intended” within Petitioner’s proposed construction for “same frequency” (Pet. 13-16) recited in claim 1, Petitioner’s proposal is based on remarks made during prosecution (*id.* at 15-16). Petitioner contends (*id.* at 13) and Patent Owner does not

dispute (Prelim. Resp. 28-31) that the phrase “having the same frequency” did not appear in the specification or claims as filed, but was added by amendment. Patent Owner’s proposal is to remove the word “intended” from Petitioner’s proposed construction. *Id.* at 30-31.

Although Patent Owner disputes that Lee teaches a copy of a clock having the same frequency (*id.* at 50), based on the record before us at this juncture, resolution of this dispute does not hinge on whether we adopt Patent Owner’s proposal regarding the word “intended.” Instead, the dispute pertains to whether the frequency may be adjusted. *See id.* at 51 (“[A] copy **at half frequency**” is “not at ‘a same frequency.’”).

We begin by noting that “same frequency” is within a larger phrase, set forth below.

To generate a plurality of copies of the incoming command and address signals and supply the copies of the incoming command and address signals to the memory chips, the copies of the incoming command and address signals having a *same frequency* as the incoming command and address signals.

Ex. 1001, 7:20-25.

Based on the record before us at this juncture, we decline to construe the full phrase above such that both the generated copies and the copies that are supplied are required to be at the same frequency as the incoming signals. Instead, we consider embodiments set forth in the ’150 Patent Specification, including a preferred embodiment, in which intermediary frequency adjustments are made. For instance, in the Summary of the Invention, the ’150 Patent describes that “CA signals are multiplied by a factor of 1:X” so that “several CA copies can

be provided to several branches.” Ex. 1001, 2:2:57-59; *see also id.* at 3:61-64 (“The register and clock signal regeneration circuits are, *preferably*, designed such that they each multiply the clock signal and the command and address signal by a factor of 1:2” (emphasis added)). Based on the current record before us at this juncture, we determine no other express construction of the term “same frequency” is needed to resolve a dispute between the parties based on the current record at this juncture.

D. Evidentiary Weight of Declaration Evidence

In addition to the asserted prior art, the Petition relies upon Dr. Subramanian’s Declaration (Ex. 1011). Patent Owner contends that we should accord Dr. Subramanian’s testimony no evidentiary weight because he “merely parrots the Petition.” Prelim. Resp. 32-35. Patent Owner provides an exemplary comparison (*id.* at 33-34) and submits a table with additional comparisons (Ex. 2004).

Based on the record before us and at this juncture, we decline to disregard the Declaration (Ex. 1011) as Patent Owner suggests. We are not convinced that any similarities in the Petition and Dr. Subramanian’s Declaration necessarily indicate that the Declaration is a copy of an attorney-prepared Petition. Instead, the Petition may be a copy of the Declaration or Dr. Subramanian may have worked with the attorneys to prepare both the Petition and Declaration simultaneously.

*E. Obviousness of Claims over Dodd alone
or with Keeth*

Petitioner contends claims 1, 2, 5, 6, and 8-10 are unpatentable under 35 U.S.C. § 103(a) as obvious over

Dodd.⁷ Pet. 4, 18-39. Petitioner contends claims 3 and 11 are unpatentable under 35 U.S.C. § 103(a) as obvious over Dodd and Keeth. *Id.* at 4, 39-41.

1. Overview of Dodd

Dodd is directed to a buffered memory system with data buffers, an address/command buffer, and a clock circuit. Ex. 1003, Abstract. Figure 1 of Dodd is reproduced below.

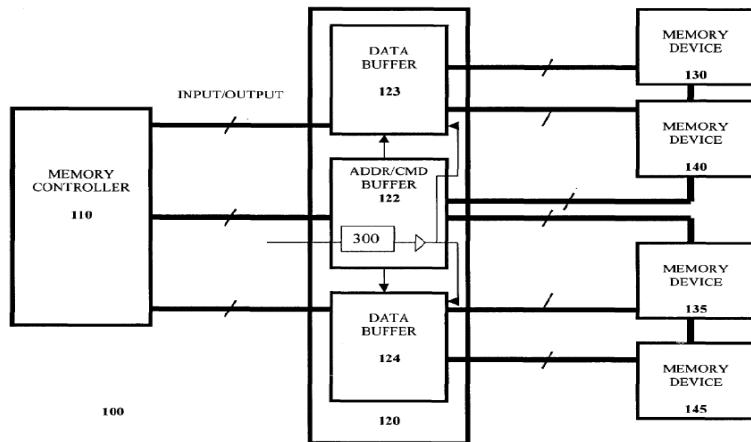


FIG. 1

Figure 1 illustrates a buffered memory system.

As shown in Figure 1 above, buffered memory system 100 comprises memory controller 110, buffer 120, and memory devices 130-145. *Id.* at 2:39-43. Memory controller 110 is connected to buffer 120, which is connected to memory devices 130-145 so that status, address, and command information, as well as data are

⁷ Although claim 11 is listed in the section heading for this ground (Pet. 18), the analysis of claim 11 is found within only the next section (*id.* at 39-41).

transmitted from memory controller 110 to memory devices 130-145 via buffer 120. *Id.* at 2:56-61. Memory controller 110 also receives data from memory devices 130-145 via buffer 120. *Id.* at 2:61-63.

2. Overview of Keeth

Keeth is directed to adaptively adjusting a transition threshold of a data receiver using differential clock signals and a reference voltage. Ex. 1016, Abstract. According to Keeth, Double Data Rate Dynamic Random Access Memory (DDR DRAM) devices use differential signaling for clock signals at clock pins of a device package. *Id.* at 1:22-30. DDR DRAM devices use non-differential signaling for data signals input on the device data pins. *Id.* at 1:35-37.

3. Discussion of Claim 1

We begin our analysis with independent claim 1. Claim 1 is directed to a memory module comprising memory chips and bus lines. Ex. 1001, 7:1-7. Petitioner points to teachings relating to Dodd's memory module 150. Pet. 21-24 (citing Ex. 1003, 2:39-63, 3:51-4:14, 5:57-6:7, Figs. 1, 3, 5; Ex. 1011 ¶¶ 38-40). Consistent with Petitioner's contentions (*id.*), Dodd teaches a buffering structure, including data buffers 123 and 124, and an address and command buffer 122 that, in accordance with one embodiment, is housed within memory module 150 along with memory devices 1-8 (see, e.g., Ex. 1003, 5:57-63, Fig. 5). The memory module includes bus lines for receiving data, address, and command signals as well as clock signals. Ex. 1003, 5:63-6:11, Figs. 1, 3, 5.

Claim 1 also recites a clock signal regeneration circuit configured to generate copies with the same fre-

quency as the incoming clock signal and supply the copies to the memory chips. Ex. 1001, 7:8-13. Petitioner points to the clock circuit in the memory module that generates and supplies copies of the clock signal. Pet. 24-25 (citing Ex. 1003, 3:51-4:18, 5:6-32, 5:57-6:20, Figs. 3, 5; Ex. 1011 ¶¶ 41, 42). Consistent with Petitioner's contentions (*id.*), Dodd teaches clock circuit 300 that copies input clock 10 and drives output clock 20 to the data buffers 123 and 124 so that the memory devices receive the signals in one clock command. Ex. 1003, 3:67-4:18; *see also id.* at 5:57-6:20 (teaching implementing embedded clock signal 300 to synchronize clocking of data buffers 123 and 124 and memory devices 1 through 8 with that of address command buffer 122). Dodd also teaches implementing clock circuit 300 as a PLL such that “[w]hen the PLL is ‘locked’ the frequency and phase of the output signal are the same as those of the input signal.” *Id.* at 5:6-32.

Claim 1 additionally recites a register circuit arranged on the memory module in a common chip packing with the clock regeneration circuit and configured to receive copies of the clock signal from the clock regeneration circuit. Ex. 1001, 7:14-18. Petitioner points to Dodd's teachings relating to the buffering structure, for example, buffer 120. Pet. 25-28 (citing Ex. 1003, 2:1-5, 2:39-3:12, 3:51-4:18, 5:5-25, 5:57-6:11, Figs. 1, 3-5; Ex. 1011 ¶¶ 19, 43-46). Consistent with Petitioner's contentions (*id.*), Dodd, for example, teaches “buffer 120 is an external buffer(s) or register(s)” (Ex. 1003, 2:43-45), which has “embedded therein a clock circuit 300 and a clock driver 310” (*id.* at 6:1-3). Additionally, Dodd teaches an embodiment in which clock circuit 300 is em-

bedded within address and command buffer 122 and copies of the clock signal are received by data buffers 123 and 124, all within buffer 120. *Id.* at 5:57-6:11, Fig. 5. In accordance with this embodiment, Dodd further teaches that the buffering structure includes address and command buffer 122, embedded clock circuit 300, and data buffers 123 and 124, and that this buffering structure and memories 1-8 are within memory module 150. *Id.*

Claim 1 further recites that the register circuit is configured to temporarily store and then supply to the memory chips copies of command and address signals having the same frequency as the incoming command and address signals. Ex. 1001, 7:18-25. Petitioner references back to other portions of the Petition discussed above, as well as to teachings relating to the buffering structure and, more specifically, address and command buffer 122 therein. Pet. 28-31 (citing *e.g.*, Ex. 1003, 2:39-3:12, 3:51-4:18, 5:60-65, Figs. 1, 3, 5; Ex. 1011 ¶¶ 47-52). Relying on the testimony of Dr. Subramanian, Petitioner also contends that an ordinarily skilled artisan would have recognized that Dodd's buffering structure does not change the frequency of the buffered signals. Pet. 31 (citing Ex. 1011 ¶ 52). Consistent with Petitioner's contentions, Dodd teaches "a buffered memory" including "ADDR/CMD buffer 122" (Ex. 1003, 5:57-61) and that "information such as data, status information, address information and command information" are transmitted "to the memory devices 1-8 via the buffering structure" (*id.* at 5:63-66).

We turn now to Patent Owner's contentions. Our claim construction discussion above addresses Patent Owner's contentions that we should hold Petitioner to

its alleged previous arguments in the companion district court lawsuit (Prelim. Resp. 2-26). We also discuss above Patent Owner's contentions regarding evidentiary weight to be given to Dr. Subramanian's Declaration (*id.* at 32-35). Patent Owner makes two additional arguments regarding obviousness of claim 1 over Dodd as follows: (1) Dodd does not teach a copy of the clock signal going to the register circuit (*id.* at 35-37) and (2) Dodd does not teach a plurality of copies of the command and address signals (*id.* at 37-39).

Regarding the first of these, i.e., that Dodd does not teach a copy of the clock signal going to the register circuit (*id.* at 35-37), Patent Owner acknowledges that Dodd teaches Dodd's output clock 20 is provided to data buffers 123 and 124 (*id.* at 37). Patent Owner, however, contends that "this purported register circuit is the portion of the block 122 which holds the command and address data" and "we do not see any indication that the purported copy of the clock" is sent to "the other portion of block 122." *Id.* at 36-37.

Contrary to Patent Owner's contention (*id.*), Petitioner points to Dodd's teaching of a buffering structure, as discussed above. *See, e.g.*, Pet. 25 (citing *e.g.*, Ex. 1003, 2:40-45)). Consistent with Petitioner's contentions and Patent Owner's acknowledgement, Dodd teaches receiving copies of the clock signal by data buffers 123 and 124, within the buffering structure, *e.g.*, buffer 120. *See, e.g.*, Ex. 1003, 5:57-6:11, Figs. 1, 3, 5. Second, consistent with Petitioner's contentions (*see, e.g.*, Pet. 26), Dodd teaches that clock circuit 300 is embedded within ADDR/CMD buffer 122, which temporarily stores address and command signals and also is within the buffering structure. Ex. 1003, 5:57-6:11, Figs. 1, 5.

Furthermore, we are not persuaded by Patent Owner's implicit contention that the recitation of "arrange[d] in a memory module in a common chip packing" in claim 1 requires that the register circuit and clock signal regeneration circuit be within the same portion of a particular buffer. Prelim. Resp. 35-37. To the contrary, based on the current record at this juncture, the teachings of Dodd appear similar to at least one embodiment of a common chip packing described in the '150 Patent Specification (Ex. 1001, Fig. 2).

Regarding the second of Patent Owner's contentions, i.e., that Dodd does not teach a plurality of copies of the command and address signals (Prelim. Resp. 37-39), Patent Owner's contentions are based on a small portion of Dodd's teachings identified and explained in the Petition (Pet. 22-31), which are taken out of context. More specifically, Patent Owner bases its contentions on an alleged insufficiency of "two thick lines" in Figure 1 of Dodd. Prelim. Resp. 37-39. Petitioner, however, more broadly points to Dodd's teachings relating to buffer structures. *See, e.g.*, Pet. 28-31 (citing *e.g.*, Ex. 1003, 2:39-3:12, 3:51-4:18, 5:60-65, Figs. 1, 3, 5; Ex. 1011 ¶¶ 47-52). Consistent with Petitioner's contentions, Dodd teaches transmitting signals such as data, status information, address information and command information to the memory chips. Ex. 1003, 2:36-41, 2:54-63, 5:63-66. Dodd also teaches that the buffered structure allows for "bolder scaling" and that connection lines "represented as a single line" instead "may in fact be a plurality of lines." *Id.* at 2:48-56.

Having reviewed the Petition and Preliminary Response, and the evidence cited therein, based on the rec-

ord before us at this juncture, we determine that Petitioner has demonstrated a reasonable likelihood of showing claim 1 to be unpatentable in view of Dodd.

4. Discussion of Claims 2, 5, 6, and 8-10

Each of claims 2, 5, 6, and 8-10 depends directly from independent claim 1. We have reviewed Petitioner's showing (Pet. 32-39) with respect to dependent claims 2, 5, 6, and 8-10 and the teachings of Dodd.

Patent Owner contends that Dodd does not teach that the clock and register circuits are "integrated on a common chip," as recited in claim 5 or that the common chip packaging is "arranged essentially at a central position" on the memory module, as recited in claim 6. Prelim. Resp. 39-47. Patent Owner also disputes Petitioner's contentions regarding dependent claim 10. *Id.* at 48-50.

Regarding claim 5, Patent Owner's contentions are premised on whether the asserted art contains precisely the same words as the further recitation of claim 5. More specifically, Patent Owner asserts that the word "embedded" is too imprecise to teach "integrated on a common chip," based on various dictionary definitions of "embedded" and "encapsulate," some of which pertain to computer software. Prelim. Resp. 39 (citing Ex. 2005; Ex. 2006; Ex. 2007; Ex. 2008; Ex. 2009). Contrary to Patent Owner's assertion, Dodd pertains to buffering for memory devices, such as DRAM devices. Ex. 1003, 1:8-15. In this context, Dodd teaches "[w]ithin the ADDR/CMD buffer 122, there is embedded therein a clock circuit 300 and a clock driver 310." *Id.* at 6:1-3; *see also id.* at 3:64-65 ("Embedded in the ADDR/CMD buffer 122 is an embedded clock circuit 300."). Furthermore, dictionary definitions proffered by Patent

Owner that pertain to electronics are consistent with Petitioner's contentions, e.g., "to include within a larger entity" (Ex. 2005, 3). We disagree with Patent Owner's contention that we cannot consider teachings relied upon by Petitioner that do not include the exact term "integrated." Petitioner contends that claim 5 is obvious (Pet. 4), which involves a determination of whether the claimed invention would have been obvious to a person of ordinary skill in the art based on the *Graham* factors, not an *ipsissima verba* test.

Regarding claim 6, Patent Owner contends that we should not rely on Dr. Subramanian's testimony regarding figures of Dodd for the further recitation that the common chip packaging is "arranged essentially at a central position" on the memory module, as recited in claim 6 because the figures do not show a physical arrangement and the corresponding text of Dodd does not describe the placement using the exact words "central position." Prelim. Resp. 42-45. Based on the record before us, we are not persuaded that Dodd's figures cannot be considered at all with respect to a physical arrangement. Instead, we note that at least Figure 5 of Dodd specifically shows the buffering structure on memory module 150. Ex. 1003, Fig. 5. Furthermore, for the reasons discussed above with respect to claim 5, we are persuaded by Dodd's teachings, including pictorial representations of circuits, regardless of whether the exact term "central" is used.

Regarding claim 10 and the further recitation "wherein the memory module comprises an RDIMM module," Patent Owner, more specifically, contends that Dodd "disparages the use of RDIMMs." Prelim. Resp. 48. Based on the record before us at this juncture, we

find that Dodd's description of “[p]rior art designs” (Ex. 1003, 1:64-2:5) does not criticize, discredit, or otherwise discourage the use of its reliability improvements in connection with a RDIMM module. *See DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (“A reference does not teach away, however, if it merely expresses a general preference for an alternative invention but does not ‘criticize, discredit, or otherwise discourage’ investigation into the invention claimed.”) (*quoting In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004)). Dodd teaches that its solution of reducing costs by embedding a clock signal (Ex. 1003, 6:63-67) may be used in “memory devices 130-145, such as DRAM devices” (*id.* at 2:47-48). Dodd further teaches that “many modifications may be made” and the embodiments are intended to be “illustrative and not restrictive” (*id.* at 7:3-15).

Having reviewed the Petition and Preliminary Response, and the evidence cited therein, based on the record before us at this juncture, we determine that Petitioner has demonstrated a reasonable likelihood of showing claims 2, 5, 6, and 8-10 to be unpatentable in view of Dodd.

5. *Discussion of claims 3 and 11*

We next turn to dependent claims 3 and 11, each of which depends directly from independent claim 1. Petitioner asserts that the combination of Dodd and Keith teaches all elements of claims 3 and 11 and provides a rationale for combining the teachings of Dodd and Keeth. Pet. 39-41.

For instance, Petitioner contends that differential signaling was well-known and points to Keeth's teachings of memory devices using differential signaling for clock signals in DDR DRAM devices. Pet. 39 (citing Ex. 1016, 1:25-44; Ex. 1011 ¶¶ 65-67). Relying on the testimony of Dr. Subramanian, Petitioner also asserts that one of ordinary skill would have used differential signaling with Dodd's clock signals and used a DDR DRAM device with the Dodd's reliability technique to improve performance and speed. *Id.* at 40-41 (citing Ex. 1016, 1:25-44; Ex. 1011 ¶¶ 65-67).

At this juncture of the proceeding, Petitioner has accounted sufficiently for the limitations of claims 3 and 11. Additionally, Petitioner has articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have modified Dodd's system so as to apply Keeth's teachings of DDR DRAM devices and using differential signaling for clock signals. Patent Owner does not argue for the separate patentability of claims 3 and 11 with respect to this challenge. Prelim. Resp. 35-50.

Having reviewed the Petition and Preliminary Response, and the evidence cited therein, based on the record before us at this juncture, we determine that Petitioner has demonstrated a reasonable likelihood of showing claims 3 and 11 to be unpatentable in view of Dodd and Keeth.

6. Conclusion

On this record, we are persuaded that Petitioner has established a reasonable likelihood that it would prevail

in showing that claims 1-3, 5, 6, and 8-11 are unpatentable as obvious over Dodd alone or in combination with other art.

F. Obviousness over Lee alone or with Keeth

Petitioner contends claims 1, 2, 5, 6, and 8-10 are unpatentable under 35 U.S.C. § 103(a) as obvious over Lee. Pet. 41-52. Petitioner also contends that claims 3 and 11 are unpatentable under 35 U.S.C. § 103(a) as obvious over Lee and Keeth. Pet. 52-54.

1. Overview of Lee

Lee is directed to a method for transmitting a command signal and an address signal, which includes buffering and then transmitting in response to a clock signal and a select signal. Ex. 1007, Abstract. Figure 4 is reproduced below.

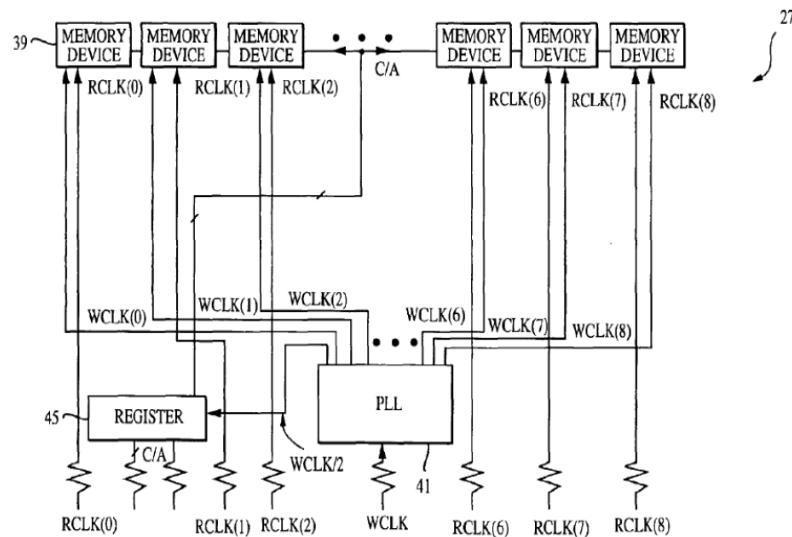


FIG. 4

Figure 4 illustrates Memory Subsystem 27

As shown in Figure 4 above, memory subsystem 27 includes write clock (WCLK) regeneration circuit 41, which is a phase lock loop (PLL) and provides WCLK (0) to WCLK (8) signals to each of individual DRAM memory devices 39. *Id.* at 7:26-30. Memory subsystem 27 also includes register 45, which receives a WCLK/2 signal from WCLK regeneration circuit 41 and command and address data (C/A). *Id.* at 7:34-40.

2. Discussion of Claim 1

We begin our analysis with independent claim 1. Claim 1 is directed to a memory module comprising memory chips and bus lines. Ex. 1001, 7:1-7. Petitioner points to teachings relating to memory module 27. Pet. 41-48 (citing Ex. 1008, Fig. 4; Ex. 1011 ¶¶ 69-71). Consistent with Petitioner's contentions (*id.*), Lee teaches that memory module 27 comprises memory chips 39 and bus lines (Ex. 1008, Figs. 1, 3, 4). Also consistent with Petitioner's teachings, in Lee's memory system 9 buses send signals, e.g., command and address signals to a plurality of memory modules 27 (*id.* at 4:1-14), each of which may be implemented as a DIMM (*id.* at 6:6-21, 7:26-27).

Claim 1 also recites a clock signal regeneration circuit configured to generate copies with the same frequency as the incoming clock signal and supply the copies to the memory chips. Ex. 1001, 7:8-13. Petitioner points to Lee's teachings relating to PLL 41 of memory module 27. Pet. 43 (citing Ex. 1008, 6:51-55; Fig. 4; Ex. 1011 ¶¶ 72-73). Consistent with Petitioner's contentions (*id.*), Lee teaches “[p]referably the clock regeneration circuit is formed as a zero delay phase lock loop

(PLL) or low skew data buffer” (Ex. 1008, 6:51-55), which “receives the WCLK signal” and “provides a plurality of regenerated WCLK signals to the respective memory devices e.g., DRAMS 39, provided within memory subsystem 27” (*id.* at 6:47-50). Lee further “illustrates the WCLK regeneration circuit 41 as a (PLL) phase lock loop,” which “provides the respective WCLK signals WCLK(0) . . . WCLK(8) to each of the individual DRAM memory devices 39.” *Id.* at 7:26-34.

Claim 1 additionally recites a register circuit arranged on the memory module in a common chip packing with the clock regeneration circuit and configured to receive copies of the clock signal from the clock regeneration circuit. Ex. 1001, 7:14-18. Petitioner points to Lee’s teachings relating to module 27, comprising register 45 and PLL 41. Pet. 44-45 (citing Ex. 1008, Fig. 4; Ex. 1011 ¶¶ 74-76). Relying on the testimony of Dr. Subramanian, Petitioner also contends that an ordinarily skilled artisan would have recognized that register 45 and PLL 41 would have been included in a single chip packing. *Id.* Consistent with Petitioner’s contentions (*id.*), Lee teaches that memory module 27 may be implemented as a DIMM (Ex. 1008, 6:6-21, 7:26-27) and that memory module 27 includes register 45 and PLL 41 (*id.* at Fig. 4).

Claim 1 further recites that the register circuit is configured to temporarily store and then supply to the memory chips copies of command and address signals having the same frequency as the incoming command and address signals. Ex. 1001, 7:18-25. Petitioner points to Lee’s teachings relating to register 45 temporarily storing command and address signals and then

supplying copies of these signals to chips 39 under control of the WCLK signal. Pet. 46-48 (citing Ex. 1008, 7:35-41, 11:29-37, Fig. 4; Ex. 1003, Fig. 1; Ex. 1011 ¶¶ 78-80). Petitioner's contentions will be discussed further below with respect to Patent Owner's contentions.

We turn now to Patent Owner's contentions. Our claim construction discussion above addresses Patent Owner's contentions that we should hold Petitioner to its alleged previous arguments in the companion district court lawsuit (Prelim. Resp. 2-26). We also discuss above Patent Owner's contentions regarding evidentiary weight to be given to Dr. Subramanian's Declaration (*id.* at 32-35). Patent Owner makes three additional arguments regarding obviousness of claim 1 over Lee as follows: (1) Lee does not teach a copy of the clock signal having a same frequency going to the register circuit (*id.* at 50-52); (2) Lee does not teach a register circuit and clock circuit in a common chip packing (*id.* at 52-54); and (3) Lee does not teach a plurality of copies of the command and address signals (*id.* at 54-55).

We turn to the first of these, i.e., that Lee does not teach a copy of the clock signal having a same frequency going to the register circuit (Prelim. Resp. 50-52). Petitioner points to Lee's teaching of providing copies of signals to three exemplary memory devices on the left and three exemplary memory devices on the right (Pet. 46-48 (citing Ex. 1008, 7:35-42, 11:29-37, Fig. 4; Ex. 1003, Fig. 1; Ex. 1011 ¶¶ 79-80)). Patent Owner contends that because Figure 4 of Lee shows a "WCLK/2" input to register 45, Lee fails to teach that the copies of the command and address signals have the same frequency as the incoming command and address signals. Prelim. Resp. 51.

As discussed above with respect to claim construction, “same frequency” is within a larger phrase⁸ and based on the record before us at this juncture, we decline to construe the full phrase such that both the generated copies and the copies that are supplied are required to be at the same frequency as the incoming signals. Consistent with Petitioner’s contentions (Pet. 46-48), Lee teaches that the supply of command and address signals to memory devices 39 is at the same frequency as the incoming signals (Ex. 1004, Fig. 4).

Additionally, as discussed above with respect to claim construction, in the Summary of the Invention, the ’150 Patent describes that “CA signals are multiplied by a factor of 1:X” so that “several CA copies can be provided to several branches.” Ex. 1001, 2:57-59; *see also id.* at 3:61-64 (“The register and clock signal regeneration circuits are, *preferably*, designed such that they each multiply the clock signal and the command and address signal by a factor of 1:2” (emphasis added)). Lee’s teaching is similar to this description in the ’150 Patent Specification as in both cases the frequency is adjusted by a factor of 1:2 due to a branch in the circuit. *Compare* Ex. 1001, 2:57-59, 3:61-64 *with* Ex. 1008, Fig. 4.

Lee includes further teachings consistent with Petitioner’s contention. For instance, Lee teaches that “PLL 41” is “used to *regenerate*” the local clock signal

⁸ Claim 1 recites that the register circuit is configured “to generate a plurality of copies of the incoming command and address signals and supply the copies of the incoming command and address signals to the memory chips, the copies of the incoming command and address signals having a *same frequency* as the incoming command and address signals.” Ex. 1001, 7:18-25.

(*id.* at 7:34-41 (emphasis added)); that command and address data are provided by “*regenerating* an additional data write clock signal” (*id.* at 11:32-35 (emphasis added)); and that the frequency of the additional data write clock signal may be at a frequency of “X/N where X is the frequency of said received data write clock signal and N is an integer” (*id.* at 11:38-41). We further note with respect to the last of these that because “1” is an integer, when “N” is “1” the same frequency is used.

Regarding the second of Patent Owner’s contentions, i.e., that Lee does not teach a register circuit and clock circuit in a common chip packing (Prelim. Resp. 52-54), Patent Owner contends that “Petitioner appears to admit that Lee does not show the register circuit and clock circuit in a common chip packaging” (*id.* at 52). Based on the record before us at this juncture, we do not agree with Patent Owner’s characterization of Petitioner’s contentions.

However, even if we agreed with Patent Owner’s characterization, we are persuaded by Petitioner’s contentions (Pet. 44-45 (citing Ex. 1008, Fig. 4; Ex. 1011 ¶¶ 74-76)) that it would have been obvious in view of Lee’s teachings, including Figure 4, to place register 45 and PLL 41 in a common chip packing. Patent Owner contends that Petitioner asserts “a ‘design choice’ theory against limitations that are touted as significant aspects of the invention” and that “the Board cannot find that a patent is *per se* obvious merely because there is a rearrangement of parts found in the prior art.” Prelim. Resp. 53 (citing *Cutsforth, Inc. v. Motivepower, Inc.*, 636 Fed. App’x 575, 578 (Fed. Cir. 2016) (nonprecedential)).

In the instant proceeding, contrary to Patent Owner's contention, Petitioner's obviousness contention (Pet. 41-45) does not involve a rearrangement of parts. Consistent with Petitioner's contention, Lee teaches that "FIG. 4 illustrates in greater detail a memory subsystem 27, which as noted, may be a DIMM memory device." Ex. 1007, 7:26-27. Figure 4 shows that memory module 27 has "REGISTER" 45 and "PLL" 41. *Id.* at Fig. 4. Additionally, Dr. Subramanian points to Lee's teachings regarding "one-chip memory" or "a chip set" as evidence supporting his testimony that these two design choices (i.e., packaged either together or separately) would have been known to a person of ordinary skill in the art. *Id.* at 8:26-27 (cited in Ex. 1011 ¶ 75).

Regarding the third of Patent Owner's contentions, i.e., that Lee does not teach a plurality of copies of the command and address signals (Prelim. Resp. 54-55), Patent Owner's contention, more specifically, is based on "one line labeled C/A coming out of" register 45 (*id.* at 55). Consistent with Petitioner's contentions (Pet. 46-48), Lee teaches regenerating the WCLK signal "to control capture of the command and address signals" received by "register 45 which clocks in the command and address data" (Ex. 1008, 7:34-40). Figure 4 of Lee also includes a "C/A" label at the top of Figure 4 illustrating providing command and address signals to three memory devices on the left-hand side and three memory devices on the right-hand side. *Id.* at Fig. 4. Additionally, Lee teaches generating and supplying a plurality of copies of the write clock signal (*see, e.g., id.* at 7:26-34), which control data read and write operations (*id.* at 4:42-44). Furthermore, Lee is directed to "a clocking system and method for effecting high speed data transfers"

(*id.* at 1:10-12) and specifically teaches providing command and address (C/A) signals to a plurality of memory storage devices via a register (*id.* at 4:1-14, 7:34-41, 11:4-41, Fig. 4).

Having reviewed the Petition and Preliminary Response, and the evidence cited therein, based on the record before us at this juncture, we determine that Petitioner has demonstrated a reasonable likelihood of showing claim 1 to be unpatentable in view of Lee.

3. Discussion of Claims 2, 5, 6, and 8-10

Each of claims 2, 5, 6, and 8-10 depends directly from independent claim 1. We have reviewed Petitioner's showing (Pet. 48-52) with respect to dependent claims 2, 5, 6, and 8-10 and the teachings of Lee.

Patent Owner contends that Lee does not teach that the clock and register circuits are "integrated on a common chip," as recited in claim 5 or that the common chip packaging is "arranged essentially at a central position" on the memory module, as recited in claim 6. Prelim. Resp. 56-57. Regarding claim 5, consistent with Petitioner's contentions (Pet. 32-33), Lee, for example, teaches that memory module 27 includes register 45 and PLL 41 (Ex. 1008, Fig. 4). Additionally, Dr. Subramanian testifies that a person of ordinary skill in the art would have understood from Figure 4 of Lee that register 45 and PLL 41 would be included in a single chip pack. Ex. 1011 ¶¶ 74-76. Regarding claims 5 and 6, Dr. Subramanian also testifies that integrating the clock signal regeneration circuit and register circuit on a common chip and placing the common chip packaging in a central location would have been obvious to a person of ordinary skill in the art. *Id.* ¶¶ 74-76, 83-84.

For claim 5, Patent Owner refers back to its contentions for claim 1 and asserts that because Lee does not teach common chip packaging, Lee also does not teach integrating the register circuit and clock regeneration circuit on a common chip. Prelim. Resp. 56. For claim 6, Patent Owner references back to its contentions for Dodd and again asserts that Lee does not show a physical arrangement. *Id.* For the same reasons given above, we are persuaded by Petitioner's contentions even after full consideration of Patent Owner's assertions.

Having reviewed the Petition and Preliminary Response, and the evidence cited therein, based on the record before us at this juncture, we determine that Petitioner has demonstrated a reasonable likelihood of showing claims 2, 5, 6, and 8-10 to be unpatentable in view of Lee.

4. Discussion of claims 3 and 11

We next turn to dependent claims 3 and 11, each of which depends directly from independent claim 1. Petitioner asserts that the combination of Lee and Keith teaches all elements of claims 3 and 11 and provides a rationale for combining the teachings of Lee and Keeth. Pet. 52-54. Petitioner points to the same portions of Keeth discussed above with respect to the first set of challenges (based on Dodd and Keeth). Again, relying on the testimony of Dr. Subramanian, Petitioner also asserts that one of ordinary skill would have used differential signaling with Lee's clock signals and used a DDR DRAM device with the Lee's technique to improve performance and speed. *Id.* (citing Ex. 1016, 1:25-44; Ex. 1011 ¶¶ 89-91).

At this juncture of the proceeding, Petitioner has accounted sufficiently for the limitations of claims 3 and 11. Additionally, Petitioner has articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have modified Lee's system so as to apply Keeth's teachings of DDR DRAM devices and using differential signaling for clock signals. Patent Owner does not argue for the separate patentability of claims 3 and 11 with respect to this challenge. Prelim. Resp. 50-58.

Having reviewed the Petition and Preliminary Response, and the evidence cited therein, based on the record before us at this juncture, we determine that Petitioner has demonstrated a reasonable likelihood of showing claims 3 and 11 to be unpatentable in view of Lee and Keeth.

5. Conclusion

On this record, we are persuaded that Petitioner has established a reasonable likelihood that it would prevail in showing that claims 1-3, 5, 6, and 8-11 are unpatentable as obvious over Lee alone or in combination with other art.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that claims 1-3, 5, 6, and 8-11 of the '150 Patent are unpatentable. At this preliminary stage, we have not made a final determination with respect to the patentability of the challenged claims or any underlying factual and legal issues.

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1-3, 5, 6, and 8-11 of the '150 Patent on the following grounds of unpatentability:

Reference(s)	Basis	Challenged Claim(s)
Dodd	§ 103(a)	1, 2, 5, 6, and 8-10
Dodd and Keeth	§ 103(a)	3 and 11
Lee	§ 103(a)	1, 2, 5, 6, and 8-10
Lee and Keeth	§ 103(a)	3 and 11

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this decision; and

FURTHER ORDERED that the trial is limited to the grounds identified immediately above, and no other ground is authorized.

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APPENDIX F

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case IPR2017-00116
Patent 7,334,150 B2

KINGSTON TECHNOLOGY COMPANY, INC., PETITIONER

v.

POLARIS INNOVATIONS, LTD., PATENT OWNER

Entered: Feb. 13, 2018

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

Before SALLY C. MEDLEY, BARBARA A. PARVIS, and
MATTHEW R. CLEMENTS, *Administrative Patent
Judges*.

PARVIS, *Administrative Patent Judge*.

I. INTRODUCTION

Kingston Technology Company, Inc. (“Petitioner”) filed a Petition for *inter partes* review of claims 1-3, 5, 6, and 8-11 (“challenged patents”) of U.S. Patent No. 7,334,150 B2 (Ex. 1001, “the ’150 Patent”). Paper 2 (“Pet.”). In support of its Petition, Petitioner proffers a Declaration of Dr. Vivek Subramanian. Ex. 1011. Polaris Innovations Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Upon

consideration of the parties' contentions and supporting evidence, we instituted an *inter partes* review pursuant to 35 U.S.C. § 314, as to claims 1-3, 5, 6, and 8-11 of the '150 Patent. Paper 9 ("Dec.").

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 17, "PO Resp."). In support of its Patent Owner Response, Patent Owner proffers the Declaration of Dr. Joseph Bernstein. Ex. 2019. Petitioner filed a Reply to Patent Owner's Response (Paper 20, "Pet. Reply"). On December 6, 2017, we held an oral hearing. Paper 30 ("Tr.").

This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1-3, 5, 6, and 8-11 of the '150 Patent are unpatentable.

A. Related Matters

The parties state that the '150 Patent is the subject of a pending lawsuit in the Central District of California, i.e., *Polaris Innovations Ltd. v. Kingston Tech. Co.*, Case No. 8:16-cv-300 (C.D. Cal.),¹ and the lawsuit includes assertions against Petitioner. Pet. 2; Paper 3 (Patent Owner's Mandatory Notices), 1; Paper 16 (Patent Owner's Supplemental Mandatory Notices).

¹ This lawsuit is referred to herein as the "companion district court lawsuit."

B. The '150 Patent

The '150 Patent is directed to a semiconductor memory module that includes a register circuit and a clock signal regeneration circuit. Ex. 1001, 1:9-16. Figure 2 is reproduced below.

FIG 2

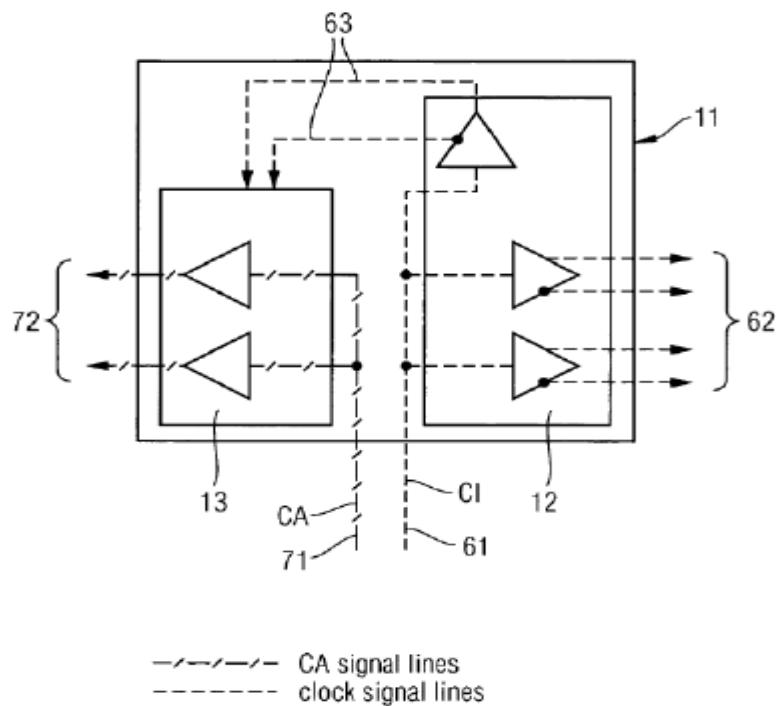


Figure 2 shows a top view of a clock signal regeneration circuit and register circuit in a common chip packing.

As shown in Figure 2 above, chip packing 11 contains clock signal regeneration circuit 12 and register circuit 13. Ex. 1001, 4:30-33. Differential clock signal input line 61 supplies clock signal Cl to common chip packing 11. *Id.* at 4:41-43. Line section 71 supplies command and address input signals “CA.” *Id.* at 4:43-45. Differential clock signal lines 62 from clock signal regeneration circuit 12 supply the conditioned clock signal to memory chips 4 and 4a. *Id.* at 4:49-53. Differential clock signal lines 63 supply the conditioned clock signal to register circuit 13. *Id.* at 4:54-56. From register circuit 13, temporarily stored command and address signals are supplied by differential command and address signal lines 72 to memory chips 4 and 4a. *Id.* at 4:56-60.

C. Illustrative Claim

Petitioner challenges claims 1-3, 5, 6, and 8-11 of the '150 Patent. Claim 1 is an independent claim. Claims 2, 3, 5, 6, and 8-11 depend directly from claim 1. Independent claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A memory module comprising:
 - a plurality of memory chips arranged on the memory module;
 - a plurality of bus signal lines operable to supply an incoming clock signal and incoming command and address signals to at least the memory chips;

- a clock signal regeneration circuit configured to generate a plurality of copies of the incoming clock signal and to supply the copies of the incoming clock signal to the memory chips, the copies of the incoming clock signal having a same frequency as the incoming clock signal; and
- a register circuit arranged on the memory module in a common chip packing with the clock regeneration circuit and configured to receive one of the copies of the incoming clock signal from the clock regeneration circuit, the register circuit being further configured to temporarily store the incoming command and address signals and to generate a plurality of copies of the incoming command and address signals and supply the copies of the incoming command and address signals to the memory chips, the copies of the incoming command and address signals having a same frequency as the incoming command and address signals.

Id. at 7:1-25.

D. Instituted Grounds of Unpatentability

Petitioner asserts that claims 1-3, 5, 6, and 8-11 are unpatentable based on the following grounds (Pet. 4):

Reference(s)	Basis	Challenged Claim(s)
Lee ²	§ 103(a)	1, 2, 5, 6, and 8-10
Lee and Keeth	§ 103(a)	3 and 11
Dodd ³	§ 103(a)	1, 2, 5, 6, and 8-10
Dodd and Keeth ⁴	§ 103(a)	3 and 11

We instituted on all of the asserted grounds of unpatentability above. Dec. 33.

II. DISCUSSION

A. Overview

A patent claim is unpatentable if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103(a). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of

² U.S. Patent No. 6,898,726 B1, issued May 24, 2005 (Ex. 1008) (“Lee”).

³ U.S. Patent No. 6,530,006 B1, issued Mar. 4, 2003 (Ex. 1003) (“Dodd”).

⁴ U.S. Patent No. 7,123,046 B2, issue Oct. 17, 2006 (Ex. 1016) (“Keeth”).

skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). In that regard, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

B. Person of Ordinary Skill in the Art

Petitioner proposes that a person of ordinary skill in the art had a Master’s degree in Electrical Engineering and at least 2 years’ experience working in the field of semiconductor memory design. Pet. 7 (citing Ex. 1011 ¶¶ 17-19). Patent Owner counters that the person of ordinary skill in the art “would only have had a Bachelor’s degree, or the equivalent, in the art of semiconductor memory module design.” PO Resp. 4-5 (citing Ex. 2019 ¶¶ 24-30).

The dispute centers on Patent Owner’s contention that a person of ordinary skill would have lacked familiarity with components of memory modules and technical differences between RDIMMs and other memory modules, and further would have had ordinary creativity that “coexisted” with “his or her status” as a “junior member of the team.” *Id.* Patent Owner’s contention regarding the lack of familiarity of the skilled artisan with prior art teachings, e.g., technical differences between RDIMMs and other memory modules, is contrary to legal precedent that a person of ordinary skill in the art is presumed to be aware of all pertinent prior art. *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 454 (Fed. Cir. 1985).

Regarding the level of skill, we consider the level of skill implied by the disclosures of the prior art references. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself can reflect the appropriate level of skill in the art). For the reasons given below, upon consideration of the Petition, the Patent Owner Response, the Petitioner’s Reply, and the evidence cited therein, we adopt Petitioner’s proposed level of skill as consistent with the evidence of record. We credit Dr. Subramanian’s testimony regarding level of skill as consistent with the evidence of record, including the disclosures of the prior art references and the level of skill implied by these disclosures. We, however, note that based on the complete trial record, our findings and conclusion would be the same under either proposal.

C. Claim Construction

Petitioner provides proposed constructions for certain terms. Pet. 12-17. In Patent Owner’s Preliminary Response, Patent Owner countered and presented additional contentions regarding claim construction. See, e.g., Prelim. Resp. 4-32. In our Institution Decision, we determined that neither “clock signal regeneration circuit” nor “a register . . . configured to . . . generate a plurality of copies of the incoming command and address signals” invokes § 112 ¶ 6.⁵ Dec. 7-9. We further determined that no express interpretation was nec-

⁵ Section 4(c) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”) re-designated 35 U.S.C. § 112 ¶ 6, as 35 U.S.C. § 112(f). Because the ’150 Patent has a filing date before September 16, 2012, the effective date of § 4(c) of the AIA, we will refer to the pre-AIA version of 35 U.S.C. § 112.

essary of these phrases. *Id.* We also were not persuaded that Petitioner should be held to previous arguments in the companion district court lawsuit that claim 6 is indefinite. *Id.* at 9. The parties do not challenge the determinations in the Institution Decision. *See e.g.*, PO Resp 43-62; Pet. Reply 14-22. Based on the entire trial record before us, we see no need to change these determinations.

In our Institution Decision, we also made determinations regarding the terms “having a same frequency” and “RDIMM.” *Id.* at 10-12. Patent Owner’s disputes in its Patent Owner Response implicitly pertain to the construction of these terms, so we provide further analysis regarding construction of these terms below.

1. “*having a same frequency*”

In the Petition, Petitioner contends that “having a same frequency” means “with no intended modification from the frequency of the incoming signal.” Pet. 13-16. In the Institution Decision, we considered Patent Owner’s contention that “intended” interjects a vague term and should be removed from Petitioner’s proposed construction. Dec. 10-12 (citing Prelim. Resp. 28-31).

At the institution stage, we did not adopt the proposal of either party. We noted that “same frequency” is within larger phrases recited in independent claim 1. Dec. 11-12. We declined to construe the phrase “having a same frequency” such that both the generated copies and the copies supplied are required to be at the same frequency as the incoming signals. We explained that our determination was based on embodiments set forth in the ’150 Patent Specification. *Id.* (citing Ex. 1001, 2:57-59, 3:61-63). We further determined no

other express construction of the term “same frequency” is needed to resolve a dispute between the parties.

In its Patent Owner Response, Patent Owner contends “Lee’s WCLK/2 signal operates at a different frequency from WCLK, so it cannot be a ‘copy’ of the WCLK having the same frequency as WCLK, as claimed.” PO Resp. 45. Patent Owner’s contentions in its Patent Owner Response pertain to only the “signal WCLK/2” that is supplied to register 45. *Id.* at 43-47. In particular, claim 1 recites “a register circuit arrange[d] on the memory module in a common chip packing with the clock regeneration circuit and *configured to receive one of the copies of the incoming clock signal from the clock regeneration circuit.*” Ex. 1001, 7:14-18 (emphases added). Patent Owner’s contentions are premised on “one of the copies of the incoming clock signal” having antecedent basis in “the copies of the incoming clock signal having a same frequency as the incoming clock signal.” *Id.*

Petitioner contends that the “clock signal regeneration circuit” limitation requires only the copies supplied to the memory chips to “hav[e] a same frequency as the incoming clock signal,” and that the omission of that language from the “register circuit” limitation indicates that the copy of the incoming clock signal that the register circuit is configured to receive need not have the same frequency as the incoming clock signal. Reply 15-16. According to Petitioner, “each and every one of the ‘same frequency’ copies that are generated by the clock signal regeneration circuit are supplied to the memory chips.” Reply 15; Pet. 43-48. Petitioner fur-

ther contends that “the register simply needs to be ‘configured to,’ i.e., able to receive a copy of the clock signal” and, “[a]s long as the register is so configured, the claim limitation is met regardless of whether the copy of incoming signal sent to the register has the same frequency or not.” Reply 16-17.

Upon consideration, consistent with Petitioner’s proposal, we are persuaded that the “the copies of the incoming clock signal” that the clock signal regeneration circuit is “configured . . . to supply . . . to the memory chips” must have the same frequency as the incoming clock signal. We are not persuaded that the “one of the copies” that the register circuit is configured to receive must have the same frequency as the incoming clock signal as argued by the Patent Owner. Our determination is consistent with the express recitations in claim 1 and the intrinsic evidence. For instance, the recitation of “having a same frequency” in claim 1 immediately follows the supply of signals to the memory chips.

a clock signal regeneration circuit configured to generate a plurality of copies of the incoming clock signal and *to supply the copies* of the incoming clock signal *to the memory chips*, the copies of the incoming clock signal *having a same frequency* as the incoming clock signal; and

a register circuit arrange[d] on the memory module in a common chip packing with the clock regeneration circuit and configured to receive one of the copies of the incoming clock signal from the clock regeneration circuit, the register circuit being further configured to temporarily store the incoming command and address signals and to generate a

plurality of copies of the incoming command and address signals and *supply the copies* of the incoming command and address signals *to the memory chips*, the copies of the incoming command and address signals *having a same frequency* as the incoming command and address signals.

Ex. 1001, 7:8-25 (emphases added).

Importantly, if we were to adopt Patent Owner's proposal, then the claim would require "one of the copies of the incoming clock signal from the clock regeneration circuit" received by the register circuit also be supplied to at least one of the memory chips. Upon consideration of the contentions of both parties, we are not persuaded that such an interpretation is consistent with the express language of claim 1 or the intrinsic evidence, including the '150 Patent Specification.

Furthermore, based on the entire trial record, the intrinsic evidence, including the '150 Patent Specification, supports that the "one of the copies of the incoming clock signal from the clock regeneration circuit" need not have the same frequency as the incoming clock signal. Petitioner contends (Pet. 13-15) and Patent Owner does not dispute (Prelim. Resp. 28-31; PO Resp. 43-47) that the phrase "having the same frequency" did not appear in the Specification or claims as filed, but was added by amendment. Neither party points us to disclosure in the '150 Patent Specification requiring that "having the same frequency" pertains to "one of the copies of the incoming clock signal from the clock regeneration circuit."

Additionally, as we explained in the Institution Decision (Dec. 11-12), in embodiments set forth in the '150

Patent Specification, including a preferred embodiment, “[t]he register and clock signal regeneration circuits are, preferably, designed such that they each multiply the clock signal and the command and address signal by a factor of 1:2” (Ex. 1001, 3:61-63) such that “several” copies “can be provided to *several DRAM branches or channels*” (*id.* at 2:57-59 (emphasis added).) Additionally, the Detailed Description of the ’150 Patent also describes multiplying these signals so as to supply chip-groups.

[I]ncoming clock signal C1 is conditioned and the incoming command and address signals CA are temporarily stored in order to multiply these signals by a factor of 1:X and *to supply the conditioned clock signal C1 and the temporarily stored command and address signals CA to X semiconductor memory chip groups* that are arranged on the semiconductor memory module.

Ex. 1001, 5:67-6:6 (emphasis added).

Relying on the testimony of Dr. Bernstein and Dr. Subramanian, Patent Owner contends “when the ’150 Patent states that signals are ‘multiplied,’ a POSITA would understand that to mean that copies of the signal are made.” PO Resp. 15 n.3 (citing Ex. 2019 ¶ 65), 45 (citing Ex. 1011 ¶ 23; Ex. 2019 ¶ 66). More specifically, Dr. Bernstein testifies

The ’150 Patent makes numerous references to multiplying a signal by a factor of 1:X. See *id.* at 2:46, 2:47-51, 2:58, 6:19, 6:31. As one of ordinary skill in the art, I understand this terminology to mean that the signal is copied “X” number of times. This is clear given the overall focus of the ’150 Patent on

avoiding sending multiple copies of the CA signal. “Since the CA signals are multiplied by a factor of 1:X, several CA copies can be provided to several DRAM branches or channels.” *Id.* at 2:57-59. The ’150 Patent also uses this convention and fills in the “X” with the number “2” to describe an embodiment where two copies of signals are generated. *See id.* at 5:28-38 (describing Figure 3 illustrating two copies of by the CA line and the CL line). The fact that this terminology is referring to copying the incoming signal is made most evident by the statement that the register stores the CA signals “in order to multiply these signals by a factor of 1:X and to supply the conditioned clock signal Cl and the temporarily stored command and address signals CA to X semiconductor memory chip groups arranged on the semiconductor memory module.” *Id.* at 6:2-6. This confirms that “X” in this notation means the number of copies that need to be made in order to send the signal to “X” groups of semiconductor chips. To be clear I find no suggestion that 1:X refers to multiplying the frequency of the signal X.

Ex. 2019 ¶ 66.⁶

⁶ Patent Owner includes only cursory statements and a citation to this testimony by Dr. Bernstein. *See* PO Resp. 15 n.3 (citing Ex. 2019 ¶ 65), 45 (citing Ex. 1011 ¶ 23; Ex. 2019 ¶ 66 (“Dr. Subramanian and Dr. Bernstein agree that when the ’150 Patent states that signals are “multiplied,” a POSITA would understand that to mean that copies of the signals are made.”) The Patent Owner Response must include “a detailed explanation of the significance of the evidence.” *See* 37 C.F.R. §§ 42.22, 42.23, 42.120. Such detailed explanation is not provided.

As set forth above, Dr. Bernstein testifies that the '150 Patent Specification describes multiplying signals, which means that the signals are copied, so as to supply signals to "several DRAM branches or channels" or "to supply the conditioned clock signal Cl and the temporarily stored command and address signals CA to X semiconductor memory chip groups arranged on the semiconductor memory module." *Id.* (citing Ex. 1001, 2:57-59, 6:2-6). These embodiments (*id.*), however, are consistent with Petitioner's contentions regarding the scope of claim 1 (Reply 15; Pet. 43-48). Patent Owner does not point us to testimony of Dr. Bernstein indicating that claim 1 does not encompass these embodiments. Dr. Bernstein's testimony regarding finding "no suggestion that 1:X refers to multiplying the frequency of the signal" immediately follows and pertains to his testimony regarding sending or supplying signals "to 'X' groups of semiconductor chips." Ex. 2019 ¶ 66. We find Dr. Bernstein's testimony consistent with our determination in the Institution Decision that only "the copies of the incoming clock signal" that the clock signal regeneration circuit is "configured . . . to supply . . . to the memory chips" must have the same frequency as the incoming clock signal.

Patent Owner also relies on the declaration testimony and deposition testimony of Dr. Subramanian. PO Resp. 43-45 (citing Ex. 1011 ¶ 23; Ex. 2018, 126:1-23). We do not find either supports Patent Owner's position. Dr. Subramanian's deposition testimony in this regard refers to "the limitation above" and does not include further explanation. Ex. 2018, 126:1-23. The limitation above recites the "clock signal regeneration

circuit configured to . . . supply the copies of the incoming clock signal to the memory chips.” Ex. 1001, 7:8-18. Additionally, Dr. Subramanian’s declaration testimony is based on his analysis of the intrinsic evidence, including the ’150 Patent Specification. *See, e.g.*, Ex. 1011 ¶¶ 23, 29, 30, 72-80. As discussed further below, Dr. Subramanian discusses the intrinsic evidence and claim construction and concludes that Lee discloses the register circuit “configured to receive one of the copies of the incoming clock signal from the clock regeneration circuit.” Ex. 2018, 126:1-23.

For this Decision, we discern no reason to modify our analysis or our claim construction determination set forth in the Institution Decision regarding “having a same frequency.” Based on the entire trial record, we determine that only “the copies of the incoming clock signal” that the clock signal regeneration circuit is “configured . . . to supply . . . to the memory chips” must have the same frequency as the incoming clock signal. We, however, determine that the broadest reasonable interpretation of the “register circuit” limitation does not require that the “one of the copies of the incoming clock signal from the clock regeneration circuit” received by the register circuit has the same frequency as the incoming clock signal.

2. “RDIMM”

Petitioner contends that “RDIMM” stands for registered dual in line memory module. Pet. 17. Dr. Subramanian testifies that although “[t]he term ‘RDIMM’ appears twice” in the ’150 Patent Specification, neither of these uses “defines or limits the meaning of the term ‘RDIMM.’” Ex. 1011 ¶ 31. Dr. Subramanian also tes-

tifies that a RDIMM “is ‘a Dual In-Line Memory Module that has register circuitry to buffer control signals.’” *Id.* ¶ 32.

Patent Owner agrees that “RDIMM” stands for registered dual in line memory module and, further, agrees that RDIMM’s were known prior art devices. Prelim. Resp. 48; PO Resp. 10-14, 61. Patent Owner, however, contends “RDIMMs are a well-known commercial DIMM type, which, among other things, buffers its C/A [command and address] signals, but not its data signals.” PO Resp. 61 (citing a printout of a Dell Support webpage titled “PowerEdge: What are the different types of memory DIMMS for servers?” (Ex. 2034) (“**Registered DIMM:** RDIMM, buffers add, control, clock lines but does not buffer data I/O lines”)). Dr. Bernstein testifies “RDIMMs feature a design that addresses performance issues . . . by putting a register between the memory controller and the memory devices on *only the command/address line.*” Ex. 2019 ¶ 55 (emphasis added). Additionally, Patent Owner points to Dr. Subramanian’s testimony that traditionally a fully buffered DIMM provides buffering for control signals and data signals. PO Resp. 12 (citing Ex. 2018, 19:7-11).

As an initial matter, a Web Page from Dell’s Web Site with a print date of July 10, 2017, and a last modified date of May 31, 2017, is less probative than a definition or usage contemporaneous with the filing date of December 3, 2004 of the ’150 Patent. Ex. 2034. Regarding the declaration and deposition testimony identified by the parties (Ex. 1011 ¶¶ 31-32; Ex. 2019 ¶ 55; Ex. 2018, 19:7-11), we need not make a determination regarding the broadest reasonable interpretation of RDIMM because based on the entire trial record, for the

reasons set forth *infra* in Section II.D.3, we are persuaded that Petitioner shows sufficiently that Lee teaches an “RDIMM” even if we were to adopt Patent Owner’s proposal that RDIMM stands for registered dual in line memory module, which buffers control signals, but not data signals. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed ‘to the extent necessary to resolve the controversy’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Obviousness over Lee alone or with Keeth

Petitioner contends claims 1, 2, 5, 6, and 8-10 are unpatentable under 35 U.S.C. § 103(a) as obvious over Lee. Pet. 41-52. Petitioner also contends that claims 3 and 11 are unpatentable under 35 U.S.C. § 103(a) as obvious over Lee and Keeth. Pet. 52-54.

1. Overview of Lee

Lee is directed to a method for transmitting a command signal and an address signal, which includes buffering and then transmitting in response to a clock signal and a select signal. Ex. 1007, Abstract. Figure 4 is reproduced below.

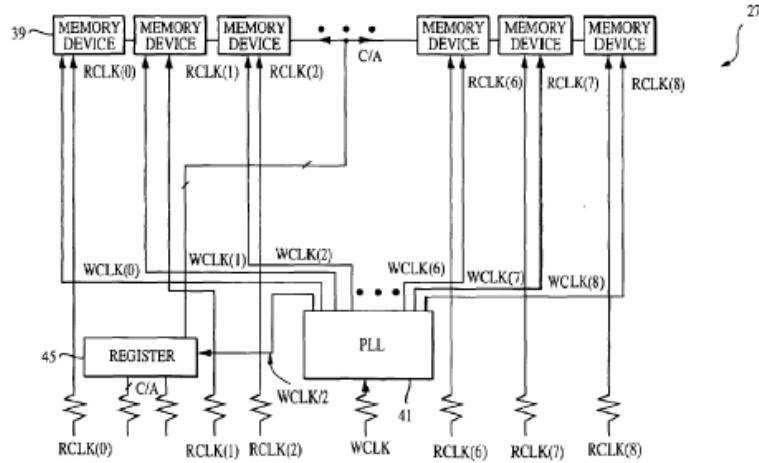


FIG. 4

Figure 4 illustrates Memory Subsystem 27

As shown in Figure 4 above, memory subsystem 27 includes write clock (WCLK) regeneration circuit 41, which is a phase lock loop (PLL) and provides WCLK (0) to WCLK (8) signals to each of individual DRAM memory devices 39. *Id.* at 7:26-30. Memory subsystem 27 also includes register 45, which receives a WCLK/2 signal from WCLK regeneration circuit 41 and command and address data (C/A). *Id.* at 7:34-41.

2. Overview of Keeth

Keeth is directed to adaptively adjusting a transition threshold of a data receiver using differential clock signals and a reference voltage. Ex. 1016, Abstract. According to Keeth, Double Data Rate Dynamic Random Access Memory (DDR DRAM) devices use differential signaling for clock signals at clock pins of a device package. *Id.* at 1:22-30. DDR DRAM devices use non-

differential signaling for data signals input on the device data pins. *Id.* at 1:35-37.

3. Discussion of Claim 1

a. The Petition—Claim 1

We begin our analysis with independent claim 1. Claim 1 is directed to a memory module comprising memory chips and bus lines operable to supply incoming clock and command and address signals to the memory chips. Ex. 1001, 7:1-7. Petitioner points to teachings relating to memory module 27. Pet. 41-48 (citing Ex. 1008, Fig. 4; Ex. 1011 ¶¶ 69-71). Consistent with Petitioner's contentions (*id.*), Lee teaches that memory module 27 comprises memory chips 39 and bus lines (Ex. 1008, Figs. 1, 3, 4). Dr. Subramanian testifies that Lee's memory module 27 has a plurality of bus signal lines to supply incoming clock signal (WCLK) and incoming command and address signals (C/A) to memory chips 39. Ex. 1011 ¶ 71. We are persuaded by Petitioner's showing and credit Dr. Subramanian's testimony (Pet. 41-48; Ex. 1011 ¶¶ 69-71), for example, because in Lee's memory system, 9 buses send signals, e.g., command and address signals and clock signals, to a plurality of memory modules 27 (Ex. 1008, 4:1-14, Figs. 1, 4). Each memory module 27 may be implemented as a DIMM. *Id.* at 6:6-21, 7:26-27. These contentions are not contested by Patent Owner. PO Resp. 43-56.

Claim 1 also recites "a clock signal regeneration circuit configured to generate a plurality of copies of the incoming clock signal and to supply the copies of the incoming clock signal to the memory chips, the copies of the incoming clock signal having the same frequency as the incoming clock signal." Ex. 1001, 7:8-13. Relying

on the testimony of Dr. Subramanian, Petitioner contends that Lee's PLL 41 of memory module 27 generates a plurality of copies of incoming clock signal CLK, i.e., WCLK (1-8), and supplies the copies to memory chips 39. Pet. 43 (citing Ex. 1008, 6:51-55; Fig. 4; Ex. 1011 ¶¶ 72-73). We are persuaded by Petitioner's showing and credit Dr. Subramanian's testimony (*id.*) that Lee's clock signal regeneration circuit (PLL 41) generates a plurality of copies of the incoming clock signal and supplies the copies of the incoming clock signal to the memory chips because Petitioner's showing and Dr. Subramanian's testimony are consistent with Lee's teachings (*see, e.g.*, Ex. 1008, Fig. 4). Patent Owner does not dispute Petitioner's contentions that Lee's clock signal regeneration circuit (PLL 41) generates a plurality of copies of the incoming clock signal and supplies the copies of the incoming clock signal to the memory chips. PO Resp. 43-56.

Regarding the remainder of the recitation, i.e., "the copies of the incoming clock signal having a same frequency as the incoming clock signal" (Ex. 1001, 7:11-12), we discuss this recitation in connection with the next recitation of "a register circuit" that is

configured to temporarily store the incoming command and address signals and to generate a plurality of copies of the incoming command and address signals and supply the copies of the incoming command and address signals to the memory chips, the copies of the incoming command and address signals having a same frequency as the incoming command and address signals.

Id. at 7:18-25.

As discussed *supra* Section II.C.1 with respect to claim construction, in each of these phrases, we determine that the “copies of the incoming command and address signals” that the register circuit is “configured . . . to generate . . . and supply . . . to the memory chips” must have the same frequency as the incoming signal. We, however, are not persuaded that the “one of the copies of the incoming clock signal from the clock regeneration circuit” must have the same frequency as the incoming clock signal.

Notwithstanding Patent Owner’s contentions regarding this limitation, discussed further below, we are persuaded by Petitioner’s showing and credit Dr. Subramanian’s testimony that Lee teaches (1) the clock signal regeneration circuit supplying copies of the incoming clock signal having a same frequency as the incoming signals; and (2) the register circuit supplying copies of the command and address signal having the same frequency as the incoming command and address signals. Pet. 43, 46-48 (citing Ex. 1008, 6:51-55, 7:35-42, 11:29-37, Fig. 4; Ex. 1003, Fig. 1; Ex. 1011 ¶¶ 73, 79-80). We are persuaded by Petitioner’s showing and credit Dr. Subramanian’s testimony (*id.*) because they are consistent with the evidence cited therein including, for example, Figure 4 of Lee reproduced below.

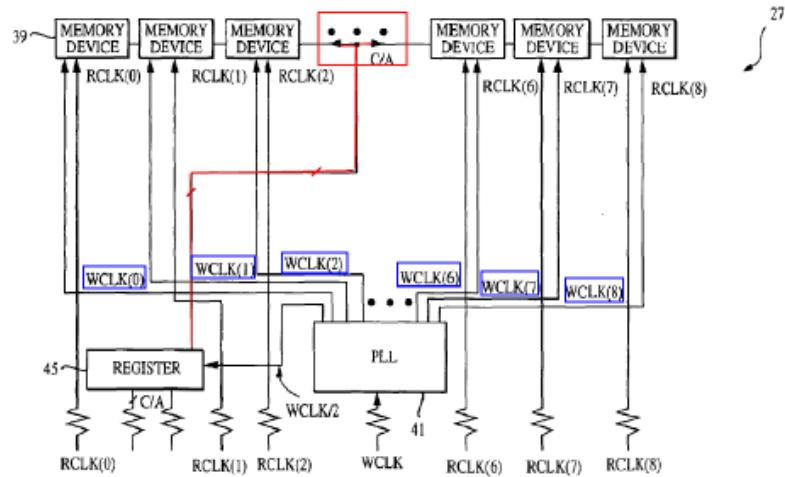


FIG 4

Figure 4 illustrates Memory Subsystem 27
with Annotations by the Board

In the annotated version of Lee's Figure 4 reproduced above, we have added blue annotations showing copies of the incoming clock signal, i.e., WCLK(0) through WCLK(8) leaving PLL41 and red annotations showing copies of the command and address signal, i.e., C/A leaving register 45. Regarding the recitation in claim 1 of the "clock signal regeneration circuit" supplying "copies of the incoming clock signal" "having a same frequency" as the incoming signals (Ex. 1001, 7:8-12), Dr. Subramanian testifies that Lee teaches that PLL 41 generates copies of incoming clock signal, namely WCLK 1-8, and supplies those copies to memory chips 39 and that each of the copies have the same phase as input clock WCLK. Ex. 1011 ¶¶ 72, 73 (citing Ex. 1008, 6:51-55, Fig. 4). We credit Dr. Subramanian's testimony (*id.*) because it is consistent with Lee's Figure 4

illustrating PLL 41 generating WCLK (0) through WCLK (8) (shown in blue annotations in Figure 4 above) and Lee's teaching that “[p]referably the clock regeneration circuit is formed as a zero delay phase lock loop (PLL)” so as to ensure “the regenerated WCLK signals having substantially the same phase as one another and as the phase of the WCLK signal on line 19.” Ex. 1008, 6:51-55, Fig. 4. Additionally, Lee teaches “the clock regeneration circuit” “receives the WCLK signal” and “provides a plurality of regenerated WCLK signals to the respective memory devices e.g., DRAMS 39, provided within memory subsystem 27” (*id.* at 6:47-55). Lee further “illustrates the WCLK regeneration circuit 41 as a (PLL) phase lock loop,” which “provides the respective WCLK signals WCLK(0) . . . WCLK(8) to each of the individual DRAM memory devices 39.” *Id.* at 7:26-34.

Regarding recitation in claim 1 of the “register circuit” supplying “copies of the incoming command and address signals” having the “same frequency” as the incoming command and address signals (Ex. 1001, 7:21-25), Petitioner points to Lee's teachings relating to register 45 temporarily storing command and address signals and then supplying copies of these signals to chips 39 under control of the WCLK signal. Pet. 46-48 (citing Ex. 1008, 7:35-41, 11:29-37, Fig. 4; Ex. 1003, Fig. 1; Ex. 1011 ¶¶ 78-80). Dr. Subramanian testifies that copies of the command and address signals are provided to exemplary memory devices on the left and exemplary memory devices on the right such that the supplied command and address signals have the same frequency as the incoming ones. Ex. 1011 ¶¶ 79-80 (citing *e.g.*, Ex.

1008, 7:35-42, 11:29-37, Fig. 4). We credit Dr. Subramanian's testimony (*id.*) because it is consistent with Lee's teachings illustrated in Figure 4 of command and address signals, depicted as "C/A" (shown in red annotations in Figure 4 above) being supplied to memory devices to the left and memory devices to the right. Patent Owner does not dispute Petitioner's showing, except with respect to the recitation of "to generate a plurality of copies," which we discuss below.

Claim 1, additionally, recites a register circuit arranged on the memory module in a common chip packing with the clock regeneration circuit and configured to receive copies of the clock signal from the clock regeneration circuit. Ex. 1001, 7:14-18. Petitioner points to Lee's teachings relating to module 27, comprising register 45 and PLL 41. Pet. 44-45 (citing Ex. 1008, Fig. 4; Ex. 1011 ¶¶ 74-76). Consistent with Petitioner's contentions (*id.*), Lee teaches that memory module 27 may be implemented as a DIMM (Ex. 1008, 6:6-21, 7:26-27) and that memory module 27 includes register 45 and PLL 41 (*id.* at Fig. 4). Patent Owner does not dispute that Lee teaches a register circuit arranged on the memory module. PO Resp. 43-56.

b. Patent Owner's Contentions—Claim 1

We turn now to Patent Owner's contentions. Patent Owner makes three arguments regarding obviousness of claim 1 over Lee as follows: (1) Lee does not teach a copy of the clock having the same frequency going to the register circuit (PO Resp. 43-47); (2) Lee does not teach a register circuit and clock circuit in a common chip packing (*id.* at 47-52); and (3) Lee does not teach a plurality of copies of the command and address signals (*id.* at 52-56).

We start with Patent Owner's first contention that Lee does not teach a copy of the clock signal having a same frequency going to the register circuit. PO Resp. 43-47. Patent Owner contends that because Figure 4 of Lee shows a "WCLK/2" input to register 45 and "WCLK/2" is "a **factor of two** different from that of the incoming clock signal WCLK," Lee fails to teach that the one of the copies of the clock signal received by the register circuit has the same frequency as the incoming clock signal. PO Resp. 44-46.

Patent Owner's contention is premised on its narrow interpretation of claim 1 requiring that the "one of the copies of the incoming clock signal" that the register circuit is "configured to receive" has a same frequency as the incoming clock signal. As we discussed *supra* Section II.C.1, we reject Patent Owner's construction as inconsistent with the recitations in claim 1, in which "having a same frequency" modifies only those copies of the incoming clock signal that the clock signal regeneration circuit is "configured . . . to supply . . . to the memory chips." Additionally, we are not persuaded that Patent Owner's construction is mandated by the embodiments of the '150 Patent Specification, which instead describe multiple copies sent to multiple branches or chip-groups. Lee's teaching relied upon by Petitioner (Pet. 45) is similar to the description in the '150 Patent Specification encompassed by claim 1 as in both cases copies of signals are made to supply copies to multiple branches or groups of semiconductor chips. *Compare* Ex. 1001, 2:57-59, 3:61-64, 5:67-6:6 *with* Ex. 1008, Fig. 4.

Furthermore, Petitioner presents persuasive contentions and evidence that claim 1 is obvious over Lee even

under Patent Owner's proposed interpretation. Pet. 45-48 (citing *e.g.*, Ex. 1008, 7:35-41, Fig. 4; Ex. 1011 ¶¶ 77-80). For instance, Dr. Subramanian testifies that Lee teaches regenerating a local clock signal to control capture of the command and address signals. Ex. 1011 ¶¶ 77, 80 (citing Ex. 1008, 7:35-42, 11:29-37, Fig. 4). We credit Dr. Subramanian's testimony as it is consistent with the evidence cited therein. For instance, Lee teaches "*regenerating an additional data write clock signal from said received data write clock signal*, and using said additional regenerated data write clock signal to control the capture of command and address data within said register." Ex. 1008, 11:29-37. Importantly, as we noted in the Institution Decision (Dec. 27-28), Lee teaches that the frequency of that additional data write clock signal may be at a frequency of "X/N where X is the frequency of said received data write clock signal and N is an integer" (*id.* at 11:38-41). We further noted with respect to the last of these that because "1" is an integer, when "N" is "1" the same frequency is used.

Patent Owner relies upon claim 31 of Lee, which recites "the frequency of said additional data write clock signal is at a frequency of X/N where X is the frequency of said received data write clock signal and N is an integer." PO Resp. 47. Patent Owner, however, does not respond to our analysis in the Institution Decision regarding when "N" is "1" ("an integer") the same frequency is used. *Id.* Instead, Patent Owner asserts without explanation that this teaching "helps confirm that WCLK/2 and WCLK of Lee's Figure 4 are not the same frequency." *Id.*

Patent Owner's conclusory attorney argument is unavailing. We find that Lee's disclosure that the frequency of the additional data write clock signal may be at a frequency of "X/N where X is the frequency of said received data write clock signal and N is an integer" (*id.* at 11:29-41) teaches or at least suggests receipt by the register of a copy of the incoming clock signal from the clock regeneration circuit, as recited in claim 1, that has the same frequency as the incoming clock signal (i.e., when "N" equals "1" (an integer)).

Additionally, we are persuaded by Petitioner's contentions (Pet. 45-48 (citing *e.g.*, Ex. 1008, 7:35-41, 11:29-37, Fig. 4; Ex. 1011 ¶¶ 77-80)) and credit Dr. Subramanian's testimony that Lee teaches that register 45 is configured to receive a regenerated clock signal so as "to control capture of the command and address signals on the command address (C/A) signal lines 15." Ex. 1008, 7:35-41. Lee's register 45 is configured to receive the regenerated local WCLK signal from PLL 41 *e.g.*, via one or more signal lines to clock in the command and address data. *Id.* at 7:35-41, Fig. 4. Such a regenerated local WCLK signal may include a clock signal having the same frequency as the incoming clock signal. *See, e.g., id.* at 7:35-41, 11:29-41. Thus, even assuming Patent Owner is correct that the recited "one of the copies of the incoming clock signal" must have the same frequency as the incoming clock signal and that Lee's WCLK/2 operates at half the frequency of WCLK, Lee's register 45 would nevertheless still be "configured to receive one of the copies of the incoming clock signal" because receiving the full frequency signal would not require register 45 to be "configured" any differently than as taught in Lee. Reply 16-17.

Furthermore, Dr. Subramanian testifies that the number of buses or branches exiting register 45 is a “design choice” among a number of limited number of alternatives. *See, e.g.*, Ex. 1011 ¶ 79. We credit Dr. Subramanian’s testimony as it is consistent with the evidence cited therein, including Lee’s teachings discussed above. Ex. 1008, 7:35-41, 11:29-41, Fig. 4. We also find that Dr. Subramanian’s testimony regarding why one having ordinary skill in the art would have modified Lee’s teachings, for example, such that two buses are used to deliver two signals (rather than a single bus that branches into two pieces), provides sufficient articulated reasoning with rational underpinning to support the legal conclusion of obviousness. Ex. 1011 ¶ 79 (“One of ordinary skill in the art would have been motivated to use a known dual bus design at least to reduce the drive strength per bus needed.”)

Patent Owner relies on Dr. Bernstein’s testimony only as evidence supporting that the WCLK/2 signal has a different frequency from the WCLK signal, i.e., different by a factor of two. PO Resp. 43-47 (citing Ex. 2019 ¶ 105). However, even crediting Dr. Bernstein’s testimony, we remain persuaded by Petitioner’s contentions and evidence because Patent Owner’s contentions are not commensurate with the scope of the claim. We further are persuaded by Petitioner’s contentions and evidence, even under Patent Owner’s proposed construction, because we find that other disclosures of Lee teach or suggest the recitation, as set forth immediately above. Ex. 1008, 7:35-41, 11:29-41; Ex. 1011 ¶¶ 79, 80.

Patent Owner also contends “[b]oth Petitioner and Patent Owner agree that . . . copies of the incoming clock signal cannot operate at multiples of the frequency

of the incoming clock signal.” PO Resp. 45. Patent Owner further contends “[t]hus, it is undisputed that in the invention, copies of the incoming clock signal must have the same frequency as the incoming clock signal.” *Id.* Petitioner, however, has shown that Lee’s copies of the incoming clock signal, i.e., the copies generated and supplied to the memory chips, have the same frequency as the incoming clock signal. For instance, as discussed above with respect to annotated Figure 4, we credit Dr. Subramanian’s testimony as it is consistent with the evidence cited therein that Lee teaches that PLL 41 generates copies of incoming clock signal, namely WCLK 0-8, and supplies those copies to memory chips 39 and that each of the copies have the same frequency as input clock WCLK. Ex. 1011 ¶¶ 72, 73 (citing Ex. 1008, 6:51-55, Fig. 4).

Patent Owner’s dispute (PO Resp. 43-47) pertains to only the clock signal received by register 45 that is set to provide a copy of the signals to the three exemplary memory devices on the left and a copy of the signals to the exemplary memory devices on the right. Ex. 1011 ¶ 79. To the extent that Patent Owner argues that Lee is not enabling, such argument is misplaced because there is a rebuttable presumption that the disclosure in a prior art patent, as here, is enabled. *See Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1355 (Fed. Cir. 2003); *see also In re Antor Media Corp.*, 689 F.3d 1282, 1287-88 (Fed. Cir. 2012) (holding that prior art publications and patents are presumed to be enabled).

We turn to Patent Owner’s second contention that Lee does not teach a register circuit and clock signal regeneration circuit in a common chip packing (PO Resp.

47-52). Relying on the testimony of Dr. Subramanian, Petitioner contends that it would have been obvious to one of ordinarily skill in the art to include the register (Register 45) and the clock signal regeneration circuit (PLL 41) in a single chip packing and integrated on one chip. Pet. 44-45, 48 (citing Ex. 1008, Fig. 4; Ex. 1011 ¶¶ 74-76, 82). As indicated above, Patent Owner does not dispute (PO Resp. 43-56) that Lee teaches that the register circuit is arranged on the memory module with the clock regeneration circuit. Ex. 1008, 7:26-27 (“FIG. 4 illustrates in greater detail a memory subsystem 27, which as noted, may be a DIMM [dual in-line memory module] memory device.”), Fig. 4 (illustrating memory module 27 having “REGISTER” 45 and “PLL” 41).

Patent Owner contends that the Petition’s assertion is insufficiently supported because Dr. Subramanian’s testimony is based on vague statements in Lee that do not suggest putting Lee’s register and PLL in a common chip packaging. PO Resp. 47-48. Dr. Subramanian testifies that it would have been obvious to include the register (Register 45) and the clock signal regeneration circuit (PLL 41) in a common chip packing and integrated on a common chip because Lee teaches flexible packaging options, including the option to package constituent components together. Ex. 1011 ¶¶ 75, 82 (citing Ex. 1008, 8:25-28). We credit Dr. Subramanian’s testimony because it is consistent with Lee’s teaching of “a one-chip memory controller or a chip set or may be a separate processor or part of a processor.” Ex. 1008, 8:25-28. Patent Owner contends that Lee’s teaching pertains to “other elements.” PO Resp. 48. However, we credit Dr. Subramanian’s testimony because consistent with his explanation (Ex. 1011 ¶¶ 75, 82), Lee’s

teachings pertain to memory controller 11, which like Register 45 and PLL 41 provides control for the memory devices. Ex. 1008, 8:25-28.

Patent Owner contends “[i]n the alternative” Petitioner asserts that “this limitation is a mere ‘design choice[] for packaging these components,’” but merely stating that a particular placement of an element is a design choice does not make it obvious. PO Resp. 48-49 (citing *Cutsforth, Inc. v. Motivepower, Inc.*, 636 Fed. App’x 575, 578 (Fed. Cir. 2016) (nonprecedential)). In the instant proceeding, contrary to Patent Owner’s contention, Petitioner’s obviousness contention (Pet. 41-45) does not involve a rearrangement of parts. Patent Owner also contends an “unnumbered possibilities negate motivation to pick any particular possibility.” PO Resp. 49 (citing *Insite Vision Inc. v. Sandoz, Inc.*, 783 F.3d 853, 860-61) (Fed. Cir. 2015)). We, however, credit Dr. Subramanian’s testimony, for example, because he points to Lee’s teachings regarding “one-chip memory” or “a chip set” as evidence supporting his testimony that these two design choices (i.e., packaged either together or separately) would have been known alternatives to a person of ordinary skill in the art. *Id.* at 8:26-27 (cited in Ex. 1011 ¶ 75).

Patent Owner also disputes Petitioner’s design choice contentions on the basis that the common packaging was an unexpected solution to stated problems in the ’150 Patent Specification. PO Resp. 50 (citing Ex. 1001, 2:47-67, 3:1-29). Patent Owner further argues its contentions are supported by extrinsic evidence showing that the register and PLL “were not combined in a common chip until DDR3 RDIMMs” and the earlier generation DDR2 RDIMM used two discrete chips. PO

Resp. 50-52 (citing Ex. 2019 ¶¶ 120-22; Ex. 2029; Ex. 2031, 2).

Upon consideration of the parties' contentions and evidence, we are persuaded by Petitioner's contentions and we credit Dr. Subramanian's testimony as consistent with the evidence of record. Dr. Subramanian testifies it would have been obvious to consolidate register 45 and PLL 41 because "the industry trend both at the time the 150 was filed and now is to consolidate circuits within fewer chip packages, as this reduces costs and facilitates manufacturing of systems with the packages." Ex. 1011 ¶ 76. Dr. Bernstein testifies "there was much discussion around moving the register and PLL to a single chip when DDR3 was developed in the late 2000s." Ex. 2019 ¶ 121 (citing Ex. 2032, 2); *see also* Ex. 2032, 2 ("DDR2 employs at least one register and a PLL instead of two separate components; DDR3 employs a single monolithic-IC chip, which integrates the register and PLL.")

Dr. Bernstein's testimony is consistent with Dr. Subramanian's testimony that the industry trend was to integrate the register and PLL. *Compare* Ex. 2019 ¶ 121 *with* Ex. 1011 ¶ 76. The dispute pertains to the timing of this trend. Ex. 1011 ¶ 76; Ex. 2019 ¶ 121. Dr. Bernstein's testimony that "there was much discussion around moving the register and PLL to a single chip when DDR3 was developed in the late 2000s" identifies as support an article entitled "Evolving to DDR technology" dated May 28, 2009. Ex. 2019 ¶ 121 (citing Ex. 2032). That article refers to "[t]he latest DDR3-memory standard, JEDEC JESD79-3A" and also refers to a "DDR3 SDRAM Specification" dated September 2007. Ex. 2032, 1, 5. The references to the standards

“3A” and “3B” may be indicative that these are not the first of the DDR3 standards. *Id.* Dr. Bernstein also testifies “DDR2 RDIMMs had their PLLs and registers on separate chips on the module and this did not change until years after the ’150 Patent.” Ex. 2019 ¶ 120 (citing Exs. 2029-2031). This testimony of Dr. Bernstein and evidence cited therein (*id.*) pertain to commercial availability of DDR systems, not when it would have been obvious to one of ordinary skill in the art to integrate a PLL and register on a common chip and in a common chip packaging and the testimony is vague with respect to “years after” (*id.*).

Upon consideration of the parties’ contentions regarding this limitation and the evidence of record, we credit Dr. Subramanian’s testimony regarding the timing and give it substantial weight because Dr. Subramanian’s testimony that it would have been obvious to one of ordinary skill in the art to consolidate the register in a common chip packing and integrated on a common chip with the clock regeneration circuit is consistent with the evidence of record. Ex. 1011 ¶ 76. In comparison, we give Dr. Bernstein’s testimony regarding the timing little to no weight because it is inconsistent with the evidence of record. Ex. 2019 ¶ 121. Lee, for example, describes that memory controller 11, which has PLL 13 (Ex. 1008, Fig. 1), “can be a one-chip memory controller or a chip set” (*id.* at 8:24-26). As an additional example, the ’150 Patent Specification describes “DDR3” in the Background and indicates that DDR technology was known, i.e., “[p]resent memory systems (DDR1; DDR2; DDR3).” Ex. 1001, 1:20 (emphases added); *see also id.* at 1:33-35 (describing a con-

sideration for “successor technologies of the DDR3 system, for example for DDR4.”).⁷ This is consistent with Dr. Subramanian’s testimony and not Dr. Bernstein’s testimony because the evidence supports Dr. Subramanian’s testimony (Ex. 1011 ¶ 76) that the industry trend at the time the ’150 Patent was filed was to consolidate circuits within fewer chips.

We turn to the third of Patent Owner’s contentions, i.e., that Lee does not teach a plurality of copies of the command and address signals. PO Resp. 52-56. Patent Owner contends Lee does not disclose making multiple copies of the command and address signals because Figure 4 illustrates “multiple lines labeled C/A coming into register 45 and only one line labeled C/A coming out of it.” *Id.* at 53.

We, however, are persuaded by Petitioner’s contentions and credit Dr. Subramanian’s testimony that making copies of the incoming command and address signals

⁷ Patent Owner provides additional contentions (PO Resp. 56-58) for dependent claim 5, which recites the further recitation that “the clock signal regeneration circuit and the register circuit are integrated on a common chip” (Ex. 1001, 7:36-38), which we have considered in full, as we discuss below. Although not necessary for our determination, contrary to those Patent Owner contentions (PO Resp. 56-58), as further extrinsic evidence that it was known to integrate on a common chip a clock signal and an address and command register, consistent with Petitioner’s contentions (Pet. 26), Dodd teaches clock circuit 300 and clock driver 310 embedded in ADDR/CMD buffer 122. Ex. 1003, 3:51-65, 5:57-6:11, Fig. 3; Ex. 1011 ¶ 19, 44, 79, 82. Also, consistent with Petitioner’s contentions (Pet. 25) Dodd teaches that “a PLL is utilized to implement the clock circuit 300 for performing synchronization” (Ex. 1003, 5:6-32, Fig. 4) and ADDR/CMD 122 is a buffer or register (*id.* at 2:39-3:3).

would have been obvious over Lee's teachings because Petitioner's contentions and Dr. Subramanian's testimony are consistent with the evidence cited therein, including Lee's teachings. Pet. 46-48 (citing e.g., Ex. 1011 ¶¶ 78-80). For instance, contrary to Patent Owner's contention that "one line" comes out of register 45 (PO Resp. 53), consistent with Petitioner's contentions (see, e.g., Pet. 46-47; Reply 19), Lee illustrates hash marks on the line exiting register 45, which indicate that multiple lines, e.g., a bus, exiting register 45. Ex. 1008, Fig. 4.

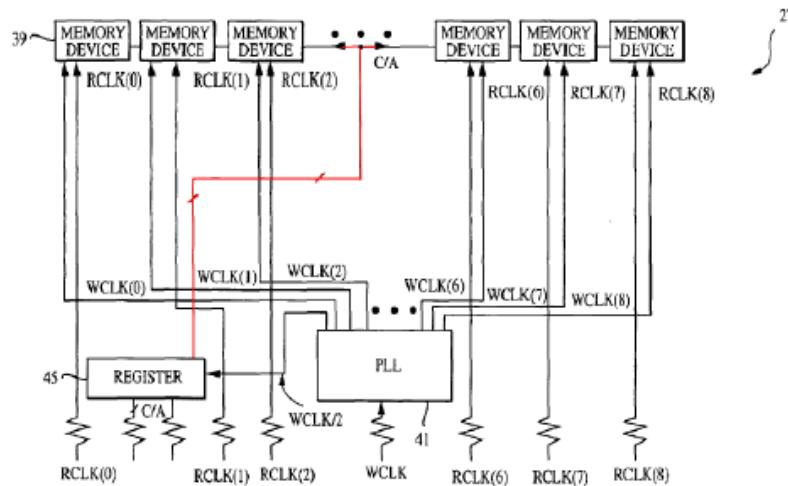


FIG 4

Figure 4 illustrates Memory Subsystem 27
with Annotations by the Board

Figure 4 of Lee reproduced above has been annotated in red to show the line with hash marks leaving register 45 carrying command and address signals. Dr. Subramanian testifies that it would have been obvious in view of Lee's teaching, for example, to supply multiple copies of the incoming command and address

signals. Ex. 1011 ¶ 79. We credit Dr. Subramanian’s testimony because it is consistent with Lee’s teaching of command and address signals being sent from register 45 to multiple memory devices 39, including the memory devices on the left and the memory devices on the right, as well as other evidence cited. *See, e.g.*, Ex. 1008, Fig. 4; Ex. 1003, Fig. 1 (illustrating two buses carrying command and address signals). Supplying command and address signals to two groups of memory devices, e.g., memory devices on the left and memory devices on the right is similar to embodiments described in the ’150 Patent Specification, which for the reasons discussed above *supra* in Section II.C.1, we determine are encompassed in the scope of claim 1. *Compare* Ex. 1001, 2:57-59 (providing “several” copies “to several DRAM branches or channels”) with Ex. 1008, Fig. 4; *see also* Ex. 1001, 5:57-6:9 (describing providing command and address signals to “two semiconductor memory chip groups.”). Furthermore, Petitioner’s contentions also are consistent with the deposition testimony of Dr. Bernstein regarding the hash marks illustrated in Figure 4 of Lee “I think it’s generally understood that when we see a hash it’s representing many lines in parallel representing . . . [a] parallel set of connections.” Ex. 1020, 111:17-24.

Patent Owner also argues that a branch does not make a copy. PO Resp 54 (citing Ex. 2019 ¶¶ 67, 113; Ex. 2018, 115:22-23). Patent Owner further argues that Lee shows “that the outgoing C/A signals are **branched** off the incoming signals.” *Id.* Patent Owner’s contentions, however, do not apply to Petitioner’s argument and Dr. Subramanian’s testimony that it would have been obvious in view of Lee’s teachings for copies

to be made by register 45, e.g., by using a dual-bus architecture. Ex. 1011 ¶¶ 79, 80 (citing, e.g., Ex. 1008, Fig. 4; Ex. 1003, Fig. 1). Additionally, to the extent that Patent Owner's contentions imply that branching results in fewer signals, the contentions are not consistent with the evidence of record. For instance, Dr. Subramanian testifies: "A branch does not make a copy. It provides the same signal to everything." Ex. 2018, 115:22-24. Dr. Bernstein's testimony regarding the distinction between branching and copying pertains to electrical characteristics of the signal. See, e.g., Ex. 2019 ¶ 113. Furthermore, Lee teaches multiple memory devices 39 (six exemplary devices illustrated) receiving command and address signals. Ex. 1008, Fig. 4.

Relying on the testimony of Dr. Bernstein, Patent Owner, additionally, argues that "[i]n contrast to the multiple WCLK signals ("WCLK(0)-WCLK(8)") that emanate from the PLL 41, this one C/A line in Lee would clearly suggest to a POSITA that no copies are made at the Register 45." PO Resp. 54 (citing Ex. 2019 ¶ 111). However, the "one C/A line" (*id.*) is the line with hash marks that Dr. Bernstein acknowledged represents "many lines in parallel" (Ex. 1020, 111:17-24), and this contention does not pertain to Petitioner's contentions and Dr. Subramanian's testimony regarding obviousness. Additionally, register 45 need not have eight lines exiting it to teach "a plurality of copies" recited in claim 1. Claim 9, which depends from claim 1 and is not contested by Patent Owner, further recites "wherein the clock signal regeneration circuit and the register circuit respectively generate *two copies* of the clock signal and the *command and address signals* for distribution to the memory chips." Ex. 1001, 8:1-5 (emphases added).

Additionally, Lee's teaching is similar to embodiments described in the '150 Patent Specification, which for the reasons discussed above *supra* in Section II.C.1, are encompassed in the scope of claim 1, describing only two lines exiting. *Compare* Ex. 1001, 5:57-6:9 (describing providing command and address signals to "two semiconductor memory chip groups") *with* Ex. 1008, Fig. 4.

Again, relying on the testimony of Dr. Bernstein, Patent Owner argues because Lee has "multiple C/A signals entering the register," Lee does not teach copying the signals and a person having ordinary skill in the art would not have a reason to modify Lee to add this limitation. PO Resp. 54-56 (citing *e.g.*, Ex. 2019 ¶¶ 112-16). Dr. Bernstein testifies "Lee has more than one C/A line entering register 45," which is "what the '150 Patent was designed to avoid." Ex. 2019 ¶ 115-16 (citing Ex. 1001, 1:29-32). However, the '150 Patent Specification illustrates multiple incoming command address ("CA") signal lines, again depicting hash marks. Ex. 1001, Figs. 1-5; *see also id.* at 5:30-38 ("as was the case in the first embodiment . . . command and address *signals* CA that are supplied to the module 100 via *CA lines* 71") (emphases added), 5:38-41 ("In the second embodiment . . . the differential command and address *signals* CA are supplied via the input *CA lines* 71") (emphases added), 5:62-66 ("the invention proposes to arrange . . . a clock signal regeneration circuit and a register circuit . . . and to connect them to *bus signal lines* 61, 71 supplying the command and address *signals*") (emphases added). Lee's teaching of a bus (the line to the left with the hash mark) and a single line (to the right) providing incoming signals to register 45 is substantially the same as the embodiments depicted in the

'150 Patent Specification of using a bus to receive command and address signals, for example, line 71 with hash marks denoted "CA signal lines," for example in Figure 2. *Compare* Ex. 1008, Fig. 4 with Ex. 1001, Figs. 1-5.

Additionally, Patent Owner's contentions and Dr. Bernstein's testimony (PO Resp. 56; Ex. 2019 ¶¶ 115-16) pertain to a different modification than that set forth in Petitioner's contentions and Dr. Subramanian's testimony (Pet. 46-47; Ex. 1011 ¶ 79). In particular, Patent Owner's contentions and Dr. Bernstein's testimony (PO Resp. 56; Ex. 2019 ¶¶ 115-16) assume an "increased number of pins" for incoming command/address signals, whereas Petitioner's contentions and Dr. Subramanian's testimony pertain to generating copies, rather than receiving the copies (Pet. 46-47; Ex. 1011 ¶ 79).

Furthermore, even if multiple copies were received, Patent Owner's contentions and Dr. Bernstein's testimony (PO Resp. 54-56 (citing *e.g.*, Ex. 2019 ¶¶ 112-16) are not commensurate with the scope of claim 1, which does not prohibit more than one incoming line and recites that the register circuit is "configured to temporarily store the incoming command and address *signals*." Ex. 1001, 7:18-20. Claim 1 also is directed to a memory module "comprising" the various elements recited. *Id.* at 7:2. The term "comprising" is a term of art used in claim language, which means that the named elements are essential, but other elements also may be included to constitute additional components within the scope of the claim. *See Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997).

Upon consideration of Dr. Subramanian's testimony that it would have been obvious over Lee's teachings "to generate a plurality of copies of the incoming command

and address signals,” by register 45, for example, by using two buses to provide copies of the incoming command and address signals to memory devices 39 (one bus for devices on the left and one bus for devices on the right) (Ex. 1011 ¶ 78-80) and Dr. Bernstein’s testimony (Ex. 2019 ¶¶ 110-16), we credit and give substantial weight to Dr. Subramanian’s testimony because we find it consistent with the teachings of the art cited therein. In contrast, we give Dr. Bernstein’s testimony little or no weight. Ex. 2019 ¶¶ 110-16. Regarding the evidence of record, Lee, for instance, teaches that register 45 “capture[s]” the incoming command and address signals and “clocks in the command and address data.” Ex. 1008, 7:34-41. Patent Owner does not dispute that Lee’s register 45 temporarily stores the incoming command and address signals. PO Resp. 43-56. Lee’s Figure 4 also illustrates register 45 then providing copies of the incoming command and address signals to memory devices 39 via the line with hash marks. Ex. 1008, Fig. 4; Ex. 1011 ¶ 79. Furthermore, Figure 4 of Lee also includes a “C/A” label at the top of Figure 4 illustrating providing command and address signals to three memory devices on the left-hand side and three memory devices on the right-hand side. *Id.* at Fig. 4. We are persuaded that it would have been obvious in view of these teachings, for example, to use the dual bus design with two copies leaving register 45, as testified by Dr. Subramanian. Ex. 1011 ¶¶ 79, 80; *see also* Ex. 1020, 111:17-24 (Dr. Bernstein testifies “I think it’s generally understood that when we see a hash it’s representing many lines in parallel representing . . . [a] parallel set of connections.”) Additionally, Lee is directed to “a clocking system and method for effecting high speed data transfers” (*id.* at 1:10-12) and specifically teaches

providing command and address (C/A) signals to a plurality of memory storage devices via a register (*id.* at 4:1-14, 7:34-41, 11:4-41, Fig. 4).

Patent Owner's argument fails to recognize that "[w]hat a prior art reference discloses or teaches is determined from the perspective of one of ordinary skill in the art." *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361 n.3 (Fed. Cir. 2008). A prior art reference must be "considered together with the knowledge of one of ordinary skill in the pertinent art." *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994); *see also; DeGeorge v. Bernier*, 768 F.2d 1318, 1323 (Fed. Cir. 1985) (superseded on other grounds by statute, Patent Law Amendments Act of 1984, 35 U.S.C. §§ 135, 141-46) (holding that a reference "need not, however, explain every detail since [it] is speaking to those skilled in the art"); *In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (explaining that "in considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom").

We further are persuaded by Petitioner's contentions and credit Dr. Subramanian's testimony that it also would have been obvious to one having ordinary skill in the art to modify Lee's teachings to use two buses and deliver the plurality of copies of the command and address signals over those buses because sufficient reason is given for this modification. Pet. 46-48 (citing *e.g.*, Ex. 1011 ¶¶ 78-80). For instance, Dr. Subramanian testifies "one of ordinary skill in the art would have understood that the choice between using a single bus that branches into two pieces to deliver two signals or to use

two buses was a simple design choice.” Ex. 1011 ¶ 79 (citing *e.g.*, Ex. 1003, Fig. 1). We credit Dr. Subramanian’s testimony because he testifies that using two buses was a design choice among a number of limited number of alternatives, *e.g.*, using a single bus that branches or two buses. We also credit Dr. Subramanian’s testimony that using two buses was a design choice that would have been known because it is consistent with the evidence cited therein including, for example, Figure 1 of Dodd (Ex. 1003), which illustrates a single input into ADDR/CMD buffer 122 and two buses (denoted with hash marks) exiting ADDR/CMD buffer 122. Ex. 1003, Fig. 1. The buses exiting ADDR/CMD buffer 122 carry copies of the incoming address and command signals, the top bus carrying signals to memory devices 130 and 140 and the bottom bus carrying signals to memory devices 135 and 145. *Id.* We find that Dr. Subramanian’s testimony also provides a motivation to use the dual bus design. *See, e.g.*, Ex. 1011 ¶ 79 (“One of ordinary skill in the art would have been motivated to use a known dual bus design at least to reduce the drive strength per bus needed.”) Accordingly, we find that Dr. Subramanian’s testimony provides sufficient articulated reasoning with rational underpinning to support the legal conclusion of obviousness.

Based on the entirety of the record before us, we are persuaded by and adopt as our own, Petitioner’s analysis and Dr. Subramanian’s supporting testimony that all of the limitations of claim 1 are obvious over Lee.

c. Conclusion—Claim 1

Based on the entire trial record, we determine that Petitioner has demonstrated by a preponderance of the

evidence that claim 1 is unpatentable under § 103(a) as obvious over Lee.

4. Discussion of Claims 2, 5, 6, and 8-10

Each of claims 2, 5, 6, and 8-10 depends directly from independent claim 1. We have reviewed Petitioner's showing (Pet. 48-52) with respect to dependent claims 2, 5, 6, and 8-10 and the teachings of Lee.

a. Claim 2

Claim 2 recites “wherein the clock signal regeneration circuit comprises a phase locked loop (PLL) circuit.” Ex. 1001, 7:26-28. We are persuaded by Petitioner's contentions (Pet. 48) because Lee teaches that the clock regeneration circuit is PLL 41. *See, e.g.*, Ex. 1008, Fig. 4. Patent Owner does not contest separately Petitioner's showing for claim 2. Based on the entirety of the record before us, we are persuaded by and adopt as our own, Petitioner's analysis and Dr. Subramanian's supporting testimony that all of the limitations of claim 2 are obvious over Lee.

b. Claim 5

Claim 5 recites “wherein the clock signal regeneration circuit and the register circuit are integrated on a common chip in the common chip packing.” Ex. 1001, 7:36-38. Petitioner relies on its contentions for claim 1. Pet. 48; Reply 20. Patent Owner also relies on its contentions for claim 1, but, additionally, contends that “it is far from straightforward” to integrate on a common chip PLL 41, which is an analog device and register 45, which is a digital device. PO Resp. 57-58 (citing *e.g.*, Ex. 1003, 5:40-43; Ex. 2019 ¶¶ 118, 119, 122). Dr. Bern-

stein testifies that “[i]t is difficult and expensive to integrate analog and digital systems on a single chip” relying on Dodd’s teachings. Ex. 2019 ¶ 118 (citing Ex. 1003, 5:40-43). Although Dodd indicates “in a digital system such as memories, a PLL having analog characteristics may introduce analog design complications in a mainly digital design” (Ex. 1003, 5:40-43), Dodd also teaches “[a]s compared to using a DLL, the advantages of using a PLL, is that the PLL is more accurate” (*id.* at 5:36-37). Additionally, consistent with Petitioner’s contentions (Pet. 26), Dodd teaches an embodiment in which clock circuit 300 and clock driver 310 are embedded in ADDR/CMD buffer 122. Ex. 1003, 3:51-65, 5:57-6:11, Fig. 3; Ex. 1011 ¶ 19, 44, 79, 82. Also, consistent with Petitioner’s contentions (Pet. 25) Dodd teaches that “a PLL is utilized to implement the clock circuit 300 for performing synchronization” (Ex. 1003, 5:6-32, Fig. 4) and ADDR/CMD 122 is a buffer or register (*id.* at 2:39-3:3). Dr. Bernstein also testifies regarding other complexities (*see, e.g.*, Ex. 2019 ¶ 119), but as Dr. Bernstein testifies, these complexities were overcome (*id.* ¶¶ 120, 121).

Upon consideration of all Patent Owner’s contentions, including those presented for both claims 1 and 5, we are persuaded by Petitioner’s contentions and credit Dr. Subramanian’s testimony for the same reasons discussed *supra* Section II.D.3 with respect to claim 1. Indeed, throughout our discussion of claim 1, we referred to “common chip packing” in connection with “integrated on a common chip” as both parties’ contentions for claim 1 and “common chip packing” pertain to whether the clock signal regeneration circuit and the register cir-

cuit are both in “common chip packing” and also “integrated on a common chip.” We, again, note that our finding that Petitioner’s contentions are persuasive and our crediting of Dr. Subramanian’s testimony is based, for example, on Lee’s express teaching of employing on “a one-chip memory or a chip set” memory controller 11, having a PLL and which communicates digital data to and from memory devices 39. Ex. 1008, 8:24-29, Fig. 1.

Based on the entirety of the record before us, we are persuaded by and adopt as our own, Petitioner’s analysis and Dr. Subramanian’s supporting testimony that all of the limitations of claim 5 are obvious over Lee.

c. *Claim 6*

Claim 6 recites “wherein the common chip packing is arranged essentially at a central position on the memory module.” Ex. 1001, 7:39-41. Petitioner contends it would have been obvious to one having ordinary skill in the art to arrange the common chip packing at a central position on the memory module. Pet. 48-49 (citing *e.g.*, Ex. 1011 ¶¶ 83-84). Dr. Subramanian testifies that Lee teaches locating the common chip packaging in essentially a central position on the memory module because Lee discloses PLL 41 located in a central position. Ex. 1011 ¶ 83. Dr. Subramanian also testifies one of ordinary skill in the art would have known that the PLL and register circuit should be placed in a central location and would have had reasons to do so including that such placement would have been known to simplify the design. *Id.* ¶¶ 83, 84 (citing Ex. 1008, Fig. 4; Ex. 1010, Fig. 2).

For claim 6, relying on the testimony of Dr. Bernstein, Patent Owner contends that Lee’s Figure 4 does

not illustrate a physical arrangement because it is a circuit diagram and “so the same reasoning discussed with respect to Dodd in Section IV.C, *supra*, also applies here to Lee.” PO Resp. 60 (citing Ex. 2019 ¶ 124). In addition to testifying regarding Lee, Dr. Bernstein testifies “the statements I made in ¶¶ 89-97, *supra*, for Dodd are equally applicable to Lee.” For the most part, Patent Owner’s contentions and Dr. Bernstein’s testimony regarding Dodd, however, apply particularly to Dodd and not to Lee. PO Resp. 29-39; Ex. 2019 ¶¶ 89-97. The Patent Owner Response must include “a detailed explanation of the significance of the evidence.” *See* 37 C.F.R. §§ 42.22, 42.23, 42.120. Such a detailed explanation is not provided. To the extent contentions or testimony are reasonably understood to apply to both Lee and Dodd, we provide a response. We decline, however, to try to ascertain what Patent Owner might have argued with respect to Lee.

We now turn to Patent Owner’s contention and Dr. Bernstein’s testimony that Lee’s Figure 4 does not illustrate a physical arrangement because it is a circuit diagram. PO Resp. 60; Ex. 2019 ¶ 124. Dr. Bernstein testifies “Lee is a circuit diagram that shows how different circuit elements are connected, rather than a layout diagram that shows where the circuit elements are physically located on a module.” Ex. 2019 ¶ 124. Dr. Bernstein testifies that Dr. Subramanian agrees. *Id.* ¶ 90 (citing Ex. 2018. 129:24-130:2, 130:13-18). Dr. Bernstein testifies that his “conclusion” “is reinforced by the fact that the register 45 is located in the bottom left corner of the diagram.” *Id.* ¶ 124. Dr. Bernstein also testifies “Petitioner also states that it would be obvious to place the register circuit and clock regeneration circuit

at a central position of the memory module,” but “Petitioner does not cite to any evidence in Lee to support this contention.” Ex. 2019 ¶ 124 (citing Pet. 49).

Dr. Subramanian testifies

Q. On what way is a circuit diagram is different from a layout diagram?

A. The way a circuit diagram is drawn is intended to emphasize the electrical structure and essentially establish the electrical functional relationships between components. The way a layout is drawn, it's intended to emphasize the special structure. However, it turns out it is possible to go from one to the other and back. *So, in other words from a circuit diagram you can calculate a layout or generate a layout and from a layout you can back circuit what the circuit diagram is.* So they're essentially—they contain similar information with different things emphasized.

Q. How can you calculate a layout diagram from a circuit diagram?

A. *If you have a circuit diagram you can generate a layout that would correspond to that circuit, which will specify the wiring, will specify the component placement, etcetera.* In fact, today a lot of that is automated and it has been automated for awhile.

Ex. 2018, 130:13-131:10 (emphases added). Additionally, Dr. Subramanian testifies that “in Figure 4 [of Lee], the PLL chip is disclosed to be located in a central position on the module.” Ex. 1011 ¶ 83.

Upon consideration of Dr. Subramanian’s testimony (*see, e.g.*, Ex. 1011 ¶¶ 83-84, Ex. 2018, 129:8-131:10) and

Dr. Bernstein's testimony (*see, e.g.*, Ex. 2019 ¶¶ 90, 124), we credit Dr. Subramanian's testimony and give it substantial weight (*see, e.g.*, Ex. 1011 ¶¶ 83-84, Ex. 2018, 129:8-131:10), whereas we give Dr. Bernstein's testimony (*see, e.g.*, Ex. 2019 ¶¶ 90, 124) little to no weight because we find that Dr. Subramanian's testimony is consistent with the evidence cited therein. As an initial matter, we decline to discount Dr. Subramanian's testimony and the evidence that he relies on because the diagrams in the patents are not expressly identified as layout diagrams. It is well settled that things patent drawings show clearly are not to be disregarded. *In re Mraz*, 455 F.2d 1069, 1072 (CCPA 1972).

Consistent with Dr. Subramanian's testimony (Ex. 1011 ¶ 83), Lee illustrates PLL 41 located in a central position in Figure 4. Dr. Subramanian also testifies one of ordinary skill in the art would have known that the PLL and register circuit should be placed in a central location and would have had reasons to do so including that such placement would have been known to simplify the design. *Id.* ¶¶ 83, 84 (citing Ex. 1008, Fig. 4; Ex. 1010, Fig. 2). Regarding Dr. Bernstein's testimony that "the register 45 is located *in the bottom left corner of the diagram*" (Ex. 2019 ¶ 124), consistent with Dr. Subramanian's testimony (Ex. 1011 ¶¶ 75, 76 82-84) we find that register 45 is placed to the left, and alongside, PLL 41, indicating that the two components should be located together, *e.g.*, side-by-side. Ex. 1008, Fig. 4.

Regarding Dr. Bernstein's testimony that "Petitioner also states that it would be obvious to place the register circuit and clock regeneration circuit at a central position of the memory module," but "Petitioner

does not cite to any evidence in Lee to support this contention” (Ex. 2019 ¶ 124 (citing Pet. 49)), we are persuaded by Petitioner’s contentions supported by Dr. Subramanian’s testimony and the other evidence cited therein. Pet. 44-45, 48-49 (citing *e.g.*, Ex. 1008, Fig. 4; Ex. 1010, Fig. 2; Ex. 1011 ¶¶ 75-76, 82-84); Reply 20-21 (citing *e.g.*, Ex. 1008, Fig. 4; Ex. 1010, Fig. 2). For instance, the PLL 41 is shown in Figure 4 of Lee in an essentially central location similar to that illustrated in embodiments in the ’150 Patent Specification. *Compare* Ex. 1008, Fig. 4 with Ex. 1001, Figs. 1, 3 (illustrating a placement near, but not exactly at the center). Additionally, we credit Dr. Subramanian’s testimony (Ex. 1011 ¶¶ 75, 76 82-84), for example, because we find it is consistent with Lee’s teaching that a control element such as register 45 and PLL 41 “can be a one-chip memory controller or a chip set, or may be a separate processor, or part of a processor” (Ex. 1008, 8:25-27) taken together with the illustration in Figure 4 of PLL 41 in a central location (*id.* at Fig. 4). Furthermore, although not necessary for our determination, we also credit Dr. Subramanian’s testimony (Ex. 1011 ¶ 84), for example, because it is consistent with the illustration of register 210 and PLL 212 in an essentially central location in registered memory module 200 in Figure 2 of Exhibit 1010.⁸

Based on the entirety of the record before us, we are persuaded by and adopt as our own, Petitioner’s analysis and Dr. Subramanian’s supporting testimony that all of the limitations of claim 6 are obvious over Lee.

⁸ Exhibit 1010 is U.S. Patent Application Publication 2004/0143773 A1 and was published July 22, 2004.

d. Claim 8

Claim 8 recites “wherein the bus signal lines of the command and address signals comprise a fly-by bus structure.” Ex. 1001, 7:45-47. We are persuaded by Petitioner’s contentions and credit Dr. Subramanian’s testimony that Lee teaches the further recitation of claim 8 because Petitioner’s contentions and Dr. Subramanian’s testimony are consistent with the evidence cited therein. Pet. 50-51 (citing *e.g.*, Ex. 1008, Fig. 4; Ex. 1001, Fig. 5; Ex. 1011 ¶¶ 85-86). For instance, we find that Figure 4 of Lee illustrates address/command buses that fly by multiple memory devices. Ex. 1008, Fig. 4. Additionally, Figure 4’s fly-by structure is similar to that shown in Figure 5 of the ’150 Patent, which is described as being “a schematic layout view of the [] semiconductor memory module with fly-by bus structure with two copies of the clock signal and command address signal bus,” (Ex. 1001, 4:23-26) which is encompassed in the scope of claim 8. *Compare* Ex. 1008, Fig. 4 *with* Ex. 1001, Fig. 5.

Patent Owner does not contest separately Petitioner’s showing for claim 8. Based on the entirety of the record before us, we are persuaded by and adopt as our own, Petitioner’s analysis and Dr. Subramanian’s supporting testimony that all of the limitations of claim 8 are obvious over Lee.

e. Claim 9

Claim 9 recites “wherein the clock signal regeneration circuit and the register circuit respectively generate two copies of the clock signal and the command and address signals for distribution to the memory chips.”

Ex. 1001, 8:1-5. We are persuaded by Petitioner's contentions and credit Dr. Subramanian's testimony for the same reasons discussed *supra* in Section II.D.3 with respect to claim 1. Pet. 51 (citing Ex. 1011 ¶ 87).

Patent Owner does not contest separately Petitioner's showing for claim 9. Based on the entirety of the record before us, we are persuaded by and adopt as our own, Petitioner's analysis and Dr. Subramanian's supporting testimony that all of the limitations of claim 9 are obvious over Lee.

f. Claim 10

Claim 10 recites "wherein the memory module comprises an RDIMM module." Ex. 1001, 8:6-7. As we discussed with respect to claim construction *supra* in Section II.C.2, we need not make a determination regarding the broadest reasonable interpretation of "RDIMM" because we are persuaded that Petitioner shows sufficiently that Lee teaches an "RDIMM" based on Patent Owner's proposed construction. Accordingly, for the purpose of this Decision, RDIMM means "registered dual in line memory module, which buffers control signals, but not data signals."

Relying on the testimony of Dr. Subramanian, Petitioner contends that Lee's memory subsystem 27 teaches an RDIMM. Pet. 52 (citing Ex. 1008, 7:25-27, Fig. 4; Ex. 1011 ¶ 88). Dr. Subramanian testifies that Lee discloses an R-DIMM because the DIMM (shown in Figure 4) includes register 45. Ex. 1011 ¶ 88.

Patent Owner contends "[t]he Petition[er] offers little explanation of how Lee supposedly meets this limitation." PO Resp. 61. Patent Owner further contends "Figure 4 does not show—and Lee does not specify—

whether or what, buffering occurs on the data lines so it is impossible to tell if it discloses a RDIMM or FB-DIMM.” *Id.* at 62, n.11.

Patent Owner contends “Dr. Subramanian states that ‘if there is a DIMM that provides buffering for control signals and also data signals,’ then ‘traditionally that would be an FBDIMM.’” PO Resp. 12, n.2 (citing Ex. 2018, 16:20-25, 19:7-11). Dr. Subramanian, additionally, testifies that Lee discloses an R-DIMM. Ex. 1011 ¶ 88 (citing e.g., Ex. 1008, 7:25-27, Fig. 4). We credit Dr. Subramanian’s testimony that Lee discloses an R-DIMM because, consistent with his testimony, Lee teaches that memory subsystem 27 “may be a DIMM [dual in-line memory module] device.” Ex. 1008, 7:25-28; *see also id.* at 6:6-7 (“[E]ach of the memory subsystems 27 is constructed as a [] dual in-line memory module (DIMM.”)). Additionally, according to Patent Owner, Dr. Subramanian agrees with Patent Owner’s proposed construction. Furthermore, Figure 4 of Lee illustrates *only* Register 45, PLL 41, and memory devices 39, as well as clock and command and address signal lines, as discussed above in various previous sections. Ex. 1008, Fig. 4. Consistent with Patent Owner’s proposed construction of “RDIMM” i.e., “registered dual in line memory module, which buffers control signals, but not data signals” (PO Resp. 61), Lee illustrates controlling capture of command and address signals without buffering data signals (Ex. 1008, 7:34-40, Fig. 4). Accordingly, we find that Petitioner has shown sufficiently that Lee teaches “wherein the memory module comprises an RDIMM module,” recited in claim 10 and RDIMM means “registered dual in line memory module, which buffers control signals, but not data signals.”

Based on the entirety of the record before us, we are persuaded by and adopt as our own, Petitioner's analysis and Dr. Subramanian's supporting testimony that all of the limitations of claim 10 are obvious over Lee.

g. Conclusion—Claims 2, 5, 6, and 8-10

Based on the entire trial record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 2, 5, 6, and 8-10 are unpatentable under § 103(a) as obvious over Lee.

5. Discussion of claims 3 and 11

We next turn to dependent claims 3 and 11, each of which depends directly from independent claim 1. Petitioner asserts that the combination of Lee and Keith teaches all elements of claims 3 and 11 and provides a rationale for combining the teachings of Lee and Keeth. Pet. 52-54.

a. Claims 3 and 11

Claim 3 recites “wherein the incoming clock signal and the copies of the incoming clock signal are each supplied via differential clock signal lines.” Claim 11 recites “wherein the memory chips comprise DDR-DRAM memories.” Petitioner contends that differential signaling was well-known and points to Keeth’s teachings of memory devices using differential signaling for clock signals in DDR DRAM devices. Pet. 52-54 (citing *e.g.*, Ex. 1016, 1:25-44; Ex. 1011 ¶¶ 89-91). Relying on the testimony of Dr. Subramanian, Petitioner asserts it would have been obvious to one of ordinary skill in the art to have used differential signaling for the clocks signals and the command and address signals due to its more precise tim-

ing, higher speed capability, and greater signal/noise ratios and performance. *Id.* Again relying on the testimony of Dr. Subramanian, Petitioner also asserts that one of ordinary skill would have used differential signaling with Lee to increase the speed of the memory, increase its bandwidth, and to comply with industry standards and practice. *Id.*

We are persuaded that Petitioner has accounted sufficiently for the limitations of claims 3 and 11. Additionally, relying on the testimony of Dr. Subramanian, Petitioner has articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have modified Lee's system so as to apply Keeth's teachings of DDR DRAM devices and using differential signaling for clock signals. Pet. 52-54 (citing e.g., Ex. 1016, 1:25-44; Ex. 1011 ¶¶ 89-91).

We credit Dr. Subramanian's testimony that the combination of Lee and Keeth teach all limitations recited in claims 3 and 11 and we credit his testimony providing articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have modified Lee's system so as to apply Keeth's teachings of DDR DRAM devices and using differential signaling for clock signals because his testimony is consistent with the evidence cited therein. Ex. 1011 ¶¶ 89-91 (citing e.g., Ex. 1016, 1:25-44). For instance, Keeth teaches that DDR DRAM "transfers data at both the rising and falling edge of a clock signal," which is "unlike traditional SDRAM, which transfers data only on the rising edge of a clock signal," thereby increasing the speed of the memory. Ex. 1016, 1:25-44. Keeth also teaches that such memory devices use "differential signaling for

clock signals,” for example, because differential signaling “reduces sensitivity to common mode voltages to enable the production of a stable internal timing reference,” and provides “good signal integrity from which a balanced receive can be built that maintains good duty cycle performance internally.” *Id.*

Patent Owner does not argue for the separate patentability of claims 3 and 11 with respect to this challenge. PO Resp. 43-62. Based on the entirety of the record before us, we are persuaded by and adopt as our own, Petitioner’s analysis and Dr. Subramanian’s supporting testimony that all of the limitations of claims 3 and 11 are obvious over Lee and Keeth.

b. Conclusion—Claims 3 and 11

Based on the entire trial record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 3 and 11 are unpatentable under § 103(a) as obvious over Lee and Keeth.

*E. Obviousness of Claims over Dodd alone
or with Keeth*

Petitioner contends claims 1, 2, 5, 6, and 8-10 are unpatentable under 35 U.S.C. § 103(a) as obvious over Dodd.⁹ Pet. 4, 18-39. Petitioner also contends claims 3 and 11 are unpatentable under 35 U.S.C. § 103(a) as obvious over Dodd and Keeth. *Id.* at 4, 39-41. In light of our unpatentability determinations based on Lee, we take no position on whether these same claims are also obvious over Dodd alone or with Keeth.

⁹ Although claim 11 is listed in the section heading for this ground (Pet. 18), the analysis of claim 11 is found within only the next section (*id.* at 39-41).

*F. Patent Owner's Listing of Improper Reply
Arguments and Evidence*

Patent Owner filed a Listing of Improper Reply Arguments and Evidence (Paper 26) and Petitioner filed a Response (Paper 29). Patent Owner lists several portions of Petitioner's Reply and evidence allegedly beyond the scope of what can be considered appropriate for a reply. *See Paper 26.* We have considered Patent Owner's listing, but disagree that the cited portions of Petitioner's Reply and reply evidence are beyond the scope of what is appropriate for a reply. Replies are a vehicle for responding to arguments raised in a corresponding patent owner response. Petitioner's arguments and evidence that Patent Owner objects to are not beyond the proper scope of a reply because we find that they fairly respond to Patent Owner's arguments raised in Patent Owner's Response. *See Idemitsu Kosan Co., LTD. v. SFC Co. LTD,* 870 F.3d 1376, 1381 (Fed. Cir. 2017) ("This back-and-forth shows that what Idemitsu characterizes as an argument raised 'too late' is simply the by-product of one party necessarily getting the last word. If anything, Idemitsu is the party that first raised this issue, by arguing—at least implicitly—that Arkane teaches away from non-energy-gap combinations. SFC simply countered, as it was entitled to do.").

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has established by a preponderance of the evidence that claims 1, 2, 5, 6, and 8-10 of the '150 Patent are unpatentable, under 35 U.S.C. § 103(a), as obvious over Lee. Additionally, we determine that Petitioner has established by a preponderance of the evidence that

claims 3 and 11 are unpatentable, under 35 U.S.C. § 103(a), as obvious over Lee and Keeth.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1-3, 5, 6, and 8-11 of the '150 Patent have been shown to be unpatentable; and

FURTHER ORDERED that because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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APPENDIX G

UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE PATENT TRIAL AND APPEAL BOARD

GENERAL ORDER IN CASES REMANDED UNDER
ARTHREX, INC. v. SMITH & NEPHEW, INC.,
941 F.3d 1320 (Fed. Cir. 2019)

GENERAL ORDER

Before SCOTT R. BOALICK, *Chief Administrative Patent Judge*.

BOALICK, *Chief Administrative Patent Judge*.

The United States Patent and Trademark Office (“Office”) has received from the United States Court of Appeals for the Federal Circuit (“Federal Circuit”) numerous Orders that rely on the Federal Circuit’s decision in *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320 (Fed. Cir. 2019). Those Orders have already vacated more than 100 decisions by the Patent Trial and Appeal Board (“Board”), and more such Orders are expected. The Orders instruct the Board to conduct further proceedings on remand before newly-designated Board panels.

Several parties in Board matters that have been subject to such Orders have informed the Office that they intend to seek review of the pertinent Order by the Supreme Court of the United States (“Supreme Court”). Meanwhile, in accordance with the Board’s Standard Operating Procedure 9 (“SOP 9”), parties are contacting

the Board to schedule teleconferences with the appropriate Board panel in their proceeding. To avoid burdening the Office and the parties until all appellate rights have been exhausted, I exercise my discretion to: (1) suspend the requirements in SOP 9 in cases remanded by the Federal Circuit under *Arthrex*; and (2) hold all such cases in administrative abeyance until the Supreme Court acts on a petition for certiorari or the time for filing such petitions expires.

ORDER

It is therefore ORDERED that the following matters are held in abeyance:

1. App. Ser. No. 95/001,679
2. App. Ser. No. 95/001,754
3. App. Ser. No. 95/001,792
4. App. Ser. No. 95/001,851
5. CBM2017-00064
6. CBM2017-00065
7. CBM2017-00066
8. CBM2017-00067
9. CBM2018-00034
10. IPR2014-01235
11. IPR2015-00249
12. IPR2015-01046
13. IPR2015-01047
14. IPR2016-00693
15. IPR2016-00957

16. IPR2016-01542
17. IPR2016-01621
18. IPR2016-01622
19. IPR2016-01756
20. IPR2017-01218
21. IPR2017-00058
22. IPR2017-00116
23. IPR2017-00198
24. IPR2017-00275
25. IPR2017-00350
26. IPR2017-00351
27. IPR2017-00352
28. IPR2017-00353
29. IPR2017-00524
30. IPR2017-00901
31. IPR2017-00950
32. IPR2017-00951
33. IPR2017-00952
34. IPR2017-01048
35. IPR2017-01049
36. IPR2017-01050
37. IPR2017-01256
38. IPR2017-01391
39. IPR2017-01392

40. IPR2017-01393
41. IPR2017-01405
42. IPR2017-01406
43. IPR2017-01409
44. IPR2017-01410
45. IPR2017-01500
46. IPR2017-01707
47. IPR2017-01714
48. IPR2017-01735
49. IPR2017-01736
50. IPR2017-01737
51. IPR2017-01797
52. IPR2017-01798
53. IPR2017-01799
54. IPR2017-01800
55. IPR2017-01801
56. IPR2017-01802
57. IPR2017-01919
58. IPR2017-02131
59. IPR2017-02132
60. IPR2017-02136
61. IPR2017-02138
62. IPR2017-02158
63. IPR2018-00522

64. IPR2018-00864
65. IPR2018-00044
66. IPR2018-00187
67. IPR2018-00200
68. IPR2018-00205
69. IPR2018-00206
70. IPR2018-00207
71. IPR2018-00208
72. IPR2018-00272
73. IPR2018-00312
74. IPR2018-00329
75. IPR2018-00333
76. IPR2018-00336
77. IPR2018-00338
78. IPR2018-00339
79. IPR2018-00342
80. IPR2018-00343
81. IPR2018-00369
82. IPR2018-00374
83. IPR2018-00375
84. IPR2018-00404
85. IPR2018-00458
86. IPR2018-00486
87. IPR2018-00529

88. IPR2018-00571
89. IPR2018-00599
90. IPR2018-00680
91. IPR2018-00870
92. IPR2018-00871
93. IPR2018-00872
94. IPR2018-00873
95. IPR2018-00874
96. IPR2018-00875
97. IPR2018-00998
98. IPR2018-00999
99. IPR2018-01000
100. IPR2018-01004
101. IPR2018-01005
102. IPR2018-01066
103. IPR2018-01205

It is further ORDERED that any other matters remanded by the Federal Circuit under *Arthrex* will be held in abeyance.

/s/ SCOTT R. BOALICK
SCOTT R. BOALICK
Chief Administrative Patent Judge

APPENDIX H

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2018-2140

ARTHREX, INC., APPELLANT

v.

SMITH & NEPHEW, INC., ARTHROCARE CORP.,
APPELLEES

UNITED STATES, INTERVENOR

Filed: Mar. 23, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00275

ON PETITIONS FOR REHEARING EN BANC

Before PROST, *Chief Judge*, NEWMAN, LOURIE, DYK,
MOORE, O'MALLEY, REYNA, WALLACH, TARANTO, CHEN,
HUGHES, and STOLL, *Circuit Judges*.

MOORE, *Circuit Judge*, with whom O'MALLEY,
REYNA, and CHEN, *Circuit Judges*, join, concurs in the
denial of the petitions for rehearing en banc.

O'MALLEY, *Circuit Judge*, with whom MOORE and
REYNA, *Circuit Judges*, join, concurs in the denial of the
petitions for rehearing en banc.

DYK, *Circuit Judge*, with whom NEWMAN and WALLACH, *Circuit Judges* join, and with whom HUGHES, *Circuit Judge*, joins as to Part I.A, dissents from the denial of the petitions for rehearing en banc.

HUGHES, *Circuit Judge*, with whom WALLACH, *Circuit Judge*, joins, dissents from the denial of the petitions for rehearing en banc.

WALLACH, *Circuit Judge*, dissents from the denial of the petitions for rehearing en banc.

PER CURIAM.

ORDER

Petitions for rehearing en banc were filed by appellant Arthrex, Inc.; appellees Smith & Nephew, Inc. and Arthrocare Corp.; and intervenor United States. Responses to the petitions were invited by the court and filed by all three parties. Two motions for leave to file amici curiae briefs were filed and granted by the court. The petitions for rehearing, responses, and amici curiae briefs were first referred to the panel that heard the appeals, and thereafter to the circuit judges who are in regular active service. A poll was requested, taken, and failed.

Upon consideration thereof,

IT IS ORDERED THAT:

- 1) The petitions for panel rehearing are denied.
- 2) The petitions for rehearing en banc are denied.
- 3) The mandate of the court will issue on March 30, 2020.

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FOR THE COURT

Mar. 23, 2020
Date

/s/ PETER R. MARKSTEINER
PETER R. MARKSTEINER
Clerk of Court

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2018-2140

ARTHREX, INC., APPELLANT

v.

SMITH & NEPHEW, INC., ARTHROCARE CORP.,
APPELLEES

UNITED STATES, INTERVENOR

Filed: Mar. 23, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00275

MOORE, *Circuit Judge*, with whom O'MALLEY, REYNA,
and CHEN, *Circuit Judges*, join, concurring in the denial
of the petitions for rehearing *en banc*.

I concur in the court's decision to deny the petitions
for rehearing *en banc* as rehearing would only create
unnecessary uncertainty and disruption. The Arthrex
panel followed Supreme Court precedent to conclude
that the administrative patent judges (APJs) of the
USPTO's Patent Trial and Appeal Board were improp-
erly appointed principal officers. It further followed
the Supreme Court's direction by severing a portion of
the statute to solve that constitutional problem while
preserving the remainder of the statute and minimizing
disruption to the *inter partes* review system Congress

created. The panel's curative severance and subsequent decisions from this court have limited the now constitutionally composed Board's burden of addressing cases on remand. I see no merit to the alternative courses laid out by the dissents. I agree with the government that we are not free to affirm despite the constitutional infirmity. Finally, I do not agree with Judge Dyk that we ought to propose a USPTO restructuring of our making and stay all proceedings (presumably this and other *inter partes* review appeals) while both Congress and the USPTO consider Judge Dyk's legislative proposal. If Congress prefers an alternate solution to that adopted by this court, it is free to legislate, and in the meantime, the Board's APJs are constitutionally appointed and *inter partes* reviews may proceed according to Congress' initial intent.

I

In *Arthrex*, the court followed Supreme Court precedent in reaching its conclusion that APJs were principal officers who were not constitutionally appointed. The Supreme Court explained that, while there is no "exclusive criterion for distinguishing between principal and inferior officers . . . 'inferior officers' are officers whose work is directed and supervised at some level by others who were appointed by Presidential nomination with the advice and consent of the Senate." *Edmond v. United States*, 520 U.S. 651, 661-63 (1997). *Arthrex* recognized *Edmond*'s broad framework as well as factors the Supreme Court considers when addressing an Appointments Clause issue. *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320, 1329-30 (Fed. Cir. 2019). After weighing those factors and considering the relationship between the Presidentially-appointed Director

of the USPTO and the Board’s APJs, the panel held that APJs were principal officers who must be Pres�entially appointed to comport with the Constitution’s Appointments Clause. *Id.* at 1335.

As the *Arthrex* panel explained, the Director has some authority over conducting the *inter partes* review process—such as institution decisions and panel composition—and may issue guidance or designate decisions as precedential for future panels of APJs. *Id.* at 1329–32. But the Director lacks the authority to independently alter a panel’s final written decision, and he lacks sufficient control over the panel’s decision before it issues on behalf of the Executive. *Id.* at 1335. APJs had the authority to “render a final decision on behalf of the United States.” *Edmond*, 520 U.S. at 663, 665. The panel also recognized that the Director lacked the “powerful tool for control” that is the authority to remove APJs “at will and without cause.” *Free Enter. Fund v. Pub. Co. Accounting Oversight Bd.*, 561 U.S. 477, 501 (2010).¹ The *Arthrex* decision followed Supreme Court precedent and was consistent with analyses of other circuits addressing Appointments Clause questions. See, e.g., *Intercollegiate Broad. Sys., Inc. v. Copyright Royalty Bd.*, 684 F.3d 1332, 1342 (D.C. Cir. 2012); *Jones Bros., Inc. v. Sec’y of Labor*, 898 F.3d 669, 679 (6th Cir. 2018).

II

When an officer’s appointment violates the Appointments Clause, courts “try to limit the solution to the

¹ To the extent that the dissents suggest otherwise, it is the Secretary of Commerce, not the Director, who appoints (35 U.S.C. § 6(c)) and thus can remove APJs.

problem, severing any problematic portions while leaving the remainder intact.” *Free Enter. Fund*, 561 U.S. at 508. As the Supreme Court explained, “we must retain those portions of the Act that are (1) constitutionally valid, (2) capable of functioning independently, and (3) consistent with Congress’ basic objectives in enacting the statute.” *United States v. Booker*, 543 U.S. 220, 258-59 (2005) (internal citations omitted). The *Arthrex* decision adopted the severance proposed by the USPTO, which would cause the least disruption while preserving the *inter partes* review scheme Congress intended. *Arthrex*, 941 F.3d at 1337-38.

Severing APJ removal protections gives properly appointed officers sufficient direction and supervision over APJ decision-making to render them inferior officers. The curative severance was consistent with the Supreme Court’s approach to a separation of powers violation in *Free Enterprise Fund*. 561 U.S. at 508 (severing a “for-cause” removal restriction as unconstitutional). It similarly aligned with the D.C. Circuit’s approach in *Intercollegiate*, which severed a removal restriction to rectify an Appointments Clause violation. 684 F.3d at 1340-41.

While there may have been other possible curative severances, the *Arthrex* severance, which the USPTO itself proposed, was consistent with Congress’ intent in enacting the *inter partes* review system. Although Congress originally intended that APJs have removal protections, that was not Congress’ central objective when it created the USPTO’s *inter partes* review system. The “basic purpose” of the *inter partes* review proceeding is “to reexamine an earlier agency decision.” *Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 2131, 2144

(2016) (“[T]he proceeding offers a second look at an earlier administrative grant of a patent.”); *see, e.g.*, 157 Cong. Rec. S1326 (March 7, 2011) (Sen. Sessions) (“This will allow invalid patents that were mistakenly issued by the PTO to be fixed early in their life, before they disrupt an entire industry or result in expensive litigation.”). *Arthrex*’s severance properly retained the portions of the statute necessary to effectuate Congress’ basic objective of providing an agency mechanism where the validity of issued patents may be challenged. Congress “would have preferred a Board whose members are removable at will rather than no Board at all.” *Arthrex*, 941 F.3d at 1337-38; *see Ayotte v. Planned Parenthood of N. New England*, 546 U.S. 320, 330 (2006) (“After finding an application or portion of a statute unconstitutional, we must next ask: Would the legislature have preferred what is left of its statute or no statute at all?”).² So too does the USPTO, which proposed the severance that *Arthrex* adopted to preserve the system in lieu of the entire thing being struck down as unconstitutional.

The *Arthrex* panel’s severance was the “narrowest possible modification to the scheme Congress created” and the approach that minimized the disruption to the continuing operation of the *inter partes* review system. *Arthrex*, 941 F.3d at 1337. Because the APJs were constitutionally appointed as of the implementation of the severance, *inter partes* review decisions going forward

² Judge Hughes suggests that Congress would not have divested APJs of their removal protection to preserve the remainder of the statute and that Congress should fix the statute. To be clear, this would require holding the *inter partes* review statute unconstitutional and paralyzing the Board until Congress acts.

were no longer rendered by unconstitutional panels. Additionally, subsequent decisions issued by this court significantly limited the number of appeals that needed to be remanded based on Appointments Clause challenges raised on appeal. *See Customedia Techs., LLC v. Dish Network Corp.*, 941 F.3d 1174, 1175 (Fed. Cir. 2019) (holding that Appointments Clause challenges not raised prior to or in the appellant’s opening brief are waived). The window for appeals from Board decisions issued prior to October 31, 2019—the date *Arthrex* issued—has closed. And no more than 81 appeals including *Arthrex* itself can be vacated and remanded³ based on preserved Appointments Clause violations.⁴

³ Per the Supreme Court’s decision in *Lucia*, *Arthrex*, and the other appeals with preserved Appointments Clause challenges, were vacated and remanded for hearings before new panels of APJs, who are now properly appointed. *Lucia v. SEC*, 138 S. Ct. 2044, 2055 (2018) (“[T]he ‘appropriate’ remedy for an adjudication tainted with an appointments violation is a new ‘hearing before a properly appointed’ official.”); *see Intercollegiate*, 684 F.3d at 1342; *Jones Bros.*, 898 F.3d at 679. *Harper v. Virginia Dep’t of Taxation* does not establish that an applied severance, which preserves an otherwise unconstitutional statute, applies retroactively. 509 U.S. 86 (1993). The panel of APJs that decided the *inter partes* review in this case was not constitutionally appointed when it rendered that decision. To forgo vacatur as Judge Dyk suggests would be in direct contrast with *Lucia* and would undermine any incentive a party may have to raise an Appointments Clause challenge. The USPTO briefed this issue and likewise rejects the argument that *Harper* creates a basis for affirming. Supp. Br. of United States, *Polaris v. Kingston*, Nos. 2018-1768, -1831, at 14.

⁴ We have thus far vacated and remanded 37 appeals which properly preserved the Appointments Clause challenge by raising it before or in their opening brief. There are 44 Board decisions rendered prior to our curative decision (October 31, 2019) where a notice of appeal has been filed by the patent owner, but no opening brief as

The Board decides on average 820 cases each month (39 *inter partes* reviews and 781 ex parte appeals).⁵ The *Arthrex* decision will result in at most 81 remands. And the remands are narrow in scope and will not necessitate anything like a full-blown process. *Arthrex*, 941 F.3d at 1340 (holding that the USPTO is not required to re-open the record or permit new briefing).

The severance applied in *Arthrex* resulted in minimal disruption to the *inter partes* review system and no uncertainty presently remains as to the constitutionality of APJ appointments. Rehearing this case *en banc* would have unraveled an effective cure and created additional disruption by increasing the potential number of cases that would require reconsideration on remand. Judge Dyk's suggestion that *Arthrex* be stayed to allow Congress to legislate a cure makes little sense. Staying the case, and any other pending appeal that challenges the Appointments Clause, would result in an unnecessary backlog of cases pending a congressional cure that is not guaranteed. And even if Congress did codify a new *inter partes* review scheme, those stayed cases would still need to be reprocessed on remand under the new scheme.

of yet, or where an opening brief has been filed and does raise an Appointments Clause challenge. Thus, the universe of cases which could be vacated and remanded (if every one of these appellants requests remand) is 81.

⁵ See <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/appeals-and-interferences-statistics-page> (to ascertain ex parte stats); see <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/statistics/aia-trial-statistics-archive> (to ascertain *inter parte* review stats).

Nothing in the *Arthrex* decision prevents Congress from legislating to provide an alternative fix to the Appointments Clause issue. Congress can reinstate title 5 removal protections for APJs while ensuring that the *inter partes* review system complies with the Appointments Clause, if it so chooses.

III

There are several problems with the creative approach suggested in Judge Dyk's dissent. The dissent proposes that we stay this (and possibly other *inter partes* review appeals) while Congress or the USPTO considers an agency restructuring of his proposal. I am not convinced that it would be appropriate or wise to issue such stays. Curing the constitutional defect had immediate and significant benefits. And there is a significant difference between a court's election to sever a statutory provision as unconstitutional and issuing legislative or regulatory advisory mandates. The Constitution does not provide us authority to legislate, and, "mindful that our constitutional mandate and institutional competence are limited," we should refrain from proposing legislative or regulatory fixes. *Ayotte*, 546 U.S. at 329. The dissent goes far afield by proposing an entirely new agency framework for review for Congress to adopt. Dissent at 9-14 (Dyk, J., dissenting). We should not attempt to correct a separation of powers issue by creating one of our own.

Finally, Judge Dyk's proposed fix has not been reviewed and should not be presumed to pass constitutional muster.⁶ The dissent suggests that a reconsideration panel comprising the Director, Deputy Director, and Commissioner of Patents would suffice. *Id.* at 9-12. But it is not clear, as Judge Dyk suggests, that the Director has the authority to remove either the Deputy Director or the Commissioner of Patents without cause. Section 3(b)(2)(C) limits the Secretary of Commerce's ability to remove the Commissioner of Patents to situations of "misconduct or nonsatisfactory performance. . . ." 35 U.S.C. § 3(b)(2)(C). And § 3(c) may afford the Deputy Director removal protections under title 5.⁷ For the reasons given, I do not believe it proper or prudent to stay cases while Congress considers Judge Dyk's restructuring of the USPTO.

IV

The *Arthrex* panel followed Supreme Court precedent in reaching its decision. The severance provided has minimized disruption and preserved Congress' in-

⁶ Even if the USPTO were to adopt the dissent's proposed framework, *Arthrex* and all other similarly situated cases would still need to be vacated and remanded to the Board. The new framework did not exist when *Arthrex* was decided and it would not rectify the constitutional infirmity retroactively.

⁷ Section 3(c) expressly says that title 5 protections apply to the agency's "officers and employees" of which the Deputy Director is undeniably one. Moreover, in other sections of the same statute when Congress intended to exempt an officer from title 5 protections it stated so explicitly. See, e.g., 35 U.S.C. § 3(b)(2)(C) ("[T]he Commissioners may be removed from office by the Secretary . . . without regard to the provisions of title 5 . . .").

tent as best possible while ensuring that the Constitution's structural protections are minded. Given that the *Arthrex* decision is squarely rooted in Supreme Court precedent, I agree with the court's denial of rehearing *en banc*. If the curative severance adopted by this court is not consistent with Congress' intent, Congress can legislate to restore the removal protections and adopt a different curative mechanism.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2018-2140

ARTHREX, INC., APPELLANT

v.

SMITH & NEPHEW, INC., ARTHROCARE CORP.,
APPELLEES

UNITED STATES, INTERVENOR

Filed: Mar. 23, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00275

O'MALLEY, *Circuit Judge*, with whom MOORE and
REYNA, *Circuit Judges*, join, concurring in the denial of
the petitions for rehearing en banc.

I join Judge Moore's concurrence in full. I agree that the panel correctly concluded that, under the Supreme Court's Appointments Clause jurisprudence, Administrative Patent Judges ("APJs") are principal officers who were not properly appointed to their adjudicative positions. I also agree that, rather than invalidate the entirety of the America Invents Act ("AIA"), Congress would prefer to preserve the patent review scheme it created under that Act. In severing from the AIA the application of the removal restrictions in 5 U.S.C. § 7513

(“Title 5”) to APJs, the panel hewed closely to the principles guiding judicial severance: refraining from rewriting the statute or invalidating more of it than was absolutely necessary. *See R.R. Ret. Bd. v. Alton R.R. Co.*, 295 U.S. 330, 362 (1935); *Helman v. Dep’t of Veterans Affairs*, 856 F.3d 920, 930 (Fed. Cir. 2017). While I agree with Judge Dyk and Judge Hughes that Title 5’s protections for government employees are both important and long-standing, I do not believe Congress would conclude that those protections outweigh the importance of keeping the remainder of the AIA intact—a statute it debated and refined over a period of more than six years.

I write separately to address one issue: the suggestion in Judge Dyk’s dissent that the court’s decision to sever the application of Title 5’s removal protections from the remainder of the AIA retroactively renders all prior APJ decisions constitutional, thereby obviating the need for panel rehearings in any cases decided under the AIA. Respectfully, that suggestion confuses the *remedy* the panel deemed appropriate in this case with the constitutional *fix* it deemed necessary to allow APJs to render future decisions in proceedings under the AIA.

That dissent urges that, “to be consistent with *Harper*,” retroactive application of *Arthrex* and its “remedy” is necessary. Dyk Op. at 17. But that contention misreads *Harper v. Virginia Dep’t of Taxation*, 509 U.S. 86 (1993). *Harper* addressed whether a prior Supreme Court decision holding certain taxes unconstitutional applied to taxes levied before that decision issued. *Harper* is best described by the Supreme Court itself: “when (1) the Court decides a case and applies the (new)

legal rule of that case to the parties before it, then (2) it and other courts must treat that same (new) legal rule as ‘retroactive,’ applying it, for example, to all pending cases, whether or not those cases involve predecision events.” *Reynoldsville Casket Co. v. Hyde*, 514 U.S. 749, 752 (1995). Judge Dyk argues that the general rule requiring that we give retroactive effect to constitutional decisions “applies to remedies as well, such as the remedy in this case,” meaning, in his view, that once severance occurs, all actions taken by APJs before that point, even if unconstitutional at the time, are rendered constitutional *nunc pro tunc*. Dyk Op. at 17 (citing *Reynoldsville*, 514 U.S. at 759). I disagree. While the principle of retroactive application requires that we afford the same remedy afforded the party before the court to all others still in the appellate pipeline, judicial severance is not a “remedy”; it is a forward-looking judicial fix.

It is true that if, as the panel concluded, the appointment of APJs ran afoul of the Constitution, that fact was true from the time of appointment forward, rendering all APJ decisions under the AIA unconstitutional when rendered. But, no one claims that our declaration of that fact in this case would permit us to reopen closed cases decided under that unconstitutional structure. See, e.g., *Reynoldsville*, 514 U.S. at 758 (“New legal principles, even when applied retroactively, do not apply to cases already closed.”). All that *Harper* and *Reynoldsville* say is that we must afford all litigants with pending matters the same remedy we afford to the Arthrex appellant.¹ In other words, we may not give

¹ This does not mean, of course, that we must provide a remedy to litigants who waived the issue. *United States v. Booker*, 543 U.S.

prospective-only effect to our rulings, both as to the merits and as to the precise remedy.

But our curative severance of the statute, does not “remedy” the harm to Arthrex, whose patent rights were adjudicated under an unconstitutional scheme. So too, in *Harper*: the Court’s ruling that the state taxes at issue had been collected unconstitutionally did not remedy the harm caused by the unlawful collection of taxes. The Court remanded for additional relief to the litigants before it in the form of reimbursement of the unconstitutionally collected taxes or “some other order” to rectify the “unconstitutional deprivation.” *Harper*, 509 U.S. at 98-99, 100-101. We did the same here: the remedy afforded the parties in *Arthrex* is a new hearing before a properly appointed panel of judges. Under the Supreme Court’s Appointments Clause jurisprudence, Arthrex is entitled to that relief because “the ‘appropriate’ remedy for an adjudication tainted with an appointments violation is a new ‘hearing before a properly appointed’ official.” *Lucia v. S.E.C.*, 138 S. Ct. 2044, 2055 (2018) (quoting *Ryder v. United States*, 515 U.S. 177, 183, 188 (1995)); see also *NLRB v. Noel Canning*, 573 U.S. 513, 521, 557 (2014); *Bowsher v. Synar*, 478 U.S. 714, 736 (1986). Our decision that the statute can be *rendered* constitutional by severance does not remedy any past harm—it only avoids continuing harm

220, 268 (2005) (“[W]e expect reviewing courts to apply ordinary prudential doctrines” including those relating to waiver and harmless-error).

in the future. It is only meaningful prospectively, once severance has occurred.²

The Government agrees. *See* Supp. Br. of United States, *Polaris v. Kingston*, Nos. 2018-1768, -1831, at 13-14. Presented with an opportunity to brief this very issue, the Government expressly rejected the suggestion in Judge Dyk's concurrence in *Bedgear, LLC v. Friedman Bros. Furniture Co.*, 783 F. App'x 1029 (Fed. Cir. 2019) (and his dissent here) that the *Arthrex* panel's severance order applies retroactively. *Id.* ("[N]either *Arthrex*'s determination that the statutory restrictions on removal of APJs violated the Appointments Clause, nor the panel's invalidation of those restrictions, was sufficient to eliminate the impact of the asserted constitutional violation on the original agency decision.").

The cases on which the dissent relies do not counsel a contrary conclusion. For example, the suggestion that, in *Free Enterprise Fund v. Public Company Accounting Oversight Board*, 561 U.S. 477 (2010), "[t]he Court did not view [severance] as fixing the problem only prospectively" reads too much into the case. Dyk Op. at 21. *Free Enterprise* considered the petitioners' request for a declaratory judgment that the Public Company Accounting Oversight Board is unconstitutional

² That dissent's attempt to distinguish *Lucia* is predicated on this same misunderstanding of *Harper*. Because judicial severance of one portion of an unconstitutional statute is, by necessity, only applicable prospectively, I agree with the *Arthrex* panel that a new hearing before a new panel of APJs is the only appropriate remedy for those whose proceedings were tainted by the constitutional violation.

and for an injunction preventing the Board from exercising any of its powers prospectively. 561 U.S. at 510. The Court held that statutory restrictions on the Securities and Exchange Commission's power to remove Board members were "unconstitutional and void," and invalidated the removal provision. *Id.* at 509-10. The Court further held that, because it found the unconstitutional removal provisions could be excised from the remainder of the statute, "petitioners [were] not entitled to broad injunctive relief against the Board's *continued* operations." *Id.* at 513 (emphasis added). The decision did not render all prior Board actions constitutional. The Court simply explained that, by virtue of having severed the non-removal provisions, the Board could act in the future free of the taint of those unconstitutional provisions.

Like *Harper*, neither *Reynoldsville* nor *Edmond v. United States*, 520 U.S. 651, 662-63 (1997), support the dissent's position that rehearing before a new panel is unnecessary. In *Reynoldsville*, the Court made clear—as it did in *Harper*—that any remedy provided the party bringing the original constitutional challenge must be afforded to all other parties with cases that remained open. 514 U.S. at 758-59. It held that a court may not fashion a remedy for a party before it and then declare that the remedy not apply to any other party still in the pipeline—i.e., whose claim was decided under an unconstitutional scheme and remains open. *Id.* at 753-54. And in *Edmond*, the challenged appointment was found constitutional. 520 U.S. at 655, 666. Severance was not even at issue. Neither case addressed retroactive application of orders fixing constitutional violations by severance.

By contrast, *Booker* makes clear that, even once judicial severance of a statute occurs, individuals adjudged under the statute as originally written still are entitled to a remedy if their cases are pending on direct review. In *Booker*, the Supreme Court held that 18 U.S.C. § 3553(b)(1)—the provision of the federal sentencing statute making the United States Sentencing Guidelines mandatory—violated the Sixth Amendment’s requirement that juries, not judges, find facts relevant to sentencing. 543 U.S. at 244. Accordingly, the Court severed and excised § 3553(b)(1) from the statutory scheme. And, the Court ruled that any defendant whose sentence was “authorized by the jury’s verdict—a sentence lower than the sentence authorized by the Guidelines as written . . . may seek resentencing under the system set forth in today’s opinions.” *Id.* at 267-68 (emphasis added). In permitting a defendant to seek resentencing post-severance, the Supreme Court made clear that judicial severance of a statute is necessarily a prospective act. *Id.*; see also *Free Enter.*, 561 U.S. at 513. This is the same conclusion reached by the DC Circuit in *Intercollegiate Broadcasting System, Inc. v. Copyright Royalty Board*, 684 F.3d 1332 (2012), with which the panel decision in this case rightly agrees.

The dissent’s attempt to read retroactive application of severance orders designed to obviate future or ongoing constitutional violations into *Harper* and the other Supreme Court case law it cites, respectfully, is misplaced. Those cases address retroactive application of remedies, not the forward-looking curative act of severance.

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v.

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UNITED STATES, INTERVENOR

Filed: Mar. 23, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00275

DYK, *Circuit Judge*, with whom NEWMAN and WALKER, *Circuit Judges* join, and with whom HUGHES, *Circuit Judge*, joins as to Part I.A, dissenting from the denial of rehearing en banc.

I respectfully dissent from the court's decision not to rehear this case en banc.

The panel here holds that the appointment of Administrative Patent Judges ("APJs"), when conducted in accordance with the America Invents Act ("AIA"), would be unconstitutional if those APJs were protected by the removal provisions of Title 5. The panel avoids this result by severing the Title 5 removal provisions as applied to APJs, and thereby "render[ing] the APJs infe-

rior officers and remedy[ing] the constitutional appointment problem.” *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320, 1325 (Fed. Cir. 2019).

As discussed in Part I, I conclude that even if the panel were correct that the present structure of IPR proceedings violates the Appointments Clause, the draconian remedy chosen by the panel—invalidation of the Title 5 removal protections for APJs—rewrites the statute contrary to Congressional intent. That remedy should not be invoked without giving Congress and the United States Patent and Trademark Office (“PTO”) itself the opportunity to devise a less disruptive remedy. In Part II, I conclude that even if the Title 5 remedy were adopted, this would not require invalidation of preexisting Board decisions. In Part III, I address the question of whether APJs are principal officers.

I

A

The panel’s invalidation of Title 5 removal protections and severance is not consistent with Supreme Court precedent. Severability analysis requires “looking to legislative intent.” *United States v. Booker*, 543 U.S. 220, 246 (2005) (collecting cases). In performing this analysis, the court cannot sever portions of the statute that would be consistent with “Congress’ basic objectives in enacting the statute.” *Booker*, 543 U.S. at 259. Severance is appropriate if the remaining statute “will function in a manner consistent with the intent of Congress.” *Alaska Airlines, Inc. v. Brock*, 480 U.S. 678, 685 (1987) (emphasis omitted). The panel departs from these requirements. By eliminating Title 5 re-

moval protections for APJs, the panel is performing major surgery to the statute that Congress could not possibly have foreseen or intended.

Removal protections for administrative judges have been an important and longstanding feature of Congressional legislation, and this protection continued to be an important feature of the AIA enacted in 2011, as Judge Hughes detailed in his concurrence in *Polaris Innovations Ltd. v. Kingston Tech. Co., Inc.*, 792 F. App'x 820, 828-830 (Fed. Cir. 2020) (Hughes, J., concurring).

Before the passage of the Administrative Procedure Act (“APA”) in 1946, administrative law judges (then called “hearing examiners”) did not have any removal protections or any special status distinguishing them from other agency employees. *See Ramspeck v. Fed. Trial Examiners Conference*, 345 U.S. 128, 130 (1953). “Many complaints were voiced against the actions of the hearing examiners, it being charged that they were mere tools of the agency concerned and subservient to the agency heads in making their proposed findings of fact and recommendations.” *Id.* at 131. To address these concerns in the APA, Congress “provide[d] for a special class of semi-independent subordinate hearing officers,” H.R. Rep. No. 79-1980, at 10 (1946). “Since the securing of fair and competent hearing personnel was viewed as ‘the heart of formal administrative adjudication,’ the Administrative Procedure Act contain[ed] a number of provisions designed to guarantee the independence of hearing examiners.” *Butz v. Economou*, 438 U.S. 478, 514 (1978) (quoting Final Report of the Attorney General’s Committee on Administrative Procedure 46 (1941) (citation omitted)).

One such provision was Section 11 of the APA, which provided that Administrative Law Judges (“ALJs”) generally would be “removable . . . only for good cause,” Administrative Procedure Act, ch. 324, § 11, 60 Stat. 237, 244 (1946). These provisions were continued in the Civil Service Reform Act of 1978. H.R. Rep. No. 95-1403, at 304 (1978) (“An administrative law judge appointed under section 3105 of this title may be removed by the agency in which he is employed only for good cause established and determined by the Civil Service Commission on the record after opportunity for hearing.”). This for-cause removal protection was codified in 5 U.S.C. § 7521.¹

While the protections of section 7521 were inapplicable to administrative judges of the PTO (since they were not “appointed under section 3105”), similar concerns led to the enactment of protections for PTO administrative judges. Current APJs trace their lineage to the PTO’s examiners-in-chief, who were originally nominated by the President and confirmed by the Senate.

¹ “An action may be taken against an administrative law judge appointed under section 3105 of this title by the agency in which the administrative law judge is employed only for good cause established and determined by the Merit Systems Protection Board on the record after opportunity for hearing before the Board.” 5 U.S.C. § 7521 (emphasis added). Though Executive Order 13843, dated July 10, 2018, placed all administrative law judges in the excepted service, and thus “not subject to the requirements of 5 CFR, part 302” and further amended 5 C.F.R. § 6.4 to eliminate the application of title 5 protections to administrative law judges in general, the order was limited by this statutory provision. 83 Fed. Reg. 32756-57 (“Except as required by statute. . . . ”).

Arthrex, 941 F.3d at 1334; 35 U.S.C. § 3 (1952). Beginning with the 1975 amendments to Title 35, the examiners-in-chief (now APJs) were “remove[d] . . . from the political arena by changing these positions from ones of Presidential appointment.” *Hearings Before Subcommittee No. 3 of the Committee on the Judiciary House of Representatives*, 92d Cong. 43 (1971) (statement Of Edward J. Brenner, Former Commissioner Of Patents). The 1975 amendment gave the Secretary of Commerce the sole authority to appoint examiners-in-chief “under the classified civil service.” 35 U.S.C. § 7 (1976); *see also* An Act to Amend Title 35, United States Code, “Patents”, and For Other Purposes, Pub. L. 93-601, §§ 1-2, 88 Stat. 1956 (1975) (codified as amended at 35 U.S.C. §§ 3, 7 (1976)); *Polaris*, 792 F. App’x at 828-29 (Hughes, J., concurring). This had the result of extending the Civil Service protections for competitive service employees to the examiners-in-chief (now APJs). *See Arnett v. Kennedy*, 416 U.S. 134, 150-51 (1974), *overruled in part on other grounds by Cleveland Bd. of Educ. v. Loudermill*, 470 U.S. 532 (1985). This included both provisions concerning appointment and removal.

Until 1999, despite several amendments, Congress retained the status of APJs as federal employees in the competitive service under Title 5. *Polaris*, 792 F. App’x at 829 (Hughes, J., concurring) (citing Patent Law Amendment Acts of 1984, Pub. L. 98-622, title II, sec. 201, § 7(a), 98 Stat. 3383, 3386 (1984) (codified as amended at 35 U.S.C. § 7 (1988), and the 1978 Civil Service Reform Act, Pub. L. 95-454, 92 Stat. 1121)). In 1999, Congress eliminated the requirement that APJs be appointed under competitive service provisions, but

added the current 35 U.S.C. § 3(c) language, which extended Title 5 removal protections to APJs. Patent and Trademark Office Efficiency Act, Pub. L. 106-113, ch. 1, sec. 4713, § 3(c), 113 Stat. 1501A (codified as amended at 35 U.S.C. § 3(c) (2000)).² Thus, although APJs were not subject to appointment as competitive service employees, “APJs remained subject to discipline or dismissal subject to the efficiency of the service standard.” *Polaris*, 792 F. App’x at 830 (Hughes, J., concurring). Significantly, the language of § 3(c) remained unaltered despite the otherwise major overhaul in AIA legislation. *See id.* at 830; 35 U.S.C. § 3(c) (2012). Those removal protections were seen as essential to fair performance of the APJs quasi-judicial role.

In sum, ALJs in general and APJs in particular have been afforded longstanding and continuous protection from removal. The panel gives little weight to the existing statutory protections in its severance analysis. Moreover, here, the provision being partially invalidated is not even part of the Patent Act but is instead in Title 5.³ Elimination of those protections cannot be squared with Congressional design.

² In fact, even when certain prior bills of the 1999 Act were considering making the PTO exempt from Title 5, a special carve out provision was always contemplated for “quasi-judicial examiners,” who would still be removable “only for such cause as will promote the efficiency” of the agency. S. Rep. No 105-42, at 9, 48 (1997).

³ The panel relies on *Intercollegiate Broad. Sys. v. Copyright Royalty Bd.*, 684 F.3d 1332 (D.C. Cir. 2012), to justify its severance decision. However, that case is neither binding nor apposite to the situation here. In *Intercollegiate*, the severed removal protections were part of the same substantive statute that authorized

To be sure, I do not suggest that the inappropriateness of the Title 5 invalidation should lead to invalidation of the entire AIA statutory scheme. What I do suggest is that Congress almost certainly would prefer the opportunity to itself fix any Appointments Clause problem before imposing the panel's drastic remedy.

There is no question that Congress could pass a far simpler and less disruptive fix and that such a fix is available—Congress could amend the statute to provide agency review of APJ decisions.⁴ Soon after the issuance of the panel *Arthrex* opinion, the House Judiciary Committee held hearings to discuss the remedial implications of this case. *The Patent Trial and Appeal Board and the Appointments Clause: Implications of Recent Court Decisions: Hearing Before the Subcommittee on Courts, Intellectual Property, and the Internet of the H. Comm. on the Judiciary*, 116th Cong. (2019) (“*Arthrex* Hearing”).⁵ At the hearing, subcommittee members expressed concern that striking the removal protections for APJs would be “inconsistent with the idea of creating an adjudicatory body” capable of

the Copyright Royalty Judges and there was no showing that excising the removal protections was contrary to Congressional intent. *Id.* at 1340-41; *see also* 17 U.S.C. § 802.

⁴ In fact, Congressional fixes of PTAB Appointments Clause problems have been a feature of past Congressional legislation. *See Patent and Trademark Administrative Judges Appointment Authority Revision*, Pub. L. 110-313, § 1, 122 Stat. 3014, 3014 (2008) (codified as amended at 35 U.S.C. § 6(a) (2012)) (providing for appointments of APJs by Secretary of Commerce instead of by the Director).

⁵ Citations are to the video recording of the hearing, available at <https://judiciary.house.gov/calendar/eventsingle.aspx?EventID=2249>.

“providing independent impartial justice.” *Id.* at 45:30 (statement of Rep. Hank Johnson). They agreed that it was Congress, not this court, that bears the “responsibility to consider a legislative fix,” *id.* at 46:00-47:00 (statement of Rep. Hank Johnson), and “question[ed] whether [the panel decision was] the right way to achieve the apparent objective behind the Appointments Clause jurisprudence, namely, to ensure that there is an official sufficiently accountable to the President, who signs off on important executive branch decisions,” *id.* at 53:00 (statement of Rep. Jerrold Nadler).

Both subcommittee members and witnesses urged that providing agency review of PTAB decisions was a preferable solution. They noted how this could be achieved: (1) establishing a review board comprised of properly appointed principal officers with authority to review APJ decisions, or (2) providing review of APJ decisions by the Director.⁶

If Congress provided such agency review of APJ panel decisions, this would cure the core constitutional issue identified by the panel by subjecting all APJ decisions to review by a principal officer. If APJs were subject to review by executive officials at the PTO, then they would no longer be principal officers. The APJs would “have no power to render a final decision on behalf of the United States unless permitted to do so by other Executive officers, and hence they [would be] in-

⁶ *Id.* at 1:04:00 (statement of John F. Duffy); *id.* at 1:16:20 (statement of Arti K. Rai); *id.* at 1:42:12 (statement of Rep. Hank Johnson); *see also id.* at 1:11:00 (statement of John M. Whealan); *id.* at 1:44:23-1:46:30 (witnesses arguing for unilateral review by the Director).

ferior officers within the meaning of Article II.” *Edmond*, 520 U.S. at 665; *id.* at 664-65 (concluding that the judges of the Coast Guard Court of Criminal Appeals are inferior officers because the Court of Appeals for the Armed Forces has the “power to reverse decisions of the court” if it “grants review upon petition of the accused”); *id.* at 662 (“Whether one is an ‘inferior officer’ depends on whether he has a superior.”); *see also Freytag v. Comm'r*, 501 U.S. 868, 881-82 (1991) (holding that a Tax Court special trial judge is an “inferior officer” even though “special trial judges . . . render [final] decisions of the Tax Court in [certain] cases”); *Helman v. Dep't of Veterans Affairs*, 856 F.3d 920, 929 (Fed. Cir. 2017) (“[T]he special trial judges [were] inferior officers [in *Freytag*].”). Even the panel here appears to agree. *Arthrex*, 941 F.3d at 1329-31 (in finding an Appointments Clause violation, relying on there being “no provision or procedure providing the Director the power to single-handedly review, nullify or reverse a final written decision issued by a panel of APJs”).

Supreme Court precedent and circuit authority support a temporary stay to allow Congress to implement a legislative fix in the Appointments Clause context. *Buckley v. Valeo*, 424 U.S. 1, 144 (1976) (finding the Federal Election Commission’s exercise of enforcement authority to be a violation of the Appointments Clause, but “draw[ing] on the Court’s practice in the apportionment and voting rights cases and stay[ing] . . . the Court’s judgment” to “afford Congress an opportunity to reconstitute the Commission by law or to adopt other valid enforcement mechanisms”); *N. Pipeline Constr. Co. v. Marathon Pipe Line Co.*, 458 U.S. 50 (1982) (stay-

ing a judgment holding that “the broad grant of jurisdiction to the bankruptcy courts contained in 28 U.S.C. § 1471 [(1976)] is unconstitutional” for over three months in order to “afford Congress an opportunity to reconstitute the bankruptcy courts or to adopt other valid means of adjudication, without impairing the interim administration of the bankruptcy laws”); *see also Bowsher v. Synar*, 478 U.S. 714, 736 (1986) (“Our judgment is stayed for a period not to exceed 60 days to permit Congress to implement the [constitutional] fallback [reporting] provisions [of the Balanced Budget and Emergency Deficit Control Act.]”); *Md. Comm. for Fair Representation v. Tawes*, 377 U.S. 656, 676 (1964) (after finding a reapportionment violation, suggesting that the state legislature be given the opportunity “to enact a constitutionally valid state legislative apportionment scheme”); *Aurelius Inv., LLC v. Puerto Rico*, 915 F.3d 838, 863 (1st Cir. 2019) (“[O]ur mandate in these appeals shall not issue for 90 days, so as to allow the President and the Senate to validate the currently defective appointments or reconstitute the Board in accordance with the Appointments Clause.”).

B

So too, it may well be that Congressional legislation would be unnecessary because the agency itself could fix the problem by creating an agency review process. As discussed below, the Director may be able to designate a special panel to rehear decisions rendered by the original panel of APJs, that rehearing panel to be composed of only officers not subject to Title 5 removal protections, i.e., an executive rehearing panel with panel members appointed by the President or essentially removable at will by the Secretary of Commerce—the Director,

the Deputy Director, and the Commissioner of Patents. *See, e.g.*, Patent Trial and Appeal Board Standard Operating Procedure 2 (version 10), <https://www.uspto.gov/sites/default/files/documents/SOP2%20R10%20FINAL.pdf>. Far from raising separation of powers concerns, this approach permits the agency to chart its own course as to the appropriate fix.

Section 6(c) requires that “[e]ach appeal . . . and inter partes review shall be heard by at least 3 members of the Patent Trial and Appeal Board.” 35 U.S.C. § 6(c). It also specifies that “[o]nly the Patent Trial and Appeal Board may grant rehearings.” *Id.* Section 6(a) provides that “[t]he Director, the Deputy Director, the Commissioner of Patents, the Commissioner for Trademarks, and the administrative patent judges shall constitute the Patent Trial and Appeal Board.” 35 U.S.C. § 6(a). And the statute provides that panel members “shall be designated by the Director.” 35 U.S.C. § 6(c).⁷

There is no requirement in the statute or regulations that the rehearing panel be the same as the original panel. We have previously held that the statutory grant of authority under section 6(c) (then 35 U.S.C. § 7 (1988)) to “designate the members of a panel hearing an appeal . . . extend[s] to [the] designation of a panel to consider a request for rehearing.” *In re Alappat*, 33 F.3d 1526, 1533 (Fed. Cir. 1994), abrogated on other

⁷ The Director is “responsible for providing policy direction and management supervision for the Office,” 35 U.S.C. § 3(a)(2)(A), with the authority to “govern the conduct of the proceedings in the Office,” 35 U.S.C. § 2(b)(2)(A). He is also “vested” with “[t]he powers and duties of the United States Patent and Trademark Office.” 35 U.S.C. § 3(a)(1).

grounds by In re Bilski, 545 F.3d 943 (Fed. Cir. 2008) (interpreting an earlier version of the statute); *see also Oil States Energy Services, LLC v. Greene's Energy Group, LLC*, 138 S. Ct. 1365, 1381 (2018) (“[T]he Director can add more members to the panel—including himself—and order the case reheard.”) (Gorsuch, J., dissenting, with Chief Justice Roberts joining). “In those cases where a different panel of the Board is reconsidering an earlier panel decision, the Board is still the entity reexamining that earlier decision; it is simply doing so through a different panel.” *Id.* at 1533-34. The regulations do not specify the composition of a rehearing panel, simply stating that “[w]hen rehearing a decision on petition, a panel will review the decision for an abuse of discretion.” 37 C.F.R. § 42.71(c) (emphasis added).

The legislative history similarly confirms the Director’s authority. In 1927, Congress, at the same time that it eliminated the provision requiring the Commissioner (now the Director) to review board of examiner decisions, made clear that the “supervisory power of the commissioner [to rehear panel decisions], as it has existed for a number of decades, remains unchanged by the bill.” S. Rep. No. 69-1313, at 4 (1927).

The Director has previously created such special rehearing panels. *See Arthrex*, 941 F.3d at 1330 (“That standing [Precedential Opinion] [P]anel, composed of at least three Board members, can rehear and reverse any Board decision and can issue decisions that are binding on all future panels of the Board.”); *see also* Patent Trial and Appeal Board Standard Operating Procedure 2 (version 10), <https://www.uspto.gov/sites/default/files/documents/SOP2%20R10%20FINAL.pdf>.

A rehearing panel consisting of the Director, the Deputy Director, and the Commissioner of Patents would itself comply with the Appointments Clause. The Director is a principal officer appointed by the President and confirmed by the Senate.⁸ The Deputy Director and the Commissioner of Patents are properly appointed inferior officers because they are removable by principal officers. “The power to remove officers, [the Supreme Court has] recognized, is a powerful tool for control.” *Edmond*, 520 U.S. at 664. The Deputy Director is appointed by the Secretary of Commerce (a Presidentially appointed officer) under 35 U.S.C. § 3(b)(1). The Deputy Director is removable at will by the Secretary of Commerce because “[i]n the absence of all constitutional provision, or statutory regulation as to the removal of [inferior] officers, . . . the power of removal [is] incident to the power of appointment.” *In re Hennen*, 38 U.S. 230, 259 (1839).⁹ Under the statute,

⁸ The statute also specifies that the Director is appointed and removable at will by the President. 35 U.S.C. § 3(a)(1), (4).

⁹ The Deputy Director is not an “employee” for purposes of 5 U.S.C. § 7513, which provides removal protections to PTO officers and employees through 35 U.S.C. § 3(c)’s application of Title 5 to the PTO’s “[o]fficers and employees.” Section 7511(b)(2)(C) of Title 5 excludes from the definition of “employees” subject to these protections those “employees whose position has been determined to be of a confidential, policy-determining, policy-making or policy-advocating character” by “the head of an agency for a position excepted from the competitive service by statute.” The legislative history of this provision indicates that political appointees (of which the Deputy Director is one) were not meant to be included in the definition of “employee” for purposes of § 7513 removal protections. H.R. Rep. No. 101-328, 4-5 (1989); see also *Special Counsel v. Peace Corps*, 31 M.S.P.R. 225, 231 (1986) (“The[] terms [‘policy-making,’ ‘confidential,’ and ‘policy-advocating’] . . . are, after

“Commissioners [such as the Commissioner of Patents] may be removed from office by the Secretary for misconduct or nonsatisfactory performance . . . , without regard to the provisions of title 5”—essentially at-will removal. 35 U.S.C. § 3(b)(2)(C). In contrast, to be removed under Title 5, “the agency must show . . . that the employee’s misconduct is likely to have an adverse impact on the agency’s performance of its functions.” *Brown v. Dep’t of the Navy*, 229 F.3d 1356, 1358 (Fed. Cir. 2000) (emphasis added).

The Deputy Director and the Commissioner of Patents are also inferior officers because they are supervised by the Director. Again, in *Edmond*, the Supreme Court “th[ought] it evident that ‘inferior officers’ are officers whose work is directed and supervised at some level by others who were appointed by Presidential nomination with the advice and consent of the Senate.” *Edmond*, 520 U.S. at 662 (emphasis added). The Director has significant administrative oversight of the duties of these two officers. The USPTO’s organizational chart shows that the Deputy Director and the Commissioner of Patents report to the Director. See, e.g., *USPTO Fiscal Year 2019 Congressional Justification*, at 3, <https://www.uspto.gov/sites/default/files/documents/fy19pbr.pdf>. The Deputy Director is appointed by the Secretary of Commerce only “upon nomination by the Director.” 35 U.S.C. § 3(b)(1). And the Secretary of Commerce, acting through the Director, annually

all, only a shorthand way of describing positions to be filled by so-called ‘political appointees.’”); *Aharonian v. Gutierrez*, 524 F. Supp. 2d 54, 55 (D.D.C. 2007) (describing the appointment of the PTO Deputy Director as a “decision[] involving high-level policymaking personnel.”).

evaluates the Commissioner's performance, which determines the Commissioner's annual bonus. 35 U.S.C. § 3(b)(2)(B).

In sum, the roles that would be played by these three members of an executive rehearing panel would be constitutional because the Director is a principal officer, and the Deputy Director and the Commissioner of Patents are inferior officers subject to the supervision of the Director of and the Secretary. If an appropriate stay were granted, it would seem possible that the Director, if he chose to do so, could achieve agency review without Congressional legislation.

Of course, as I discuss in the next section, either a Congressional fix or an agency fix could not be retroactive. The new rehearing procedure would have to be made available to losing parties in past cases.

II

Alternatively, I conclude that if the panel's Title 5 protection remedy remained, this would still not require a remand for a new hearing before a new panel, as the *Arthrex* panel opinion holds. *Arthrex*, 941 F.3d at 1340. This new hearing remedy is not required by *Lucia v. S.E.C.*, 138 S. Ct. 2044 (2018), imposes large and unnecessary burdens on the system of *inter partes* review, and involves unconstitutional prospective decision-making.

A

After holding the APJ removal protection provisions unconstitutional and severable, the panel set aside all panel decisions of the Board where the issue was properly raised on appeal. These cases are remanded for

a new hearing before a new panel “[b]ecause the Board’s decision in this case was made by a panel of APJs that were not constitutionally appointed at the time the decision was rendered.” *Arthrex*, 941 F.3d at 1338.

This holding is in part constitutional interpretation and part statutory construction. In essence, the panel improperly makes the application of its decision prospective only, so that only PTAB decisions after the date of the panel’s opinion are rendered by a constitutionally appointed panel. In my view, the panel improperly declined to make its ruling retroactive. If the ruling were retroactive, the actions of APJs in the past would have been compliant with the constitution and the statute. In this respect, I think that the panel in *Arthrex* ignored governing Supreme Court authority.

B

I first address the *Arthrex* panel’s claim that *Lucia* mandates remanding for a new hearing. In *Lucia*, the issue was whether Securities and Exchange Commission (“SEC”) ALJs were inferior officers that had to be appointed by an agency head—the SEC. *Lucia*, 138 S. Ct. at 2051 & n.3 (2018). The Supreme Court held that “[t]he Commission’s ALJs are ‘Officers of the United States,’ subject to the Appointments Clause.” *Id.* at 2055. The ALJs were found to be unconstitutionally appointed as “Officers of the United States” because they were appointed by “[o]ther staff members, rather than the Commission proper.” *Id.* at 2049, 2051.

While the case was pending, “the SEC issued an order ‘ratif[ying]’ the prior appointments of its ALJs,”

thus apparently curing the constitutional defect.¹⁰ *Id.* at 2055 n.6 (alteration in original) (quoting SEC Order, *In re: Pending Administrative Proceedings* (Nov. 30, 2017), <https://www.sec.gov/litigation/opinions/2017/33-10440.pdf>). The Supreme Court nevertheless held that “the ‘appropriate’ remedy for an adjudication tainted with an appointments violation is a new ‘hearing before a properly appointed’ official.” *Id.* at 2055 (quoting *Ryder v. United States*, 515 U.S. 183, 183, 188 (1995)).

The difference between *Lucia* and *Arthrex* is that the fix in *Lucia* was an agency fix, whereas the fix in *Arthrex* is a judicial fix. Agencies and legislatures generally act only prospectively, while a judicial construction of a statute or a holding that a part of the statute is unconstitutional and construing the statute to permit severance are necessarily retrospective as well as prospective.

C

As the Supreme Court concluded in *Rivers v. Roadway Exp., Inc.*, 511 U.S. 298 (1994), in construing a statute, courts are “explaining [their] understanding of what the statute has meant continuously since the date when it became law.” *Id.* at 313 n.12 (emphasis added). The same is true as to constitutional decisions, as *Harper v. Virginia Dep’t of Taxation*, 509 U.S. 86 (1993) confirmed: “[B]oth the common law and our own decisions’ have ‘recognized a general rule of retrospective effect for the constitutional decisions of this Court.’” *Id.* at 94 (quoting *Robinson v. Neil*, 409 U.S. 505, 507

¹⁰ The Court declined to decide whether the agency cured the defect when it “ratified” the appointments, but assumed that it did so. *Lucia*, 138 S. Ct. at 2055 n.6.

(1973)). As Justice Scalia put it in his concurrence in the later *Reynoldsville* decision:

In fact, what a court does with regard to an unconstitutional law is simply to ignore it. It decides the case “disregarding the [unconstitutional] law,” *Marbury v. Madison*, 1 Cranch 137, 178 (1803) (emphasis added), because a law repugnant to the Constitution “is void, and is as no law,” *Ex parte Siebold*, 100 U.S. 371, 376 (1880).

Reynoldsville Casket Co. v. Hyde, 514 U.S. 749, 760 (1995) (Scalia, J., concurring) (alterations in original). In other words, “[w]hen [a c]ourt applies a rule of federal law to the parties before it, that rule is the controlling interpretation of federal law and must be given full retroactive effect in all cases still open on direct review and as to all events, regardless of whether such events predate or postdate [the court’s] announcement of the rule.” *Harper*, 509 U.S. at 97.¹¹

The requirement for retroactivity applies to remedies as well, such as the remedy in this case. In *Reynoldsville*, the Court reversed an Ohio Supreme Court decision declining to apply a constitutional decision as to a limitations period retroactively. 514 U.S. at 759. The Court rejected the respondent’s argument that the Ohio Supreme Court’s decision was based on “remedy” rather than “non-retroactivity” and held that accepting

¹¹ *Harper* overruled prior caselaw that provided for exceptions allowing prospective application of a new rule of law in constitutional and other cases. *Reynoldsville Casket Co. v. Hyde*, 514 U.S. 749, 752 (1995) (“*Harper* overruled [a prior Supreme Court decision] insofar as the [prior] case (selectively) permitted the prospective-only application of a new rule of law.”).

the Ohio Supreme Court’s “remedy” would “create what amounts to an ad hoc exemption from retroactivity.” *Id.* at 758. The Court noted only four circumstances where retroactive application of a constitutional ruling is not outcome-determinative.¹² None is remotely relevant to *Arthrex*.

Thus, to be consistent with *Harper*, the statute here must be read as though the APJs had always been constitutionally appointed, “disregarding” the unconstitutional removal provisions. *Marbury v. Madison*, 5 U.S. 137, 178 (1803). Since no Congressional or agency action is required in order to render the appointment of the PTAB judges constitutional, when the PTAB judges decided cases in the past, they did not act improperly. Thus, the past opinions rendered by the PTAB should be reviewed on the merits, not vacated for a new hearing before a different panel.

To be sure, a new decision or hearing may sometimes be necessary where a deciding official might have acted differently if he had been aware of the unconstitutional nature of a restriction on his authority. That was the situation in *Booker*, where judges’ decision-making might have been affected by their perception that the sentencing guidelines were mandatory and where the

¹² Namely, where there is: “(1) an alternative way of curing the constitutional violation; or (2) a previously existing, independent legal basis (having nothing to do with retroactivity) for denying relief; or (3) as in the law of qualified immunity, a well-established general legal rule that trumps the new rule of law, which general rule reflects both reliance interests and other significant policy justifications; or (4) a principle of law, such as that of ‘finality’ . . . , that limits the principle of retroactivity itself.” *Reynoldsville*, 514 U.S. at 759 (internal citations omitted).

mandatory provision was held unconstitutional and severed. *Booker*, 543 U.S. at 249-265. *Booker* was not an Appointments Clause case, and even in *Booker*, a new sentencing hearing was not required in every case. *Id.* at 268. Here, even applying the *Booker* approach, it is simply not plausible that the PTAB judges' decision-making would have been affected by the perceived existence or non-existence of the removal protections of Title 5. As the Fifth Circuit has concluded in this respect, “[r]estrictions on removal are different” from Appointments Clause violations where “officers were vested with authority that was never properly theirs to exercise.” *Collins v. Mnuchin*, 938 F.3d 553, 593 (5th Cir. 2019) (en banc) (separate majority opinion).¹³ As discussed above, *Lucia* required a new determination, but in that case the fix was imposed only prospectively—the making of new appointments by the agency head and the ratification of earlier appointments—rather than a

¹³ In *Collins*, the Fifth Circuit explained:

Restrictions on removal are different. In such cases the conclusion is that the officers are duly appointed by the appropriate officials and exercise authority that is properly theirs. The problem identified by the [different] majority decision in this case is that, once appointed, they are too distant from presidential oversight to satisfy the Constitution’s requirements.

Perhaps in some instances such an officer’s actions should be invalidated. The theory would be that a new President would want to remove the incumbent officer to instill his own selection, or maybe that an independent officer would act differently than if that officer were removable at will. We have found no cases from either our court or the Supreme Court accepting that theory.

938 F.3d at 593-94 (separate majority opinion)

retroactive court decision involving severance. *See Lucia*, 138 S. Ct. at 2055 n.6.

D

While the Circuits appear to be divided as to the retroactivity issue in Appointments Clause and similar cases,¹⁴ the very Supreme Court decisions relied on in *Arthrex* have given retroactive effect to statutory constructions or constitutional decisions that remedied potential Appointment Clause violations. In *Free Enterprise Fund v. Public Co. Accounting Oversight Board*,

¹⁴ In *Collins v. Mnuchin*, 938 F.3d 553 (5th Cir. 2019) (en banc), the en banc Fifth Circuit found that the Federal Housing Finance Agency (“FHFA”) was unconstitutionally structured because Congress “[g]rant[ed] both removal protection and full agency leadership to a single FHFA Director.” *Id.* at 591. It did not invalidate prior agency actions. *Id.* at 592 (separate majority opinion). It concluded that the only appropriate remedy, and one that “fixes the . . . purported injury,” is a declaratory judgment “removing the ‘for cause’ provision found unconstitutional.” *Id.* 595 (separate majority opinion).

In *Intercollegiate Broadcasting* and *Kuretski*, the D.C. Circuit reached the opposite result. *See Intercollegiate Broad. Sys., Inc. v. Copyright Royalty Bd.*, 684 F.3d 1332 (D.C. Cir. 2012); *Kuretski v. Comm'r*, 755 F.3d 929 (D.C. Cir. 2014). In *Intercollegiate Broadcasting*, the D.C. Circuit found that the appointments of the Copyright Royalty Judges in the Library of Congress violated the Appointments Clause because they could be removed only for cause. 684 F.3d at 1334. The court invalidated the for-cause restriction on the removal of the judges, rendering them “validly appointed inferior officers.” *Id.* at 1340-41. Yet, the D.C. Circuit declared that “[b]ecause the Board’s structure was unconstitutional at the time it issued its determination, we vacate and remand the determination.” *Id.* at 1342. These two cases were not based on Supreme Court precedent, did not consider the Supreme Court precedent suggesting a different result, and were an apparent departure from the Court’s rulings in similar circumstances.

561 U.S. 477 (2010), the SEC’s Public Company Accounting Oversight Board had instituted an investigation against an accounting firm, Beckstead and Watts (“B&W”). *Id.* at 487. B&W and another affiliated organization, Free Enterprise Fund, filed suit, asking the district court to enjoin the investigation as improperly instituted because members of the Board had not been constitutionally appointed. *Id.* at 487-88. The Supreme Court found that the statutory removal protections afforded to members of the Board were unconstitutional. *Id.* at 484. “By granting the Board executive power without the Executive’s oversight [i.e., by limiting removal], th[e Sarbanes-Oxley] Act subvert[ed] the President’s ability to ensure that the laws are faithfully executed—as well as the public’s ability to pass judgment on his efforts.” *Id.* at 498. But the Court severed the unconstitutional removal provisions from the remainder of the statute, leaving the rest of relevant act fully operational and constitutional. *Id.* at 509.

The Court did not view this action as fixing the problem only prospectively. It refused to invalidate or enjoin the prior actions of the Board in instituting the investigation, explaining that “properly viewed, under the Constitution, . . . the Board members are inferior officers” and “have been validly appointed by the full Commission.” *Id.* at 510, 513. The Court remanded for further proceedings, but explained that the plaintiffs were only “entitled to declaratory relief sufficient to ensure that the reporting requirements and auditing standards to which they [we]re subject will be enforced only

by a constitutional agency accountable to the Executive.”¹⁵ *Id.* at 513.

So too in *Edmond v. United States*, 520 U.S. 651 (1997), past actions by the Coast Guard Court of Criminal Appeals were not set aside. The criminal defendants’ convictions had been affirmed by the Coast Guard Court of Criminal Appeals. *Id.* at 655. The defendants contended that the Coast Guard Court of Criminal Appeals judges had not been properly appointed, rendering the convictions invalid. *See id.* The issue was “whether Congress ha[d] authorized the Secretary of Transportation to appoint civilian [judges to] the Coast Guard Court of Criminal Appeals, and if so, whether this authorization [wa]s constitutional under the Appointments Clause of Article II [because the judges were inferior officers].” *Id.* at 653.

The Court construed the relevant statutes so that “Article 66(a) d[id] not give [the] Judge Advocates General authority to appoint Court of Criminal Appeals judges; [and] that § 323(a) d[id] give the Secretary of Transportation authority to do so.” *Id.* at 658. The Court explained that “no other way to interpret Article 66(a) that would make it consistent with the Constitution” because “Congress could not give the Judge Advocates General power to ‘appoint’ even inferior officers of the United States.” *Id.* The Court then found that

¹⁵ On remand, the parties agreed that the Supreme Court’s decision did not require invalidating the Board’s prior actions. The agreed-upon judgment stated: “[a]ll relief not specifically granted by this judgment is hereby DENIED.” Judgment, *Free Enter. Fund v. Pub. Co. Accounting Oversight Bd.*, No. 06-0217 (D.D.C. Feb. 23, 2011), ECF No. 66.

the judges of the Coast Guard Court of Criminal Appeals were inferior officers and that “[their] judicial appointments [by the Secretary] . . . [we]re therefore valid.” *Id.* at 666. Most significantly, the Court did not remand for a new hearing but rather “affirm[ed] the judgment of the Court of Appeals for the Armed Forces.” *Id.* Nowhere did the Court suggest that the actions taken before the Court’s construction were rendered invalid.

In Appointments Clause cases, the Supreme Court has required a new hearing only where the appointment’s defect had not been cured¹⁶ or where the cure was the result of non-judicial action.¹⁷ The contrary decision in *Arthrex* is inconsistent with binding Supreme Court precedent and creates a host of problems

¹⁶ See *Ryder v. United States*, 515 U.S. 177, 187-88 (1995) (declining to apply the *de facto officer* doctrine to preserve rulings made by an unconstitutionally appointed panel); *N.L.R.B. v. Noel Canning*, 573 U.S. 513, 519, 520, 557 (2014) (affirming the DC Circuit in vacating an NLRB order finding a violation because the Board lacked a quorum as “the President lacked the power to make the [Board] recess appointments here at issue”); see also *Bandimere v. Sec. & Exch. Comm’n*, 844 F.3d 1168, 1171, 1188 (10th Cir. 2016) (setting aside opinion of an improperly appointed SEC ALJ where “the SEC conceded the ALJ had not been constitutionally appointed”).

¹⁷ See *Lucia*, 138 S. Ct. at 2055 n.6; see also *Jones Bros., Inc. v. Sec’y of Labor*, 898 F.3d 669, 679 (6th Cir. 2018) (improperly appointed ALJ’s decision vacated despite Mine Commission’s attempt to cure the improper appointment during judicial review by ratifying the appointment of every ALJ); *Cirko on behalf of Cirko v. Comm’r of Soc. Sec.*, 948 F.3d 148, 152 (3d Cir. 2020) (affirming district court’s remand for a new hearing before properly appointed Social Security Administration ALJs despite SSA’s later reappointment of all agency judges).

in identifying the point in time when the appointments became valid.¹⁸

* * *

I respectfully suggest that *Arthrex* was wrongly decided for two reasons. First, the panel’s remedy invalidating the Title 5 removal protections for APJs is contrary to Congressional intent and should not be invoked without giving Congress and the PTO the opportunity to devise a less disruptive remedy. Second, even if the *Arthrex* remedy (to sever Title 5 protections) were adopted, there would be no need for a remand for a new hearing before a new panel because, under this judicial construction, APJs will be retroactively properly appointed by the Secretary of Commerce and their prior decisions will not be rendered invalid.

III

Finally, the panel’s conclusion that PTAB judges are principal officers under the existing statutory structure is open to question. It does appear to be the case under the Supreme Court’s decision in *Lucia* that PTAB judges are “officers,” but it seems to me far from clear that they are “principal officers.” The panel concluded that they were because “inferior officers” are officers whose work is directed and supervised at some level by others who were appointed by Presidential nomination

¹⁸ The difficulty of identifying at what point in time the appointments becomes effective is evident. Is it when the panel issues the decision, when the mandate issues, when en banc review is denied, when certiorari is denied, or (if there is an en banc proceeding) when the en banc court affirms the panel, or (if the Supreme Court grants review) when the Supreme Court affirms the court of appeals decision?

with the advice and consent of the Senate.” *Arthrex*, 941 F.3d at 1329 (quoting *Edmond*, 520 U.S. at 662-63). The panel held that no principal officer “exercise[d] sufficient direction and supervision over APJs to render them inferior officers.” *Id.* Despite the quoted language in *Edmond*, I do not think that the sole distinction between “inferior officers” and “principal officers” lies in agency supervision. In *Morrison v. Olson*, 487 U.S. 654 (1988), the Supreme Court held that an independent counsel was an “inferior officer” despite the fact that she was removable only for “good cause” and “possesse[d] a degree of independent discretion to exercise the powers delegated to her,” *id.* at 671, 691.

In *Morrison*, the Court was in part persuaded by the fact that the independent counsel’s “grant of authority d[id] not include any authority to formulate policy for the Government or the Executive Branch.” *Morrison*, 487 U.S. at 671. The First Circuit squared the holdings in *Edmond* and *Morrison* “by holding that *Edmond*’s supervision test was sufficient, but not necessary.” *Aurelius*, 915 F.3d at 860. The First Circuit explained that “inferior officers are those who are directed and supervised by a presidential appointee; otherwise, they ‘might still be considered inferior officers if the nature of their work suggests sufficient limitations of responsibility and authority.’” *Id.* (quoting *United States v. Hilario*, 218 F.3d 19, 25 (1st Cir. 2000)).

Similarly, here, it seems appropriate to also examine whether the role of the officers in question includes articulation of agency policy. PTAB judges have no such role. They are not charged with articulating agency policy, and certainly are not the principal officers charged with that articulation. Their sole function is to

determine the facts in individual patent challenges under the AIA; as to the law, they are obligated to follow the law as articulated by the Supreme Court and this court. It appears to be the case that review of administrative judges' decisions by an Article I court prevented the administrative judges in *Edmond* and *Masias v. Sec'y of Health & Human Servs.*, 634 F.3d 1283 (Fed. Cir. 2011), from being "officers." See *Edmond*, 520 U.S. at 664; *Masias*, 634 F.3d at 1294. It is hard for me to see how identical review by an Article III court (which severely cabins the authority of PTAB judges) does not prevent PTAB judges from being principal officers.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2018-2140

ARTHREX, INC., APPELLANT

v.

SMITH & NEPHEW, INC., ARTHROCARE CORP.,
APPELLEES

UNITED STATES, INTERVENOR

Filed: Mar. 23, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00275

HUGHES, *Circuit Judge*, with whom WALLACH, *Circuit Judge*, joins, dissenting from the denial of the petitions for rehearing *en banc*.

I respectfully dissent from the court's decision declining to rehear this appeal *en banc*. I believe that, viewed in light of the Director's significant control over the activities of the Patent Trial and Appeal Board and Administrative Patent Judges, APJs are inferior officers already properly appointed by the Secretary of Commerce. And even if APJs are properly considered principal officers, I have grave doubts about the remedy the *Arthrex* panel applied to fix their appointment. In the face of an unconstitutional statute, our role is to determine whether severance of the unconstitutional portion

would be consistent with Congress's intent. Given the federal employment protections APJs and their predecessors have enjoyed for more than three decades, and the overall goal of the America Invents Act, I do not think Congress would have divested APJs of their Title 5 removal protections to cure any alleged constitutional defect in their appointment. As Judge Dyk suggests in his dissent, which I join as to Part I.A, I agree that Congress should be given the opportunity to craft the appropriate fix. Dyk Op. at 6.

I

None of the parties here dispute that APJs are officers who exercise "significant authority pursuant to the laws of the United States." *Buckley v. Valeo*, 424 U.S. 1, 126 (1976) (per curiam). But "significant authority" marks the line between an officer and an employee, not a principal and an inferior officer. Despite being presented with the opportunity to do so, the Supreme Court has declined to "set forth an exclusive criterion for distinguishing between principal and inferior officers for Appointments Clause purposes." *Edmond v. United States*, 520 U.S. 651, 661 (1997).

Instead, the pertinent cases make clear that the hallmark of an inferior officer is whether a presidentially-nominated and senate-confirmed principal officer "direct[s] and supervise[s] [her work] at some level." *Id.* at 663. *Edmond* does not lay out a more exacting test than this, and we should not endeavor to create one in its stead. Instead, I believe the Supreme Court has engaged in a context-specific inquiry accounting for the unique systems of direction and supervision of inferior officers in each case. See *infra* Section I. Importantly, the Court has not required that a principal officer be

able to single-handedly review and reverse the decisions of inferior officers, or remove them at will, to qualify as inferior. And I believe that the Supreme Court would have announced such a simple test if it were proper.

Finally, *Edmond* also makes clear that the Appointments Clause seeks to “preserve political accountability relative to important government assignments.” 520 U.S. at 663. The Director’s power to direct and supervise the Board and individual APJs, along with the fact that APJs are already removable under the efficiency of the service standard, provides such political accountability. APJs are therefore inferior officers.

A

The Director may issue binding policy guidance, institute and reconsider institution of an *inter partes* review, select APJs to preside over an instituted *inter partes* review, single-handedly designate or de-designate any final written decision as precedential, and convene a panel of three or more members of his choosing to consider rehearing any Board decision. The *Arthrex* panel categorized some of these as “powers of review” and others as “powers of supervision,” but I view them all as significant tools of direction and supervision.

As *Arthrex* recognized, “[t]he Director is ‘responsible for providing policy direction and management supervision’ for the [United States Patent and Trademark Office].” *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320, 1331 (Fed. Cir. 2019) (quoting 35 U.S.C. § 3(a)(2)(A)). Not only can the Director promulgate regulations governing *inter partes* review procedures, but he may also prospectively issue binding policy guidance “interpreting and applying the patent and trademark laws.”

Gov't. Br. 37. APJs must apply this guidance in all subsequent *inter partes* review proceedings. Such guidance might encompass, for instance, exemplary application of the law to specific fact patterns, such as those posed in pending cases. These powers provide the Director with control over the process and substance of Board decisions. Gov't. Br. 36-37. And though the Director cannot directly reverse an individual Board decision that neglects to follow his guidance, APJs who do so risk discipline or removal under the efficiency of the service standard applicable under Title 5. *See infra* Section I C. Such binding guidance, and the consequences of failing to follow it, are powerful tools for control of an inferior officer.¹

The Director also has unreviewable authority to institute *inter partes* review. 35 U.S.C. § 314(a), (d). *Cf. Free Enter. Fund v. Pub. Co. Accounting Oversight Bd.*, 561 U.S. 477, 504 (2010) (discussing the importance of the ability to “start, stop, or alter individual [PCAOB] investigations,” even where the reviewing principal officer already had significant “power over [PCAOB] activities”). Though the *Arthrex* panel did not address the Director’s ability to reconsider an institution decision, our precedent holds that the Board² may reconsider and reverse its initial institution decision. *See,*

¹ To be sure, I do not mean to suggest that the Director’s extensive powers of supervision mean that he can dictate the outcome of a specific *inter partes* proceeding. Rather, his ability to issue guidance and designate precedential opinions provides the general type of supervision and control over APJs’ decision-making that renders them inferior, not principal, officers.

² The Director’s delegation of his institution power to the Board does not diminish its existence. 37 C.F.R. § 42.4(a) (stating that

e.g., *Medtronic, Inc. v. Robert Bosch Healthcare Sys., Inc.*, 839 F.3d 1382, 1385-86 (Fed. Cir. 2016) (explaining that “§ 318(a) contemplates that a proceeding can be ‘dismissed’ after it is instituted, and, as our prior cases have held, administrative agencies possess inherent authority to reconsider their decisions, subject to certain limitations, regardless of whether they possess explicit statutory authority to do so” (internal quotation and citation omitted)).

The Director also controls which APJs will hear any given instituted *inter partes* review. 35 U.S.C. § 6(c). In my view, this power of panel designation is a quintessential method of directing and controlling a subordinate. Importantly, I do not believe that in stating that the power to remove an officer at-will from federal employment is “a powerful tool for control of an inferior,” *Free Enterprise*, 561 U.S. at 510 (internal quotation omitted), the Supreme Court meant that such removal power is the only effective form of control in the context of the Appointments Clause. For example, the Judge Advocate General in *Edmond* could remove the Court of Criminal Appeal judges from judicial service without cause, but not necessarily federal employment altogether. *Edmond*, 520 U.S. at 664. See also *Free Enterprise*, 561 U.S. at 510 (relying on both at-will removal authority and “the [SEC’s] other oversight authority” in finding with “no hesitation” that the PCAOB members are inferior officers). That is akin to the Director’s authority to designate which APJs will consider a certain case. And despite acknowledging that “when a statute

“[t]he Board institutes the trial on behalf of the Director”). See also *Ethicon Endo-Surgery, Inc. v. Covidien LP*, 812 F.3d 1023, 1033 (Fed. Cir. 2016).

is silent on removal, the power of removal is presumptively incident to the power of appointment[,]” the *Arthrex* panel declined to opine on the Director’s ability to de-designate APJs from a panel under § 6(c). *Arthrex*, 941 F.3d at 1332. But *Edmond* referenced the ability to remove the judges there “from [their] judicial assignment[s],” followed by a recognition of the potent power of removal. 520 U.S. at 664. If the Director’s ability to control APJs plays a significant part in the unconstitutionality at issue, such that the remedy is to make APJs removable at will, the panel should have definitively addressed the Director’s de-designation authority. Moreover, as outlined in Section I C, *infra*, APJs already may be disciplined or removed from federal employment under the routine efficiency of the service standard, which is not incompatible with discipline or removal for failing to follow the Director’s binding guidance.

And the Director may continue to provide substantial direction and supervision after the Board issues its final written decision. As *Arthrex* recognizes, the Director may convene a Precedential Opinion Panel (POP), of which the Director is a member, to consider whether to designate a decision as precedential. *Arthrex*, 941 F.3d at 1330. But I read the Standard Operating Procedures more broadly, such that the Director may also make a precedential designation or de-designation decision single-handedly,³

³ “No decision will be designated or de-designated as precedential or informative without the approval of the Director. This SOP does not limit the authority of the Director to designate or de-designate decisions as precedential or informative, or to convene a Precedential Opinion Panel to review a matter, in his or her sole discretion without regard to the procedures set forth herein.” Patent Trial

thereby unilaterally establishing binding agency authority on important constitutional questions and other exceptionally important issues. Standard Operating Procedure 2, at 3-4. Indeed, it appears that the Director has done so in at least sixteen cases in 2018 and 2019. *See USPTO, Patent Trial and Appeal Board Precedential and informative decisions, available at https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/precedential-informative-decisions* (listing decisions designated as precedential in the past year, where some are labeled as “Precedential Opinion Panel decision” and others are not). The Director may also convene a POP of his choice, of which he is by default a member, to consider whether to rehear and reverse any opinion. Standard Operating Procedure 2, at 4. And, the Director may “determine that a panel of more than three members is appropriate” and then choose those additional members as well. *Id.* Though the *Arthrex* panel recognized these powers, it dismissed them because the Director has only one vote out of at least three. 941 F.3d at 1331-32. This assessment, however, misses the practical influence the Director wields with the power to hand-pick a panel, particularly when the Director sits on that panel. The Director’s ability to unilaterally designate or de-designate a decision as precedential and to convene a POP of the size and composition of his

and Appeal Board, Standard Operating Procedure 2 (Revision 10) at 1 (Standard Operating Procedure 2), *available at https://www.uspto.gov/sites/default/files/documents/SOP2%20R10%20FINAL.pdf*.

choosing are important tools for the direction and supervision of the Board even after it issues a final written decision.⁴

Combined, all of these powers provide the Director constitutionally significant means of direction and supervision over APJs—making them inferior officers under the rule of *Edmond*.

B

Despite the Director’s significant powers of direction and supervision, the *Arthrex* panel concluded that APJs are principal officers in large part because no principal officer may “single-handedly review, nullify or reverse”

⁴ The underestimation of the Director’s power is particularly evident in light of this court’s prior *en banc* decision in *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994), abrogated on other grounds by *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008). *Alappat* contained strong language about the ability to control the composition and size of panels. See, e.g., *id.* at 1535 (noting that “the Board is merely the highest level of the Examining Corps, and like all other members of the Examining Corps, the Board operates subject to the Commissioner’s overall ultimate authority and responsibility”). While the duties of the Board and the Director have changed since *Alappat* was decided, the authority to determine the Board’s composition for reconsideration of an examiner’s patentability determination mirrors the current authority with respect to *inter partes* review. Compare 35 U.S.C. § 6(c) (2012) (giving the Director authority to designate “at least 3 members of the Patent Trial and Appeal Board” to review “[e]ach appeal, derivation proceeding, post-grant review, and *inter partes* review”), with 35 U.S.C. § 7(b) (1988) (giving the Commissioner power to designate “at least three members of the Board of Appeals and Interferences” to review “adverse decisions of examiners upon applications for patents”). Therefore, I believe the panel should have at least discussed how *Alappat*’s view of the power to control the Board might impact the Appointments Clause analysis.

the Board’s decisions. *Arthrex*, 941 F.3d at 1329. But Supreme Court precedent does not require such power. And in the cases in which the Court emphasized a principal officer’s power of review, that principal officer had less authority to direct and supervise an inferior officer’s work *ex ante* than the Director has here.

In *Edmond*, for instance, the Court of Appeals for the Armed Forces, an Article I court, could review decisions of the Court of Criminal Appeals judges at issue. However, its scope of review was limited. *Edmond*, 520 U.S. at 665 (explaining that the Court of Appeals for the Armed Forces may only reevaluate the facts when there is no “competent evidence in the record to establish each element of the offense beyond a reasonable doubt”). And while the Judge Advocate General “exercise[d] administrative oversight” and could “prescribe uniform rules of procedure,” he could “not attempt to influence (by threat of removal or otherwise) the outcome of individual proceedings.” *Id.* at 664. Nonetheless, the Supreme Court found that the Court of Criminal Appeals judges were inferior, not principal, officers. In comparison, while the Director may not unilaterally decide to rehear or reverse a Board decision, he has many powers to direct and supervise APJs both *ex ante* and *ex post*, Section I A, *supra*, that no principal officer had in *Edmond*.

Similarly, in *Freytag v. Comm’r*, 501 U.S. 868 (1991), the Supreme Court considered the status of special trial judges appointed by the Tax Court, whose independent decision-making varied based on the type of case before them. The Court held that the special trial judges were inferior officers—not employees—when presiding over “declaratory judgment proceedings and limited-

amount tax cases” because they “render[ed] the decisions of the Tax Court” in those cases. *Id.* at 882. In doing so, the Court distinguished between cases in which the special trial judges acted as “inferior officers who exercise independent authority,” and cases in which they still had significant discretion but less independent authority. *Id.* The Court’s analysis distinguished between inferior officer and employee; nowhere did the Court suggest that special trial judges’ “independent authority” to decide declaratory judgment proceedings and limited-amount cases rendered them principal officers. *See id.* at 881-82. Most recently, the Court applied the framework of *Freytag* in deciding whether administrative law judges (ALJs) of the Securities and Exchange Commission (SEC) are inferior officers or employees. *Lucia v. S.E.C.*, 138 S. Ct. 2044, 2053 (2018). The Court reasoned that SEC ALJs and *Freytag*’s special trial judges are extremely similar, but SEC ALJs arguably wield more power because their decisions become final if the SEC declines review. *Id.* at 2053-54. But again, the Court found this structure still only rendered SEC ALJs officers, not employees. *Id.* at 2054. No mention was made of SEC ALJs being principal officers.⁵ *See id.* at 2051 n.3 (explaining that the distinction between principal and inferior officers was “not at issue here”). Just as the special trial judges in *Freytag*

⁵ In fact, the Court declined “to elaborate on *Buckley*’s ‘significant authority’ test” marking the line between officer and employee, citing two parties’ briefs which argued that the test between officer and employee, not principal and inferior officer, should include some measure of the finality of decision making. *Lucia*, 138 S. Ct. at 2051-52.

and the SEC ALJs in *Lucia* were inferior officers, so too are APJs.

Nor does this court’s precedent require unfettered review as a marker of inferior officer status. In *Masias v. Sec’y of Health & Human Servs.*, we rebuffed the argument that because the Court of Federal Claims does not review decisions of the Vaccine Program’s special masters de novo, the special masters are principal officers. 634 F.3d 1283, 1293-94 (Fed. Cir. 2011). There, we recognized that the Court of Federal Claims may only “set aside any findings of fact or conclusions of law of the special master found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. . . .” *Id.* at 1294. This limited review means that many of the special masters’ decisions are effectively final because the Court of Federal Claims has no basis to set aside findings of fact or conclusions of law. We reasoned that such limited review of special masters’ decisions by the Court of Federal Claims resembled the review in *Edmond*, and that “the fact that the review is limited does not mandate that special masters are necessarily ‘principal officers.’” *Id.* at 1295.

Finally, the panel analogized the *Arthrex* issue to the one addressed by the D.C. Circuit in *Intercollegiate Broad. Sys., Inc. v. Copyright Royalty Bd.*, 684 F.3d 1332 (D.C. Cir. 2012). See *Arthrex*, 941 F.3d at 1334. But the facts of *Intercollegiate* are significantly different than those in *Arthrex*. The Librarian of Congress—the principal officer who supervises the Copyright Royalty Judges (CRJs) at issue—was much more constrained in her ability to direct and supervise the CRJs than the Director. The governing statute grants CRJs broad discretion over ratemaking. See 17 U.S.C.

§ 802(f)(1)(A)(i) (stating that “[CRJs] shall have full independence in making” numerous copyright rate-related decisions). The Librarian “approv[es] the CRJs’ procedural regulations, . . . issu[es] ethical rules for the CRJs, [and] . . . oversee[s] various logistical aspects of their duties,” such as publishing CRJs’ decisions and providing administrative resources. *Intercollegiate*, 684 F.3d at 1338. In fact, it appears the only way the Librarian can exercise substantive control over the CRJs’ ratemaking decisions is indirectly through the Register of Copyrights, whom she, not the President, appoints. See 17 U.S.C. § 701(a). The Register corrects any legal errors in the CRJs’ ratemaking decisions, 17 U.S.C. § 802(f)(1)(D), and provides written opinions to the CRJs on “novel question[s] of law,” 17 U.S.C. § 802(f)(1)(B), or when the CRJ requests such an opinion. 17 U.S.C. § 802(f)(1)(A)(ii). But the CRJs may not consult with the Register about a question of fact. 17 U.S.C. § 802(f)(1)(A)(i). The Librarian therefore exerts far less control over CRJs than the Director can over APJs using all the powers of direction and supervision discussed in Section I A, *supra*.

The comparison to *Intercollegiate* in *Arthrex* again highlights how the unique powers of direction and supervision in each case should be viewed in totality, rather than as discrete categories weighing in favor of inferior officer status or not. In particular, breaking up the analysis into three discrete categories—Review, Supervision, and Removal—overlooks how the powers in each category impact each other. Again, for example, whereas *ex post* the Court of Appeals for the Armed Forces has more power to review the Court of Criminal

Appeals judges' decisions than the Director has to review a Board decision, neither the JAG nor the Court of Appeals for the Armed Forces have the Director's ex ante control, such as the power to decide whether to hear a case at all or to issue binding guidance on how to apply the law in a case. Viewed through this integrated lens, I believe APJs comfortably fit with prior Supreme Court precedent that has never found a principal officer in a challenged position to date.

C

Finally, Title 5's efficiency of the service standard does not limit the ability to discipline or remove APJs in a constitutionally significant manner. It allows discipline and removal for "misconduct [that] is likely to have an adverse impact on the agency's performance of its functions." *See Brown v. Dep't of the Navy*, 229 F.3d 1356, 1358 (Fed. Cir. 2000). To be sure, the efficiency of the service standard does not allow discipline or removal of APJs "without cause," as in *Edmond*. *See Ar-threx*, 941 F.3d at 1333. But neither the Supreme Court nor this court has required that a civil servant be removable at will to qualify as an inferior officer. To the contrary, the Supreme Court and this court have upheld for-cause removal limitations on inferior officers. *See, e.g., Morrison v. Olson*, 487 U.S. 654, 692-93 (1988) (holding that the "good cause" restriction on removal of the independent counsel, an inferior officer, is permissible); *Masias*, 634 F.3d at 1294 (stating that the Court of Federal Claims can remove special masters for "incompetency, misconduct, or neglect of duty or for physical or mental disability or for other good cause shown"). *See also Free Enterprise*, 561 U.S. at 494 (explaining

that the Court previously “adopted verbatim the reasoning of the Court of Claims, which had held that when Congress “vests the appointment of inferior officers in the heads of Departments[,] it may limit and restrict the power of removal as it deems best for the public interest”” (alteration in original) (quoting *United States v. Perkins*, 116 U.S. 483, 485 (1886) (itself quoting *Perkins v. United States*, 20 Ct. Cl. 438, 444 (1885))).

The efficiency of the service standard allows supervisors to discipline and terminate employees for arguably an even wider range of reasons than the standards above. Failing or refusing to follow the Director’s policy or legal guidance is one such reason. Together with the significant authority the Director wields in directing and supervising APJs’ work, the ability to remove an APJ on any grounds that promote the efficiency of the service supports finding that APJs are inferior officers.

II

Assuming for the sake of argument that APJs are principal officers, the present appointment scheme requires a remedy. The *Arthrex* fix makes APJs removable at will by partially severing 35 U.S.C. § 3(c) as it applies Title 5’s removal protections to APJs. *Arthrex*, 941 F.3d at 1337-38. Though the key question in a severance analysis is congressional intent, *Arthrex* disposed of the question in a few sentences. I believe a fulsome severance analysis should have considered Congress’s intent in establishing *inter partes* review against the backdrop of over thirty years of employment protections for APJs and their predecessors. And doing so would have revealed the importance of removal protections for APJs, particularly in light of Congress’s desire for fairness and transparency in the patent system.

Our touchstone must remain the intent of Congress. *See United States v. Booker*, 543 U.S. 220, 246 (2005). As I outlined in my concurrence in *Polaris Innovations Ltd. v. Kingston Tech. Co.*, 792 F. App'x 820, 828-31 (Fed. Cir. 2020), the long-standing employment protections provided to APJs leads me to believe that Congress intended for them to have removal protections, regardless of changes made to the Board in the AIA. Given this history, it seems unlikely to me that Congress, faced with this Appointments Clause problem, would have chosen to strip APJs of their employment protections, rather than choose some other alternative.

I recognize that the panel considered several potential fixes and chose the one it viewed both as constitutional and minimally disruptive. But removing long-standing employment protections from hundreds of APJs is quite disruptive. It paradoxically imposes the looming prospect of removal without cause on the arbiters of a process which Congress intended to help implement a “clearer, fairer, more transparent, and more objective” patent system. *See, e.g.*, America Invents Act, 157 Cong. Rec. S5319 (daily ed. Sept. 6, 2011) (statement of Sen. Kyl).

Given no clear evidence that Congress would have intended such a drastic change, I would defer to Congress to fix the problem. I agree with Judge Dyk that Congress “would prefer the opportunity to itself fix any Appointments Clause problem before imposing the panel’s drastic remedy.” Dyk Op. at 6. Congress can best weigh the need for a fair and transparent patent system with the need for federal employment protections for those entrusted with carrying out that system. And

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Congress faces fewer constraints than we do in fixing an unconstitutional statute. We should allow it to do so.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2018-2140

ARTHREX, INC., APPELLANT

v.

SMITH & NEPHEW, INC., ARTHROCARE CORP.,
APPELLEES

UNITED STATES, INTERVENOR

Filed: Mar. 23, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00275

WALLACH, *Circuit Judge*, dissenting from denial of a pe-
tition for rehearing *en banc*.

I write to express my disagreement with the merits of the decision in *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320 (Fed. Cir. 2019). Given the significant direction to and supervision of an administrative patent judge (“APJ”) of the U.S. Patent and Trademark Office’s (“USPTO”) Patent Trial and Appeal Board (“PTAB”) by the USPTO Director, an APJ constitutes an inferior officer properly appointed by the Secretary of Commerce. Specifically, the Director’s ability to select a panel’s members, to designate a panel’s decision as precedential, and to de-designate precedential opinions gives the

Director significant authority over the APJs and preserves the political accountability of the USPTO. This framework strongly supports the contention that APJs are inferior officers. I respectfully disagree with the *Arthrex* decision.

The Supreme Court explained that it “ha[s] not set forth an exclusive criterion for distinguishing between principal and inferior officers for Appointment Clause purposes[,]” *Edmond v. United States*, 520 U.S. 651, 661 (1997), but that it is “evident that ‘inferior officers’ are officers whose work is *directed and supervised* at some level by others who were appointed by presidential nomination with the advice and consent of the Senate[,]” *id.* at 663 (emphasis added). The inquiry is context specific; the Supreme Court has sought to determine whether a principal officer “exercises administrative oversight over” another, by examining, for instance, whether a principal officer “is charged with the responsibility to prescribe uniform rules of procedure,” “formulate[s] policies and procedure[s] in regard to review of” the officer’s work, and may remove the officer without cause. *Id.* at 664 (internal quotation marks omitted). The oversight need not be “plenary,” *Free Enter. Fund v. Pub. Co. Accounting Oversight Bd.*, 561 U.S. 477, 504 (2010), and the officer’s actions may be “significant” and done “largely independently” of the principal officer, *id.* at 504. *Edmond* instructs that the Appointments Clause is “designed to preserve political accountability relative to important Government assignments[.]” 520 U.S. at 663. The current framework for appointing, directing and supervising, and removing APJs preserves political accountability of the important work done at the USPTO.

The Director has broad authority to direct and supervise the APJs; this includes removal powers, *see* 35 U.S.C § 3(c), and supervision responsibilities, such as the promulgation of regulations, *id.* § 2(b), including those governing inter partes review, *id.* § 316(a)(4), and establishing USPTO policy, *id.* §§ 3(a), 6. In particular, there are specific ways the Director may direct and supervise the APJs and effectively determine the outcome of their work. First, the Director has the ability to select APJ panel members and designate which panel decisions are precedential. Specifically, the Director controls which APJ will hear any given appeal, proceeding, or review. *See id.* § 6(c) (“Each appeal, derivation proceeding, post-grant review, and inter partes review shall be heard by at least [three] members of the [PTAB], who shall be designated *by the Director*.” (emphasis added)). Accordingly, the Director holds the authority to select which APJ will be on a panel and is free to exclude an APJ from a panel for any reason. I see this as overwhelming support for the proposition that APJs are inferior officers.

Second, the Director possesses an additional supervisory tool in exercising his or her statutory authority to form a standing Precedential Opinion Panel of at least three PTAB members who can rehear and reverse any PTAB decision. *See* Patent Trial and Appeal Board Standard Operating Procedure 2 at 2-4 <https://www.uspto.gov/sites/default/files/documents/SOP2%20R10%20FINAL.pdf>. The Precedential Opinion Panel’s opinion is precedential and binds all future panels of the PTAB. *Id.* at 3. The Director selects the members of the Precedential Opinion Panel and, by default, serves as a member of the panel as well. *Id.* at 4. The ability

to select is the ability to direct. Moreover, the Director has the authority to de-designate precedential opinions as she or he sees fit. *Id.* at 12. These tools certainly preserve political accountability at the USPTO. Even though the *Arthrex* panel focused on the Director's authority—or lack thereof—over APJs as an essential building block in its analysis, the panel failed to give adequate weight to these compelling features of the Director's authority.

Other indicia support the view that APJs are inferior officers, but I view panel selection and precedential determinations as key, and noticeably absent from the discussion in *Arthrex*. Accordingly, I respectfully disagree with the *Arthrex* decision.

APPENDIX I

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2018-1831

POLARIS INNOVATIONS LIMITED, APPELLANT

v.

KINGSTON TECHNOLOGY COMPANY, INC., APPELLEE
UNITED STATES, INTERVENOR

Filed: Mar. 16, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board
in No. IPR2017-00116

ON PETITIONS FOR REHEARING EN BANC

Before PROST, *Chief Judge*, NEWMAN, LOURIE, DYK,
MOORE, O'MALLEY, REYNA, WALLACH, TARANTO,
CHEN, HUGHES, and STOLL, *Circuit Judges*.

PER CURIAM.

ORDER

Intervenor United States and Appellant Polaris Innovations Limited separately filed petitions for rehearing en banc. The petitions were first referred as petitions for rehearing to the panel that heard the appeal, and thereafter the petitions for rehearing en banc were

referred to the circuit judges who are in regular active service.

Upon consideration thereof,

IT IS ORDERED THAT:

The petitions for panel rehearing are denied.

The petitions for rehearing en banc are denied.

The mandate of the court will issue on March 23, 2020.

FOR THE COURT

Mar. 16, 2020

Date

/s/ PETER R. MARKSTEINER

PETER R. MARKSTEINER

Clerk of Court

APPENDIX J

1. U.S. Const. Art. II, § 2, Cl. 2 provides:

He shall have Power, by and with the Advice and Consent of the Senate, to make Treaties, provided two thirds of the Senators present concur; and he shall nominate, and by and with the Advice and Consent of the Senate, shall appoint Ambassadors, other public Ministers and Consuls, Judges of the supreme Court, and all other Officers of the United States, whose Appointments are not herein otherwise provided for, and which shall be established by Law: but the Congress may be Law vest the Appointment of such inferior Officers, as they think proper, in the President alone, in the Courts of Law, or in the Heads of Departments.

2. 5 U.S.C. 7513 provides:

Cause and procedure

(a) Under regulations prescribed by the Office of Personnel Management, an agency may take an action covered by this subchapter against an employee only for such cause as will promote the efficiency of the service.

(b) An employee against whom an action is proposed is entitled to—

(1) at least 30 days' advance written notice, unless there is reasonable cause to believe the employee has committed a crime for which a sentence of imprisonment may be imposed, stating the specific reasons for the proposed action;

- (2) a reasonable time, but not less than 7 days, to answer orally and in writing and to furnish affidavits and other documentary evidence in support of the answer;
 - (3) be represented by an attorney or other representative; and
 - (4) a written decision and the specific reasons therefor at the earliest practicable date.
- (c) An agency may provide, by regulation, for a hearing which may be in lieu of or in addition to the opportunity to answer provided under subsection (b)(2) of this section.
- (d) An employee against whom an action is taken under this section is entitled to appeal to the Merit Systems Protection Board under section 7701 of this title.
- (e) Copies of the notice of proposed action, the answer of the employee when written, a summary thereof when made orally, the notice of decision and reasons therefor, and any order effecting an action covered by this subchapter, together with any supporting material, shall be maintained by the agency and shall be furnished to the Board upon its request and to the employee affected upon the employee's request.

3. 15 U.S.C. 1501 provides:

Establishment of Department; Secretary; seal

There shall be at the seat of government an executive department to be known as the Department of Commerce, and a Secretary of Commerce, who shall be the head thereof, who shall be appointed by the President,

by and with the advice and consent of the Senate, and whose term and tenure of office shall be like that of the heads of the other executive departments; and the provisions of title 4 of the Revised Statutes, including all amendments thereto, shall be applicable to said department. The said Secretary shall cause a seal of office to be made for the said department of such device as the President shall approve, and judicial notice shall be taken of the said seal.

4. 35 U.S.C. 1 provides:

Establishment

(a) ESTABLISHMENT.—The United States Patent and Trademark Office is established as an agency of the United States, within the Department of Commerce. In carrying out its functions, the United States Patent and Trademark Office shall be subject to the policy direction of the Secretary of Commerce, but otherwise shall retain responsibility for decisions regarding the management and administration of its operations and shall exercise independent control of its budget allocations and expenditures, personnel decisions and processes, procurements, and other administrative and management functions in accordance with this title and applicable provisions of law. Those operations designed to grant and issue patents and those operations which are designed to facilitate the registration of trademarks shall be treated as separate operating units within the Office.

(b) OFFICES.—The United States Patent and Trademark Office shall maintain its principal office in the met-

ropolitan Washington, D.C., area, for the service of process and papers and for the purpose of carrying out its functions. The United States Patent and Trademark Office shall be deemed, for purposes of venue in civil actions, to be a resident of the district in which its principal office is located, except where jurisdiction is otherwise provided by law. The United States Patent and Trademark Office may establish satellite offices in such other places in the United States as it considers necessary and appropriate in the conduct of its business.

(c) REFERENCE.—For purposes of this title, the United States Patent and Trademark Office shall also be referred to as the “Office” and the “Patent and Trademark Office”.

5. 35 U.S.C. 2 provides:

Powers and duties

(a) IN GENERAL.—The United States Patent and Trademark Office, subject to the policy direction of the Secretary of Commerce—

(1) shall be responsible for the granting and issuing of patents and the registration of trademarks; and

(2) shall be responsible for disseminating to the public information with respect to patents and trademarks.

(b) SPECIFIC POWERS.—The Office—

- (1) shall adopt and use a seal of the Office, which shall be judicially noticed and with which letters patent, certificates of trademark registrations, and papers issued by the Office shall be authenticated;
- (2) may establish regulations, not inconsistent with law, which—
 - (A) shall govern the conduct of proceedings in the Office;
 - (B) shall be made in accordance with section 553 of title 5;
 - (C) shall facilitate and expedite the processing of patent applications, particularly those which can be filed, stored, processed, searched, and retrieved electronically, subject to the provisions of section 122 relating to the confidential status of applications;
 - (D) may govern the recognition and conduct of agents, attorneys, or other persons representing applicants or other parties before the Office, and may require them, before being recognized as representatives of applicants or other persons, to show that they are of good moral character and reputation and are possessed of the necessary qualifications to render to applicants or other persons valuable service, advice, and assistance in the presentation or prosecution of their applications or other business before the Office;
 - (E) shall recognize the public interest in continuing to safeguard broad access to the United

States patent system through the reduced fee structure for small entities under section 41(h)(1);

(F) provide for the development of a performance-based process that includes quantitative and qualitative measures and standards for evaluating cost-effectiveness and is consistent with the principles of impartiality and competitiveness; and

(G) may, subject to any conditions prescribed by the Director and at the request of the patent applicant, provide for prioritization of examination of applications for products, processes, or technologies that are important to the national economy or national competitiveness without recovering the aggregate extra cost of providing such prioritization, notwithstanding section 41 or any other provision of law;

(3) may acquire, construct, purchase, lease, hold, manage, operate, improve, alter, and renovate any real, personal, or mixed property, or any interest therein, as it considers necessary to carry out its functions;

(4)(A) may make such purchases, contracts for the construction, maintenance, or management and operation of facilities, and contracts for supplies or services, without regard to the provisions of subtitle I and chapter 33 of title 40, division C (except sections 3302, 3501(b), 3509, 3906, 4710, and 4711) of subtitle I of title 41, and the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11301 et seq.); and

(B) may enter into and perform such purchases and contracts for printing services, including the process of composition, platemaking, presswork, silk

screen processes, binding, microform, and the products of such processes, as it considers necessary to carry out the functions of the Office, without regard to sections 501 through 517 and 1101 through 1123 of title 44;

(5) may use, with their consent, services, equipment, personnel, and facilities of other departments, agencies, and instrumentalities of the Federal Government, on a reimbursable basis, and cooperate with such other departments, agencies, and instrumentalities in the establishment and use of services, equipment, and facilities of the Office;

(6) may, when the Director determines that it is practicable, efficient, and cost-effective to do so, use, with the consent of the United States and the agency, instrumentality, Patent and Trademark Office, or international organization concerned, the services, records, facilities, or personnel of any State or local government agency or instrumentality or foreign patent and trademark office or international organization to perform functions on its behalf;

(7) may retain and use all of its revenues and receipts, including revenues from the sale, lease, or disposal of any real, personal, or mixed property, or any interest therein, of the Office;

(8) shall advise the President, through the Secretary of Commerce, on national and certain international intellectual property policy issues;

(9) shall advise Federal departments and agencies on matters of intellectual property policy in the United States and intellectual property protection in other countries;

(10) shall provide guidance, as appropriate, with respect to proposals by agencies to assist foreign governments and international intergovernmental organizations on matters of intellectual property protection;

(11) may conduct programs, studies, or exchanges of items or services regarding domestic and international intellectual property law and the effectiveness of intellectual property protection domestically and throughout the world, and the Office is authorized to expend funds to cover the subsistence expenses and travel-related expenses, including per diem, lodging costs, and transportation costs, of persons attending such programs who are not Federal employees;

(12)(A) shall advise the Secretary of Commerce on programs and studies relating to intellectual property policy that are conducted, or authorized to be conducted, cooperatively with foreign intellectual property offices and international intergovernmental organizations; and

(B) may conduct programs and studies described in subparagraph (A); and

(13)(A) in coordination with the Department of State, may conduct programs and studies cooperatively with foreign intellectual property offices and international intergovernmental organizations; and

(B) with the concurrence of the Secretary of State, may authorize the transfer of not to exceed \$100,000 in any year to the Department of State for the purpose of making special payments to international intergovernmental organizations for studies

and programs for advancing international cooperation concerning patents, trademarks, and other matters.

(c) CLARIFICATION OF SPECIFIC POWERS.—(1) The special payments under subsection (b)(13)(B) shall be in addition to any other payments or contributions to international organizations described in subsection (b)(13)(B) and shall not be subject to any limitations imposed by law on the amounts of such other payments or contributions by the United States Government.

(2) Nothing in subsection (b) shall derogate from the duties of the Secretary of State or from the duties of the United States Trade Representative as set forth in section 141 of the Trade Act of 1974 (19 U.S.C. 2171).

(3) Nothing in subsection (b) shall derogate from the duties and functions of the Register of Copyrights or otherwise alter current authorities relating to copyright matters.

(4) In exercising the Director's powers under paragraphs (3) and (4)(A) of subsection (b), the Director shall consult with the Administrator of General Services.

(5) In exercising the Director's powers and duties under this section, the Director shall consult with the Register of Copyrights on all copyright and related matters.

(d) CONSTRUCTION.—Nothing in this section shall be construed to nullify, void, cancel, or interrupt any pending request-for-proposal let or contract issued by the General Services Administration for the specific purpose of relocating or leasing space to the United States Patent and Trademark Office.

6. 35 U.S.C. 3 provides:

Officers and employees

(a) UNDER SECRETARY AND DIRECTOR.—

(1) IN GENERAL.—The powers and duties of the United States Patent and Trademark Office shall be vested in an Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office (in this title referred to as the “Director”), who shall be a citizen of the United States and who shall be appointed by the President, by and with the advice and consent of the Senate. The Director shall be a person who has a professional background and experience in patent or trademark law.

(2) DUTIES.—

(A) IN GENERAL.—The Director shall be responsible for providing policy direction and management supervision for the Office and for the issuance of patents and the registration of trademarks. The Director shall perform these duties in a fair, impartial, and equitable manner.

(B) CONSULTING WITH THE PUBLIC ADVISORY COMMITTEES.—The Director shall consult with the Patent Public Advisory Committee established in section 5 on a regular basis on matters relating to the patent operations of the Office, shall consult with the Trademark Public Advisory Committee established in section 5 on a regular basis on matters relating to the trademark operations of the Office, and shall consult with the re-

spective Public Advisory Committee before submitting budgetary proposals to the Office of Management and Budget or changing or proposing to change patent or trademark user fees or patent or trademark regulations which are subject to the requirement to provide notice and opportunity for public comment under section 553 of title 5, as the case may be.

(3) OATH.—The Director shall, before taking office, take an oath to discharge faithfully the duties of the Office.

(4) REMOVAL.—The Director may be removed from office by the President. The President shall provide notification of any such removal to both Houses of Congress.

(b) OFFICERS AND EMPLOYEES OF THE OFFICE.—

(1) DEPUTY UNDER SECRETARY AND DEPUTY DIRECTOR.—The Secretary of Commerce, upon nomination by the Director, shall appoint a Deputy Under Secretary of Commerce for Intellectual Property and Deputy Director of the United States Patent and Trademark Office who shall be vested with the authority to act in the capacity of the Director in the event of the absence or incapacity of the Director. The Deputy Director shall be a citizen of the United States who has a professional background and experience in patent or trademark law.

(2) COMMISSIONERS.—

(A) APPOINTMENT AND DUTIES.—The Secretary of Commerce shall appoint a Commissioner for Patents and a Commissioner for Trademarks,

without regard to chapter 33, 51, or 53 of title 5. The Commissioner for Patents shall be a citizen of the United States with demonstrated management ability and professional background and experience in patent law and serve for a term of 5 years. The Commissioner for Trademarks shall be a citizen of the United States with demonstrated management ability and professional background and experience in trademark law and serve for a term of 5 years. The Commissioner for Patents and the Commissioner for Trademarks shall serve as the chief operating officers for the operations of the Office relating to patents and trademarks, respectively, and shall be responsible for the management and direction of all aspects of the activities of the Office that affect the administration of patent and trademark operations, respectively. The Secretary may reappoint a Commissioner to subsequent terms of 5 years as long as the performance of the Commissioner as set forth in the performance agreement in subparagraph (B) is satisfactory.

(B) SALARY AND PERFORMANCE AGREEMENT.—The Commissioners shall be paid an annual rate of basic pay not to exceed the maximum rate of basic pay for the Senior Executive Service established under section 5382 of title 5, including any applicable locality-based comparability payment that may be authorized under section 5304(h)(2)(C) of title 5. The compensation of the Commissioners shall be considered, for purposes of section 207(c)(2)(A) of title 18, to be the equivalent of that described under clause (ii) of section 207(c)(2)(A)

of title 18. In addition, the Commissioners may receive a bonus in an amount of up to, but not in excess of, 50 percent of the Commissioners' annual rate of basic pay, based upon an evaluation by the Secretary of Commerce, acting through the Director, of the Commissioners' performance as defined in an annual performance agreement between the Commissioners and the Secretary. The annual performance agreements shall incorporate measurable organization and individual goals in key operational areas as delineated in an annual performance plan agreed to by the Commissioners and the Secretary. Payment of a bonus under this subparagraph may be made to the Commissioners only to the extent that such payment does not cause the Commissioners' total aggregate compensation in a calendar year to equal or exceed the amount of the salary of the Vice President under section 104 of title 3.

(C) REMOVAL.—The Commissioners may be removed from office by the Secretary for misconduct or nonsatisfactory performance under the performance agreement described in subparagraph (B), without regard to the provisions of title 5. The Secretary shall provide notification of any such removal to both Houses of Congress.

(3) OTHER OFFICERS AND EMPLOYEES.—The Director shall—

(A) appoint such officers, employees (including attorneys), and agents of the Office as the Director considers necessary to carry out the functions of the Office; and

(B) define the title, authority, and duties of such officers and employees and delegate to them such of the powers vested in the Office as the Director may determine.

The Office shall not be subject to any administratively or statutorily imposed limitation on positions or personnel, and no positions or personnel of the Office shall be taken into account for purposes of applying any such limitation.

(4) TRAINING OF EXAMINERS.—The Office shall submit to the Congress a proposal to provide an incentive program to retain as employees patent and trademark examiners of the primary examiner grade or higher who are eligible for retirement, for the sole purpose of training patent and trademark examiners.

(5) NATIONAL SECURITY POSITIONS.—The Director, in consultation with the Director of the Office of Personnel Management, shall maintain a program for identifying national security positions and providing for appropriate security clearances, in order to maintain the secrecy of certain inventions, as described in section 181, and to prevent disclosure of sensitive and strategic information in the interest of national security.

(6) ADMINISTRATIVE PATENT JUDGES AND ADMINISTRATIVE TRADEMARK JUDGES.—The Director may fix the rate of basic pay for the administrative patent judges appointed pursuant to section 6 and the administrative trademark judges appointed pursuant to section 17 of the Trademark Act of 1946 (15 U.S.C. 1067) at not greater than the rate of basic pay paya-

ble for level III of the Executive Schedule under section 5314 of title 5. The payment of a rate of basic pay under this paragraph shall not be subject to the pay limitation under section 5306(e) or 5373 of title 5.

(c) CONTINUED APPLICABILITY OF TITLE 5.— Officers and employees of the Office shall be subject to the provisions of title 5, relating to Federal employees.

(d) ADOPTION OF EXISTING LABOR AGREEMENTS.— The Office shall adopt all labor agreements which are in effect, as of the day before the effective date of the Patent and Trademark Office Efficiency Act, with respect to such Office (as then in effect).

(e) CARRYOVER OF PERSONNEL.—

(1) FROM PTO.—Effective as of the effective date of the Patent and Trademark Office Efficiency Act, all officers and employees of the Patent and Trademark Office on the day before such effective date shall become officers and employees of the Office, without a break in service.

(2) OTHER PERSONNEL.—Any individual who, on the day before the effective date of the Patent and Trademark Office Efficiency Act, is an officer or employee of the Department of Commerce (other than an officer or employee under paragraph (1)) shall be transferred to the Office, as necessary to carry out the purposes of that Act, if—

(A) such individual serves in a position for which a major function is the performance of work reimbursed by the Patent and Trademark Office, as determined by the Secretary of Commerce;

(B) such individual serves in a position that performed work in support of the Patent and Trademark Office during at least half of the incumbent's work time, as determined by the Secretary of Commerce; or

(C) such transfer would be in the interest of the Office, as determined by the Secretary of Commerce in consultation with the Director.

Any transfer under this paragraph shall be effective as of the same effective date as referred to in paragraph (1), and shall be made without a break in service.

(f) TRANSITION PROVISIONS.—

(1) INTERIM APPOINTMENT OF DIRECTOR.—On or after the effective date of the Patent and Trademark Office Efficiency Act, the President shall appoint an individual to serve as the Director until the date on which a Director qualifies under subsection (a). The President shall not make more than one such appointment under this subsection.

(2) CONTINUATION IN OFFICE OF CERTAIN OFFICERS.—(A) The individual serving as the Assistant Commissioner for Patents on the day before the effective date of the Patent and Trademark Office Efficiency Act may serve as the Commissioner for Patents until the date on which a Commissioner for Patents is appointed under subsection (b).

(B) The individual serving as the Assistant Commissioner for Trademarks on the day before the effective date of the Patent and Trademark Office Efficiency Act may serve as the Commissioner for

Trademarks until the date on which a Commissioner for Trademarks is appointed under subsection (b).

7. 35 U.S.C. 6 provides:

Patent Trial and Appeal Board

(a) IN GENERAL.—There shall be in the Office a Patent Trial and Appeal Board. The Director, the Deputy Director, the Commissioner for Patents, the Commissioner for Trademarks, and the administrative patent judges shall constitute the Patent Trial and Appeal Board. The administrative patent judges shall be persons of competent legal knowledge and scientific ability who are appointed by the Secretary, in consultation with the Director. Any reference in any Federal law, Executive order, rule, regulation, or delegation of authority, or any document of or pertaining to the Board of Patent Appeals and Interferences is deemed to refer to the Patent Trial and Appeal Board.

(b) DUTIES.—The Patent Trial and Appeal Board shall—

- (1) on written appeal of an applicant, review adverse decisions of examiners upon applications for patents pursuant to section 134(a);
- (2) review appeals of reexaminations pursuant to section 134(b);
- (3) conduct derivation proceedings pursuant to section 135; and
- (4) conduct inter partes reviews and post-grant reviews pursuant to chapters 31 and 32.

(c) 3-MEMBER PANELS.—Each appeal, derivation proceeding, post-grant review, and inter partes review shall be heard by at least 3 members of the Patent Trial and Appeal Board, who shall be designated by the Director. Only the Patent Trial and Appeal Board may grant rehearings.

(d) TREATMENT OF PRIOR APPOINTMENTS.—The Secretary of Commerce may, in the Secretary's discretion, deem the appointment of an administrative patent judge who, before the date of the enactment of this subsection, held office pursuant to an appointment by the Director to take effect on the date on which the Director initially appointed the administrative patent judge. It shall be a defense to a challenge to the appointment of an administrative patent judge on the basis of the judge's having been originally appointed by the Director that the administrative patent judge so appointed was acting as a de facto officer.

8. 35 U.S.C. 143 provides:

Proceedings on appeal

With respect to an appeal described in section 142, the Director shall transmit to the United States Court of Appeals for the Federal Circuit a certified list of the documents comprising the record in the Patent and Trademark Office. The court may request that the Director forward the original or certified copies of such documents during pendency of the appeal. In an ex parte case, the Director shall submit to the court in writing the grounds for the decision of the Patent and Trademark Office, addressing all of the issues raised in the appeal. The Director shall have the right to intervene

in an appeal from a decision entered by the Patent Trial and Appeal Board in a derivation proceeding under section 135 or in an inter partes or post-grant review under chapter 31 or 32. The court shall, before hearing an appeal, give notice of the time and place of the hearing to the Director and the parties in the appeal.

9. 35 U.S.C. 314 provides:

Institution of inter partes review

(a) **THRESHOLD.**—The Director may not authorize an inter partes review to be instituted unless the Director determines that the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.

(b) **TIMING.**—The Director shall determine whether to institute an inter partes review under this chapter pursuant to a petition filed under section 311 within 3 months after—

(1) receiving a preliminary response to the petition under section 313; or

(2) if no such preliminary response is filed, the last date on which such response may be filed.

(c) **NOTICE.**—The Director shall notify the petitioner and patent owner, in writing, of the Director's determination under subsection (a), and shall make such notice available to the public as soon as is practicable. Such notice shall include the date on which the review shall commence.

(d) NO APPEAL.—The determination by the Director whether to institute an inter partes review under this section shall be final and nonappealable.

10. 35 U.S.C. 316 provides:

Conduct of inter partes review

(a) REGULATIONS.—The Director shall prescribe regulations—

(1) providing that the file of any proceeding under this chapter shall be made available to the public, except that any petition or document filed with the intent that it be sealed shall, if accompanied by a motion to seal, be treated as sealed pending the outcome of the ruling on the motion;

(2) setting forth the standards for the showing of sufficient grounds to institute a review under section 314(a);

(3) establishing procedures for the submission of supplemental information after the petition is filed;

(4) establishing and governing inter partes review under this chapter and the relationship of such review to other proceedings under this title;

(5) setting forth standards and procedures for discovery of relevant evidence, including that such discovery shall be limited to—

(A) the deposition of witnesses submitting affidavits or declarations; and

(B) what is otherwise necessary in the interest of justice;

(6) prescribing sanctions for abuse of discovery, abuse of process, or any other improper use of the proceeding, such as to harass or to cause unnecessary delay or an unnecessary increase in the cost of the proceeding;

(7) providing for protective orders governing the exchange and submission of confidential information;

(8) providing for the filing by the patent owner of a response to the petition under section 313 after an inter partes review has been instituted, and requiring that the patent owner file with such response, through affidavits or declarations, any additional factual evidence and expert opinions on which the patent owner relies in support of the response;

(9) setting forth standards and procedures for allowing the patent owner to move to amend the patent under subsection (d) to cancel a challenged claim or propose a reasonable number of substitute claims, and ensuring that any information submitted by the patent owner in support of any amendment entered under subsection (d) is made available to the public as part of the prosecution history of the patent;

(10) providing either party with the right to an oral hearing as part of the proceeding;

(11) requiring that the final determination in an inter partes review be issued not later than 1 year after the date on which the Director notices the institution of a review under this chapter, except that the Director may, for good cause shown, extend the 1-year period by not more than 6 months, and may

adjust the time periods in this paragraph in the case of joinder under section 315(c);

(12) setting a time period for requesting joinder under section 315(c); and

(13) providing the petitioner with at least 1 opportunity to file written comments within a time period established by the Director.

(b) CONSIDERATIONS.—In prescribing regulations under this section, the Director shall consider the effect of any such regulation on the economy, the integrity of the patent system, the efficient administration of the Office, and the ability of the Office to timely complete proceedings instituted under this chapter.

(c) PATENT TRIAL AND APPEAL BOARD.—The Patent Trial and Appeal Board shall, in accordance with section 6, conduct each inter partes review instituted under this chapter.

(d) AMENDMENT OF THE PATENT.—

(1) IN GENERAL.—During an inter partes review instituted under this chapter, the patent owner may file 1 motion to amend the patent in 1 or more of the following ways:

(A) Cancel any challenged patent claim.

(B) For each challenged claim, propose a reasonable number of substitute claims.

(2) ADDITIONAL MOTIONS.—Additional motions to amend may be permitted upon the joint request of the petitioner and the patent owner to materially advance the settlement of a proceeding under section

317, or as permitted by regulations prescribed by the Director.

(3) SCOPE OF CLAIMS.—An amendment under this subsection may not enlarge the scope of the claims of the patent or introduce new matter.

(e) EVIDENTIARY STANDARDS.—In an inter partes review instituted under this chapter, the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.

11. 35 U.S.C. 318 provides:

Decision of the Board

(a) FINAL WRITTEN DECISION.—If an inter partes review is instituted and not dismissed under this chapter, the Patent Trial and Appeal Board shall issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 316(d).

(b) CERTIFICATE.—If the Patent Trial and Appeal Board issues a final written decision under subsection (a) and the time for appeal has expired or any appeal has terminated, the Director shall issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable, confirming any claim of the patent determined to be patentable, and incorporating in the patent by operation of the certificate any new or amended claim determined to be patentable.

(c) INTERVENING RIGHTS.—Any proposed amended or new claim determined to be patentable and incorpo-

rated into a patent following an inter partes review under this chapter shall have the same effect as that specified in section 252 for reissued patents on the right of any person who made, purchased, or used within the United States, or imported into the United States, anything patented by such proposed amended or new claim, or who made substantial preparation therefor, before the issuance of a certificate under subsection (b).

(d) DATA ON LENGTH OF REVIEW.—The Office shall make available to the public data describing the length of time between the institution of, and the issuance of a final written decision under subsection (a) for, each inter partes review.

12. 35 U.S.C. 319 provides:

Appeal

A party dissatisfied with the final written decision of the Patent Trial and Appeal Board under section 318(a) may appeal the decision pursuant to sections 141 through 144. Any party to the inter partes review shall have the right to be a party to the appeal.