No. 17-645

IN THE

Supreme Court of the United States

RECOGNICORP, LLC,

Petitioner,

v.

NINTENDO CO., LTD., *et al.*,

Respondents.

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

BRIEF OF INTELLECTUAL PROPERTY LAW PROFESSORS AS *AMICI CURIAE* IN SUPPORT OF PETITIONER

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INTEREST OF *AMICUS CURIAE*

The *amici curiae* are law professors who teach and write on patent law and policy, and are thus concerned with the integrity of the legal system that secures innovation to its creators and to the companies that commercialize it in the marketplace. The *amici* are listed in the Appendix. Although *amici* differ amongst themselves on modern patent law and policy, they agree in their professional opinion that the lower courts' decisions in this case undermine the function of the patent system to promote and to legally secure twenty-first-century innovation. They have no stake in the parties or in the outcome of the case.[1]

SUMMARY OF ARGUMENT

This Court has repeatedly reminded the Court of Appeals for the Federal Circuit, district courts, and the United States Patent & Trademark Office ("PTO") that § 101 of the Patent Act is a key requirement in assessing the validity of both patent applications and issued patents. In doing so, this Court set forth a two-part test for assessing whether an invention is patentable subject matter (the "*Mayo-Alice* test"). *See Alice Corp. Pty. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014); *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289 (2012). These cases build upon prior cases such as

1. Pursuant to Supreme Court Rule 37.6, *amici curiae* states that no counsel for any party authored this brief in whole or in part, and that no person or entity other than *amici curiae* or its counsel made a monetary contribution to the preparation or submission of this brief. Petitioner and Respondent have consented to the filing of this brief and have received appropriate notice.

Diamond v. Diehr, 450 U.S. 175 (1981), which held that a software-based method for operating a rubber mold is patent eligible under § 101.

Unfortunately, the lower courts and the PTO have misunderstood how to apply the *Mayo-Alice* test. Specifically, the lower courts and the PTO have adopted an *indeterminate* and *overly restrictive* approach, invalidating legitimate patented innovation under § 101 with little predictability for inventors or patent attorneys. This frustrates the constitutional function of the patent system in promoting the "Progress of . . . useful Arts." U.S. CONST. art. 1, § 8, cl. 8.

This case exemplifies both of these fundamental problems—indeterminacy and over-restrictiveness—because the lower courts held that a claim is patent *ineligible* as an "abstract idea" merely because the process was implemented through the use of computer software. These problems undermine inventors' ability to use the patent system to protect computer-mediated processes that are exactly the kind of innovation that the patent system is designed to promote.

Petitioner details the substantial confusion in the application of the *Mayo-Alice* test in this case, as well as at the PTO and in the lower courts. *Amici* here identify a further key insight: when lower courts and the PTO apply the *Mayo-Alice* test to only individualized elements of a claim, generalizing these elements into a broad, categorical description and not evaluating the claimed invention as a whole, they are using a methodological approach that conflicts with this Court's existing precedents on determining patent eligibility under § 101.

In this case, the Federal Circuit held that a software-based method of producing images of faces on a computer screen is an "abstract idea." *RecogniCorp, LLC v Nintendo Co.,* 855 F.3d 1322, 1327 (Fed. Cir. 2017). It reached this conclusion by dissecting the claim into its separate elements and ignoring other key elements, ultimately finding the claimed invention is ineligible under § 101. By reducing the claim to "encoding and decoding data," the court ignored the invention as a whole that improves the way computers generate digital representations of faces for display.

This Court can easily remedy this problem by (1) recognizing the role of the patent system in protecting computer-implemented innovation, a key driver of modern technological progress, and (2) providing further instructions to lower courts and to the PTO that they should apply the *Mayo-Alice* test only to the *claimed invention as a whole*. This is a predicate legal requirement in assessing novelty under § 102 and in assessing nonobviousness under § 103 of the Patent Act. It is also a fundamental legal requirement for asserting patents for both literal and equivalents infringement under § 271. In all of these other patent doctrines, this Court has maintained the basic requirement of assessing patentability or limiting assertion of patents to the *claimed invention as a whole*, as this avoids the same policy problems of indeterminacy and over-restrictiveness (or over-inclusiveness, depending on the perspective) in these other patent doctrines. Thus, this Court should grant the petition for *certiorari*, reverse the Federal Circuit, and provide further instructions for applying the *Mayo-Alice* test only to the "claimed invention as a whole."

ARGUMENT

I. The Lower Courts And The PTO Have Misunderstood The *Mayo-Alice* Test And Have Created Indeterminate And Overly Restrictive Patent Eligibility Doctrine Under § 101

Courts have applied the *Mayo-Alice* test in 488 cases in the past several years. *See #Alicestorm: April Update and the Impact of TC Heartland on Patent Eligibility*, Bilski Blog (June 1, 2017), at *http://www.bilskiblog.com/blog/2017/06/alicestorm-april-update-and-the-impact-of-tc-heartland.html.* Unfortunately, many judges have misapplied this test by analytically breaking up patent claims piecemeal and then invalidating them by finding underlying laws of nature, natural phenomena, or abstract ideas contained in these separate elements. This approach succumbs to the very error that this Court warned against in *Mayo*, where it cautioned "that too broad an interpretation of this exclusionary principle could eviscerate patent law. For all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *See Mayo*, 132 S.Ct. at 1293. The Court's safeguard against this trap is a strict focus on the examining the claim as a whole. "The fact that one or more of the steps in [a] process may not, in isolation, be novel or independently eligible for patent protection is irrelevant to the question of whether the *claims as a whole* recite subject matter *eligible* for patent protection under § 101." *Diehr*, 450 U.S. at 193 n.15 ("claims as a whole" emphasis added). Some of these decisions, including the Federal Circuit's decision in this case, fail to even consider relevant portions of the claim at any stage of their analyses.

The lower courts have misread a portion of the *Alice* opinion in which this Court stated that "we consider the elements of each claim both individually and 'as an ordered combination,'" *Alice*, 134 S. Ct. at 2355. Importantly, they have failed to follow this Court's requirement of assessing a claim "as an ordered combination," i.e., the claimed invention as a whole, focusing instead *solely* on the individual elements of each claim. This problem is not confined to the courts, as examiners at the PTO and administrative law judges at the Patent Trial & Appeal Board (PTAB) are committing the same fundamental error in applying the *Mayo-Alice* test.

Inventors, patent attorneys, and commercial firms working in the innovation industries are thus left wondering how courts will analytically dissect a claim into its individual elements (which of course are often comprised of unpatentable laws of nature or abstract ideas) and whether courts will simply ignore other claim elements in the claimed invention as a whole. *See Mayo*, 132 S.Ct. at 1293. There is no *ex ante* notice as to the specific legal analysis that judges or patent examiners will employ under the *Mayo-Alice* test. Moreover, when judges and examiners apply the test to only some of the individual elements in a claim, it becomes easy to find these individuated elements unpatentable, as evidenced in this case.

A. This Case Exemplifies Indeterminacy In § 101 Analyses Because It Defines Computer-Implemented Process Inventions as "Coding" and "Math" Contrary to Both the Patent Act And Decisions By This Court

This case exemplifies a fundamental error in the lower courts' application of the *Mayo-Alice* test, which has produced harmful indeterminacy in patent law. The *Mayo* Court cautioned that courts should "tread carefully" in applying the judicial exception because "all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *Mayo*, 132 S. Ct. at 1293. Unfortunately, the Federal Circuit ignored this Court's cautionary note and dissected Petitioner's patent claims into the individual component elements to find an abstract idea and conventional operations in presenting information. In numerous ways, this is both legally improper and factually incorrect.

First, the Federal Circuit ignored the requirement from the *Alice* Court that "we consider the elements of each claim both individually and 'as an ordered combination.'" *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 132 S.Ct. at 1298). As an ordered combination, Petitioner's claims are directed to a specific, concrete method of creating and displaying digital representations of faces. A specific method of performing a computer specific task is a modern innovation in the twenty-first century. A majority of commercial and personal interactions today exist entirely within the digital "machine" of software, which the Federal Circuit correctly recognized as a patent-eligible invention more than two decades ago: "We have held that such programming creates a new machine,

because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (en banc).

This statement by the *Alappat* court is not merely a legal conclusion; it is technological truth. It is a consequence of the foundational work in computer science in the 1930s by Alan Turing, who proved that a general-purpose computer (what he called a "Universal Turing Machine") executing a software program can perform the same operations of any specific hardware designed and built for that same purpose. Turing, A. M. *On Computable Numbers, with an Application to the Entscheidungsproblem*, Proceedings of the London Mathematical Society, 2 42, pp. 230–65 (1937).

The indeterminacy of the lower courts' approach in this case is reflected by the Federal Circuit's repeated affirmance elsewhere that specific computer-implemented technologies are not "abstract" under the *Mayo-Alice* test simply because they are computer implemented. *See, e.g.*, *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC,* 2016 WL 3514158, at *6-7 (Fed. Cir. 2016) (holding computer-implemented invention patent eligible given inventive concept in "ordered combination of limitations"); *Enfish, LLC v. Microsoft Corp.*, 2016 WL 2756255 (Fed. Cir., May 12, 2016) (holding computer-implemented inventions are not "abstract" under step one of *Mayo-Alice* test).

Second, the statutory text of the Patent Act mandates that computer-implemented innovation is patent eligible as

a "process" under § 101. Section§ 100(b) defines "process" as including "a new use of a known process, machine. . . ." 35 U.S.C. § 100(b). This definition covers new uses of a known computer process or machine, and thus it covers the patented invention held by the Federal Circuit to be patent ineligible under § 101. Since all software programs "*are a use of a known machine*"—the computer—this statutory definition necessarily means that software based inventions are not *per se* abstract ideas that are ineligible for patent protection. An interpretation of the *Mayo-Alice* test that ignores the computer implementation of a specific task on the grounds that is trivial or conventional or obvious to use a computer contradicts the express language of § 100(b).

The Federal Circuit achieved the result in this case by ignoring this statutory text. Instead, it asserted that the patented innovation in this case was merely "encoding and decoding" and "math." *RecogniCorp* at 1326-7. These characterizations are vast overgeneralizations since they can be applied to essentially every computer-based process. Every computer program must "encode" data into sequences of 1's and 0's having specifically defined patterns, whether it is facial descriptions as in this case, words in a words processor, or temperatures in a rubber mold, and then decode that data to perform the underlying functionality. Under the Federal Circuit's approach to § 101 analysis, since the computer-software process entails physical circuits performing Boolean operations, every computer program can be reduced to "math." Some courts have recognized these facts, and thus rejected rightly the approach adopted in this case. *See Oplus Techs. Ltd. v. Sears Holding Corp.*, No. 2:12-cv-5707, 2013 WL 1003632, at *12 (C.D. Cal. Mar. 4, 2013) ("All software

only 'receives data,' 'applies algorithms,' and 'ends with decisions.' That is the only thing software does. Software does nothing more."). By abstractly characterizing the invention in this case as "math," which would include all legitimate patented processes in computer-implemented technologies, it was all-too-easy for the court to ignore the guidance to the contrary by decisions of this Court, as well as the plain language of §§ 100(b) and 101 of the Patent Act.

B. This Case Represents The Problem Of Over-Restrictiveness In § 101 Patent Eligibility Analyses Today That Deny Patent Protection to Twenty-First-Century Innovation In Computer-Implemented Processes

The lower courts and PTO's indeterminate and overly restrictive application of the *Mayo-Alice* test matters because it contravenes the *Bilski* Court's admonition that § 101 should not impede the progress of future innovation. *See Bilski*, 561 U.S. at 605 (Section 101 is a "dynamic provision designed to encompass new and unforeseen inventions."). Twenty-first-century innovation in software programs and in new software-run processes—like the process of manipulating the display of faces in this case—exemplify the "Progress of . . . useful Arts" the patent system is intended to promote and secure to its creators. U.S. Const. art. 1, § 8, cl. 8.

The Federal Circuit's patent-eligibility analysis in this case denies the fact that every claim to a computer-implemented process must by necessity recite steps that a computer can perform. By dissecting a claim as a whole into separate elements, the Federal Circuit improperly

ignored the precise data being operated upon, and thus generalized in a conclusory fashion that the claim merely is "encoding and decoding" or "math." Unfortunately, this methodological approach is not unique in this case. This improper methodological approach leads courts, like the Federal Circuit in this case, to fail to recognize twenty-first-century innovation in our digital world for the patent eligible inventions that it represents. *See Bilski v. Kappos*, 561 U.S. 593, 605 (2010) (recognizing that courts must refrain from denying patent protection for new innovation like "computer programs" on the basis of improper legal tests).

The technological innovation in software for digitally representing faces reflects precisely the type of development in the "useful Arts" that the patent system promotes, because it represents the evolution of digital machines and processes from their mechanical and electrical ancestors. The Federal Circuit's methodology—of looking for a pre-computer analog as evidence that the present invention is "abstract"—contravenes the very nature of invention: *all* inventions have precursors because they all solve functional problems human have had (and will continue to have) in interacting with the world.

Humans invent basic tools to control and alter material objects around them: the plow, the saw, the hammer, the sewing machine, and nuclear reactor. We then invent instruments and tests to measure physical aspects of the world, such as scales, clocks, and microscopes. At each stage of evolution in technology, although the specific nature of the inventions is different, the purpose is always the same: to solve a functional problem that humans have in interacting with the world.

The basic functional need, for example, to reliably record and retrieve information is a key driver of innovation throughout human history. In the evolution of the technology of recording information—from writing on papyrus to clay tablets to bamboo to paper to film to magnetic tape to optical disc, and myriad technologies in between, each innovation served the function of reliably recording symbolic information in a non-transitory medium. Each step forward answered problems in the prior technology, as well as resolved problems created by the new technology. Had it been said at the time of the invention of the magnetic disc at the dawn of the computer age that this invention has a pre-machine analog in paper, and thus was not patent eligible because it represents merely an abstract idea ("recording information") and was conventional (encoding symbols in a non-transitory medium), there would have been no digital revolution.

The invention of the digital computer has been the most versatile of all of human inventions precisely because of its ability to be reconfigured (programmed) for new and useful functions. "No artifact devised by man is so convenient for this kind of functional description as a digital computer." Herbert A. Simon, *The Sciences of the Artificial* 17, MIT Press Cambridge, (3d ed., 1996). As machines became more complex, humans invented "human-machine interfaces" to better understand their operation and to better control them in achieving their functional purposes: combinations of dials, gauges, meters, switches, and so forth. See, P. Cacciabue, *Guide to Applying Human Factors Methods* 13, Springer-Verlag, London (2004). The face making software here is the digital descendant of these electro-mechanical ancestors. Like their predecessors they provide a solution

to a specific functional problem, conveying information about the underlying state of the machine and means to control it.

In sum, all process claims can be analytically dissected down to foundational abstractions and conventionally-known information in the field. That is not because such inventions are abstract, but because all process claims necessarily rely upon preexisting concepts and steps using known elements to solve functional problems. This is precisely why this Court specifically warned lower courts and the PTO against doing this. *See Alice*, 134 S. Ct. at 2354-55 (stating that "an invention is not rendered ineligible for patent simply because it involves an abstract concept" in some of its distinct claim elements); *Mayo*, 566 U.S. at 71-72 (recognizing same); *Diamond v. Diehr*, 450 U.S. 175, 187 (1981) ("[A]n application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."); *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948) ("If there is to be [patentable] invention . . . it must come from the application of the law of nature to a new and useful end"). This Court must remind the Federal Circuit to respect this basic premise in applying the *Mayo-Alice* test in assessing the patent eligibility of inventions today's new and useful digital machines—computer software programs.

C. The Lower Courts Erred in This Case by Analyzing Some Individual Claim Elements And Ignoring The Claimed Invention As A Whole

In order to reach a contrary result in this case, both the district court and the Federal Circuit did what this Court has cautioned against: "dissect[ing] the claims into old and new elements and then [ignoring] the presence" of other elements in the claimed invention as a whole that make it patent eligible. *Diehr* 450 U.S. at 188. The courts below ignored the basic requirement that they must assess the *claimed invention as a whole* under § 101. In this case, the claimed invention as a whole is an method of manipulating facial images for display.

The Federal Circuit's analysis of Petitioner's claimed invention suffers from this fundamental methodological error that infected the district court's opinion: dissecting the claim into separate elements and ignoring the express limitations that comprise the claimed invention as a whole. For example, the patent clearly solves a problem in the software arts by reducing the amount of computer processing power and storage necessary to manipulate facial images. *See RecogniCorp* at 1324. However, the Federal Circuit concluded in its *Alice* analysis that a computer is not required by the claims. *Id.* at 1327. It can only reach this result by ignoring claim terms such as "device," "display," and "user interface" as used in claim 1.[2] *See id.* at 1324.

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2. To the extent that these terms might not require a computer, this highlights another problem with the decisions below. By deciding the case under Federal Rules of Civil Procedure, Rule 12(c), the court

In *Bilski v. Kappos*, 561 U.S. 593, 605-606 (2010), this Court held that patent eligibility tests under § 101 should not be restricted to only those tests that worked for assessing nineteenth-century inventions in the Industrial Revolution. The Federal Circuit's approach in this case turns *Bilski* on its head, effectively concluding that improvements on old processes are now *ineligible* for patent protection because there was at least one way of potentially generating the same result in the prior art. In *Diehr*, it bears emphasizing that the production of cured rubber was very old in the art. *See* U.S. Patent No. 3,633 (issued June 15, 1844) (process for curing rubber invented by Charles Goodyear). Moreover, the data analysis step in the claim was a well-known equation used in the curing of rubber, *see Diehr,* 450 U.S. at 188. ("Arrhenius' equation is not patentable in isolation . . . ."). Contrary to the approach by the lower courts in this case, this Court held in *Diehr* the process invention to be patent eligible under § 101 precisely because the *claimed invention as a whole* was for the use of this equation in operating a process. *Id.* at 192-93. If this Court had dissected Diehr's claim into the separate elements of only the Arrhenius' equation or that rubber molding has been previously done, as the Federal Circuit did here by focusing only on "encoding and decoding," then the rubber-molding process in *Diehr* would have been deemed patent ineligible.

Unfortunately, the improper legal analysis in this case is not an anomaly, as evidenced by the inordinately high rates of rejections of patent applications and invalidations of issued patents in recent years. *See infra* Part I.C. Patent

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did not engage in the kind of full claim construction that may affect the analysis under *Alice*. *See RecogniCorp* at 1324.

owners can no longer rely on their claims as a whole to define their invention, and lower courts and the PTO are using a methodology that makes the *Mayo-Alice* test highly indeterminate. As in this case, courts are now willy-nilly disintegrating claims into their separate elements and are ignoring important limitations.

This trend directly contradicts this Court's patent eligibility decisions. *See Diehr*, 450 U.S. at 188 ("It is inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis."). Only this Court can correct the key legal error in this case and fix the indeterminacy and over-restrictiveness that has come to infect patent eligibility doctrine. This Court can do so by explicitly mandating as a predicate legal requirement in applying the *Mayo-Alice* test a bedrock rule of patent law: judges and examiners must evaluate the claimed invention as a whole in assessing patent eligibility under § 101. *See Bilski*, 561 U.S. at 606 (rejecting a past patent eligibility rule adopted by the Federal Circuit because it "create[s] uncertainty as to the patentability of software, advanced diagnostic medicine techniques, and inventions based on linear programming, data compression, and the manipulation of digital signals").

D. Lower Courts And The PTO Have Made The *Mayo-Alice* Test Overly Restrictive for § 101 Patent Eligibility And Thus Are Invalidating Legitimate Patented Innovation

Lower courts and the PTO have fundamentally misapplied this Court's *Mayo-Alice* test in recent years, invalidating and rejecting patents at extraordinarily high

rates. While this test prohibits patenting laws of nature, abstract ideas, or natural phenomena, *Diehr*, 450 U.S. at 185, lower courts have applied it to invalidate a wide range of legitimate twenty-first-century innovation deserving of patent protection. As of the end of June 1, 2017, the invalidation rate under the *Mayo-Alice* test in federal courts is 67.6%. *See #Alicestorm: April Update and the Impact of TC Heartland on Patent Eligibility*, *supra*. This follows naturally from the lower courts' mistaken belief that the *Mayo-Alice* test requires them to assess each individual claim element, and thereby ignore the claimed invention as a whole. These high invalidation rates are not a selection effect from a small data set, either, as courts have applied the *Mayo-Alice* in 488 cases since this Court decided *Alice Corp. v. CLS Bank* in 2014. *See id.*

The PTO has similarly high rejection and invalidation rates in applying the *Mayo-Alice* test. The § 101 invalidation rate at the PTAB in its Covered Business Method program is 97.8%. *See id.* This problem is not limited to business methods or software programs. Shortly after *Alice* was decided in 2014, anecdotal reports indicated that many patent applications covering innovative therapeutic treatments and diagnostic tests were being rejected under the *Mayo-Alice* test. *See* Bernard Chao & Lane Womack, *USPTO is Rejecting Potentially Life-Saving Inventions*, Law360 (Dec. 18, 2014), at http://www.law360.com/articles/604808/uspto-is-rejecting-potentially-life-saving-inventions. More recent empirical data confirms these concerns. For example, one examination unit at the PTO responsible for reviewing personalized medicine inventions (art unit 1634) is rejecting 86.4% of all applications under the *Mayo-Alice* test. *See* Bernard Chao & Amy Mapes, *An Early Look at*

Mayo's *Impact on Personalized Medicine*, 2016 Patently-O Patent L. J. 10, 12, *at* http://patentlyo.com/media/2016/04/Chao.2016.PersonalizedMedicine.pdf.

II. Adopting A "Claimed Invention As A Whole" Requirement Provides A Solution To The Indeterminate And Overly Restrictive Application Of The *Mayo-Alice* Test Under § 101

There are many possible solutions to the problems of indeterminacy and overly restrictive patent eligibility requirements that have infected the lower courts' and PTO's application of the *Mayo-Alice* test. In addition to those offered by Petitioner, *Amici* here offer one more solution: this Court should instruct the lower courts and the PTO to apply the *Mayo-Alice* test only to *the claimed invention as a whole*. In *Alice*, this Court instructed lower courts and the PTO to do exactly this, *see Alice*, 134 S. Ct. at 2355, because this is a basic tenet of patent jurisprudence repeatedly and consistently affirmed by this Court. *See also Parker v. Flook* 437 U.S. 584, 594 (1978) ("[A] patent claim must be considered as a whole."); *Mercoid Corp. v. Minneapolis-Honeywell Regulator Co.*, 320 U.S. 680, 684 (1944) ("[A] patent on a combination is a patent on the assembled or functioning whole, not on the separate parts.").

Granting *certiorari* and reversing the Federal Circuit is necessary in this case for the same reason this Court granted *certiorari* in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722 (2002). This Court needs to prevent lower courts from undermining the basic function of the patent system—promoting new innovation—by failing to follow the legal rules and

tests set forth in past Supreme Court decisions. *Id.* at 739 (chastising the Federal Circuit for having "ignored the guidance of *Warner-Jenkinson,* which instructed that courts must be cautious before adopting changes that disrupt the settled expectations of the inventing community" (citing *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 28 (1997))).

A. The "Claimed Invention As A Whole" Requirement Is Fundamental To The Patentability Requirements In §§ 102 And 103 Of The Patent Act

An express "claimed invention as a whole" requirement already exists in many of the key legal doctrines crafted by Congress and the courts for the patent system. This has been a long-standing legal test in all of the patentability requirements for all types of inventions. For this reason, to instruct the lower courts and the PTO that they must apply this same requirement in applying the *Mayo-Alice* test under § 101 is merely to ask them to do something they have long understood to be a basic legal requirement in applying all other legal tests under the other sections of the Patent Act.

For example, in assessing whether an invention is novel under § 102 of the Patent Act, courts have long applied an "identity" requirement, which mandates that a court or the PTO find that an *entire claim* is preempted in the prior art by a single example. *See Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 715 (Fed. Cir. 1984). The "identity" requirement in § 102 for assessing an invention's novelty requires that an examiner at the PTO or a court match "each and every element as set forth in

the claim . . . in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). In sum, there must be a one-to-one symmetry between a *claimed invention as a whole* and a single pre-existing example of the alleged invention in the prior art. It is impermissible to either ignore or focus singularly on any *single* claim element.

Similarly, in determining nonobviousness under § 103, the Patent Act expressly requires courts to find that "the differences between the claimed invention and the prior art are such that *the claimed invention as a whole* would have been obvious before the effective filing date . . ." 35 U.S.C. § 103 (emphasis added). Tellingly, Congress adopted this statutory language in 1952 to redress a similar problem that the innovation industries now face under § 101: courts had created an insuperable barrier to patentability by analytically breaking up patent claims into their component parts, observing that each single element did not "reveal a flash of genius," *Cuno Engineering Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 92 (1941), and thus concluding that the patents were merely obvious developments over the prior art. As Justice Robert Jackson wryly observed in 1949 in language that could easily have been written today about the lower courts' and the PTO's application of the *Mayo-Alice* test: "the only patent that is valid is one which this Court has not been able to get its hands on." *Jungersen v. Ostby & Barton Co.*, 335 U.S. 560, 572 (1949) (Jackson, J., dissenting).

The solution to this indeterminate and overly restrictive approach in determining obviousness was in part the adoption of the "claimed invention as a whole"

requirement in § 103 in the 1952 Patent Act. This has been a basic requirement of applying nonobviousness doctrine since then. See *Graham v. John Deere Co.*, 383 U.S. 1, 15 (1966). This basic requirement is central to the objective determination of the nonobviousness of a claimed invention, because, as Justice Anthony Kennedy recently observed "inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418-19 (2007).

The same concern about analytically breaking up and reducing all inventions down to "already known" individuated elements in the prior art under §§ 102 and 103 is precisely what the *Mayo* Court referred to when it warned that "too broad an interpretation of this exclusionary principle [under § 101] could eviscerate patent law." *Mayo*, 132 S. Ct. at 1293. This is why this Court in both *Mayo* and in *Alice* instructed lower courts and the PTO to consider not just individual elements, but also the claim elements "'as an ordered combination.'" *Alice*, 134 S. Ct. at 2355. For the similar reasons that the "claimed invention as a whole" requirement has been adopted under the novelty and nonobviousness requirements in the Patent Act, this Court should instruct the lower courts and the PTO that they must also apply the same "claimed invention as a whole" requirement in applying the *Mayo-Alice* test under § 101.

B. This Court Adopted A "Claimed Invention As A Whole" Requirement To Solve The Similar Problems Of Indeterminacy And Over-Inclusiveness In Patent Infringement Lawsuits

This Court has long maintained doctrinal symmetry in the "claimed invention as a whole" requirement between the patentability requirements and the assertion of patents against infringers. In the late nineteenth century, for example, this Court laid down the now-famous aphorism: "That which infringes, if later, would anticipate, if earlier." *Peters v. Active Mfg. Co.*, 129 U.S. 530, 537 (1889). In sum, to assert a patent against an infringer, each and every element in *the claim as a whole* must be found in the allegedly infringing product or process. Overly restricting the claim to only one or two elements in asserting it against an alleged infringer is improper. This Court has explained that "if anything is settled in the patent law, it is that the combination patent covers only the totality of the elements in the claim and that no element, separately viewed, is within the grant." *Aro Manufacturing Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 344 (1961). Just as the "claimed invention as a whole" requirement ensures proper limits in assessing patentability, the same requirement prevents indeterminacy and over-inclusiveness from self-aggrandizing assertions by patent-owners against alleged infringers.

More recently, this Court was faced directly with the same concern about indeterminacy and over-inclusiveness in the assertion of patents against "equivalents," in which an alleged infringing product or process has merely formal differences from a patented invention and thus substantially performs the same function in the same

way and achieves the same result. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29-30 (1997). Justice Hugo Black famously referred to the doctrine of equivalents as "treating a patent claim 'like a nose of wax." *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 614 (1950) (quoting *White v. Dunbar*, 119 U.S. 47, 51 (1886)). In *Warner-Jenkinson,* this Court acknowledged this legitimate policy concern about indeterminacy and over-inclusiveness that arises when going beyond the literal terms of a patent claim. *Warner-Jenkinson*, 520 U.S. at 28-29 ("We do . . . share the concern . . . that the doctrine of equivalents, as it has come to be applied since *Graver Tank*, has taken on a life of its own, unbounded by the patent claims.").

Although this Court reaffirmed the validity of the doctrine of equivalents in *Warner-Jenkinson*, Justice Clarence Thomas's opinion for the unanimous Court responded to these concerns by expressly adopting what has come to be known as the "all elements rule" for an assertion of equivalent infringement. *Id.* at 29-30. Similar to the same rule for literal infringement, an assertion of infringement by equivalents requires assessing the substantial similarity of an allegedly infringing product or process by reference to every element *in a claim as a whole. See, e.g.*, *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1356 (Fed. Cir. 2012) ("[T]he doctrine of equivalents must be applied . . . so that *every claimed element* of the invention—or its equivalent—is present in the accused product.") (citing *Warner-Jenkinson*, 520 U.S. at 40) (emphasis added).

Similar to the situation before the adoption of § 103 in the 1952 Patent Act, this Court adopted a *claim as a*

whole requirement in response to legitimate concerns about indeterminacy and over-inclusiveness in the lower courts' application of patent infringement doctrines, both for literal infringement and for the doctrine of equivalents. Thus, just like the patent validity analyses under §§ 102 and 103, this Court has held that infringement analysis under § 271 contains a predicate legal requirement that a *claimed invention as a whole* must be applied to a third-party's product or process in order to support a finding of infringement.

In order to solve the indeterminate and overly restrictive application of the *Mayo-Alice* test, the same predicate legal requirement of construing a *claimed invention as a whole* that runs throughout all of the patentability and infringement doctrines in the patent system should be applied in the *Mayo-Alice* test under § 101.

CONCLUSION

Amici urge this Court to grant the petition for a writ of *certiorari*, to reverse the Federal Circuit, and to clarify for the lower courts and the PTO the meaning of the *Mayo-Alice* test by requiring its application to only a "claimed invention as a whole."

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