No. 25-

IN THE

Supreme Court of the United States

POLAR ELECTRO OY,

Petitioner,

v.

FIRSTBEAT TECHNOLOGIES OY,

Respondent.

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

The district court granted summary judgment on patent ineligibility under 35 U.S.C. § 101 but, in doing so, created its own patent eligibility argument that went far beyond what was presented, independently assembling and analyzing prior art never identified by the movant, using that unbriefed material to reject unrebutted expert testimony, and resolving factual issues against the nonmovant patentee. A Federal Circuit panel affirmed under Rule 36.

The questions presented are:

1. Whether a court may create its own invalidity argument – including independently finding evidence, assembling rationales, and supplying evidentiary showings the movant did not provide – when the movant has raised a defense but failed to adequately support it, or whether doing so violates the party-presentation principle. This question arises here in the context of patent eligibility under 35 U.S.C. § 101, where the concern is reinforced by (a) the challenger's burden of proving invalidity by clear and convincing evidence, and (b) the statutory presumption of validity that Congress established, but the principle extends to all litigants across all areas of law.

2. Whether a claimed process that takes a real-world physiological input from the body and uses that input within a specific, improved process to produce a more accurate technological result –

such as estimation of energy expenditure or body temperature – is patent eligible under § 101 even though it employs data processing.

3. Whether the judicially created exceptions to 35 U.S.C. § 101 for abstract ideas, laws of nature, and natural phenomena – which appear nowhere in the statutory text – constitute impermissible judicial legislation that this Court should overrule and replace with the statute Congress actually wrote.

PARTIES TO THE PROCEEDING

Petitioner (plaintiff-appellant below) is Polar Electro Oy. Respondent (defendant-appellee below) is Firstbeat Technologies Oy. Neither party is publicly listed on a stock exchange.

RULE 29.6 DISCLOSURE STATEMENT

Petitioner Polar Electro Oy has no parent corporation, and no publicly held corporation owns 10% or more of its stock.

RELATED PROCEEDINGS

The following proceedings are directly related to this case within the meaning of Rule 14.1:

- *Polar Electro Oy v. Suunto Oy et al.*, No. 1:17-cv-00139-CW, 2024 WL 1492622 (D. Utah Apr. 5, 2024);

- *Polar Electro Oy v. Suunto Oy, et al.*, No. 2024-1801 (Fed. Cir. Dec. 3, 2025) (Rule 36 summary affirmance);

- *Polar Electro Oy v. Suunto Oy, et al.*, No. 2024-1801 (Fed. Cir. Feb. 4, 2026) (Order denying petition for panel rehearing and rehearing en banc)

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The district court's Memorandum Decision and Order granting summary judgment of ineligibility is reported at *Polar Electro Oy v. Suunto Oy et al.*, No. 1:17-cv-00139-CW, 2024 WL 1492622 (D. Utah Apr. 5, 2024). Pet.App.3a[1] The court of appeals affirmed without opinion pursuant to Federal Circuit Rule 36. Pet.App.1a.

The court of appeals denied rehearing and rehearing en banc. Pet.App.47a-48a. The petition for rehearing emphasized the conflict with Supreme Court and Federal Circuit authority on party-presentation, the presumption of validity, and the factual nature of *Alice* step-two.

JURISDICTION

On December 3, 2025, the court of appeals entered judgment affirming the district court's decision pursuant to Federal Circuit Rule 36 and thereafter denied rehearing on February 4, 2026. This petition is timely under Supreme Court Rule 13.1 and 13.3. The Court has jurisdiction under 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS

Section 101 of Title 35 provides that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor." 35 U.S.C. §282 provides that "[a] patent shall be presumed

1. References to "Pet.App." refer to the appendix filed with this petition.

valid" and "[t]he burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity."

INTRODUCTION

This petition presents a question this Court has not addressed: may a court create its own patent eligibility argument – independently developing evidence, independently analyzing that evidence – and resolve disputes between the court's own argument and the nonmovant against the nonmovant to reach a finding of ineligible subject matter? The answer should be no.

The party-presentation principle is foundational: courts adjudicate disputes that parties present; they do not invent claims or defenses. *United States v. Sineneng-Smith*, 590 U.S. 371, 375–80 (2020); *Greenlaw v. United States*, 554 U.S. 237, 243–44 (2008). As this Court recently put it, the role of courts is to "'call balls and strikes," not take a "turn at bat." *Clark v. Sweeney*, 607 U.S. 7, 9-10 (2025) (per curiam) (citation omitted). But what ought to be considered an "at bat"? When does the court move from neutral arbiter to advocate?

The answer matters for every litigant in every case. If a court may independently construct a rationale to support a motion when the movant failed to adequately support that motion, then every nonmovant in every case must anticipate and respond to the entire universe of potential rationales — not merely what is actually presented. That is an unworkable and fundamentally unfair standard. No litigant can be expected to rebut arguments never made.

The facts here are stark. Firstbeat moved for summary judgment on Section 101 ineligibility. It did not rest its motion on prior art. It did not cite evidence that the claimed elements were well-known, routine, or conventional. *See, e.g.*, C.A.App.173-188.[2] The district court granted the motion – but not on the grounds Firstbeat presented. The district court created a new ineligibility argument. The district court's argument rested on: its own identification of prior art, its independent analysis of the prior art, its own development of factual findings on what the court believed the prior art taught, its identification of disputes between its findings and those of the unrebutted expert testimony, and its resolution of those factual differences against the nonmovant. *See, e.g.*, Pet.App.37a-41a (assessing prior art that was never presented). The Federal Circuit affirmed with a single word under Rule 36. Pet.App.1a.

This case also questions the viability of *Diamond v. Diehr*, 450 U.S. 175 (1981). That is, whether improved processes that take real-world measured inputs and use them in specific, improved procedures to yield more accurate technological results remain patent eligible. *Diehr* says yes. The decisions below say no.

The patent at issue takes a measured input (heart rate) and uses it in an improved process that yields a more accurate estimate of energy consumption. *See, e.g.*, C.A.App.43 at 2:18-50; C.A.App.253-265. The lower courts' approach conflicts with *Diehr*, which instructs that such improved process remains eligible.

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2. References to "C.A.App." refer to the appendix filed in the appellate proceeding, No. 24-1801, below.

The Court should grant review for three reasons: First, to establish a clear rule that when a party raises an argument but fails to adequately support it, a court may not disregard the rationale presented and independently create its own justification. This rule is implicit in the party-presentation principle, but it requires explicit articulation because its absence prejudices litigants who cannot reasonably be expected to anticipate and rebut arguments that were never actually made. In patent cases, the statutory presumption of validity and the allocation of burdens of proof make this principle especially important.

Second, the Court can reaffirm the viability of *Diehr*'s finding that processes that use measured inputs in a specific, improved procedure to produce more accurate technological results are patent-eligible. This clarification would resolve very real conflict at the Federal Circuit.

Third, the Court should acknowledge that the judicially created exceptions to Section 101 are judicial legislation. The exceptions for abstract ideas, laws of nature, and natural phenomena appear nowhere in the statute. Courts invented them. The result is a doctrine that the Federal Circuit admits it cannot administer uniformly. This Court should return Section 101 to what Congress wrote. If Congress wants exceptions to patent eligibility, Congress should draft exceptions to patent eligibility.

This case offers the Court an opportunity to establish clear limits on judicial creation of invalidity arguments, to reaffirm *Diehr*, and to correct the separation-of-powers violation inherent in judicially legislated patent eligibility exceptions. The Court should take that opportunity.

STATEMENT OF THE CASE

A. The Patent and Claimed Improvement

Polar's U.S. Patent No. 6,537,227 (the '227 patent) addresses a longstanding problem in exercise physiology: how to estimate an individual's energy expenditure during exercise with true, and personalized, accuracy. C.A.App.43 at 1:10-46. The patent recognizes that prior approaches relied on generic parameters such as age, gender, and weight, and that scientists had for decades sought accurate methodologies for estimating energy expenditure. *Id.* The patent advances the prior approaches through an improved process: measuring a heart rate and using that measurement together with a personalized physiological parameter, specifically VO2max, to provide a more accurate and personalized energy consumption estimate. C.A.App.43 at 2:4-50.

The claims at issue recite that improvement as a process (claim 5) and as an apparatus (claim 21) in the form of a device comprising a measuring means for heart rate, a calculating unit configured to assess energy consumption in view of the personalized reference value, and a presenting means. C.A.App.56.

Polar's expert, Dr. James A. Levine, a physician-scientist, explained without opposing expert testimony that the invention advanced the technology of heart-rate monitors by introducing a specific, personalized input into an improved process flow to generate a more accurate technological output. C.A.App.244-265. His testimony detailed how and why the improved process yielded better results: using a measured heart rate and an energy-

consumption reference value based on VO2max to assess energy. C.A.App.253-265. The record showed that the claims embodied this advancement. *See, e.g.*, C.A.App.56; 259-262.

Firstbeat did not challenge these points: did not controvert Dr. Levine's testimony, did not present an expert on this issue, and did not present prior art to demonstrate that the claimed approach and ordered combination were well-understood, routine, and conventional. C.A.App.173-188.

B. Proceedings Below

Firstbeat moved for summary judgment on Section 101 ineligibility, arguing that the claims were directed to the abstract idea of collecting information, analyzing it, and presenting results. *Id.* Firstbeat did not argue that any specific claim element or ordered combination was conventional or well-known under *Alice* step two, did not proffer expert testimony, and did not rely on any prior art to meet its clear-and-convincing burden of proof. *Id.* Polar opposed, relying on the claim language, intrinsic record, and Dr. Levine's unrebutted expert testimony to show that the claims recite a specific technological improvement analogous to those this Court and the Federal Circuit have held eligible, and that – if step two were reached – the claimed elements and their ordered combination were not well understood, routine, and conventional, noting that Firstbeat failed to even cite the patent in its *Alice* step two analysis. C.A.App.203-214, 221-241.

The district court granted summary judgment – but not on the grounds Firstbeat presented. Although

Firstbeat's motion cited no prior art, presented no expert testimony, and advanced no specific conventionality theory, C.A.App.173-188, the court assembled its own case. It searched the patent's prosecution history and reexamination record, extracted prior art references the movant never cited (Lubell, Maruo, Richardson, Jimenez, Howley, and Cooper), Pet.App.10a-23a, 37a-41a, interpreted them to make factual findings on what it believed the references taught, and synthesized them into a "conventionality" finding that contradicted Dr. Levine's unrebutted expert testimony. *Id.* The court then used this *sua sponte* factual finding and analysis to grant summary judgment against Polar.

In one illustrative passage, the court stated that the prior art references called into question "what technological advancement the '227 Patent made when VO2max can be interchanged [with maximal heart rate], and when it has not only been a prominent factor in prior art, but consists of a basic physiological characteristic." Pet.App.40a. The court's factual assumption that VO2max and maximal heart rate are interchangeable was itself a misunderstanding; nothing in the cited references, in the patent, or in the movant's briefing asserted that proposition – and it is simply wrong. Polar identified that misunderstanding and the prejudice it caused in its appellate papers and in seeking a rehearing.

At step one, the court characterized the claims as directed to the abstract idea of measuring, analyzing, and presenting information, notwithstanding the patent's concrete process architecture and the undisputed expert testimony about the technical improvement. Pet.App. 30a-34a. At step two, the court held the claims lacked

an inventive concept, resolving the "well-understood, routine, and conventional" factual inquiry against Polar based on the court's own unbriefed prior art analysis. Pet. App.37a-46a.

The court granted the movant's motion and denied all other motions as moot. Pet.App.45a-46a. The Federal Circuit affirmed summarily under Rule 36. Pet.App.1a-2a. Polar sought panel and *en banc* rehearing, explaining that the decision contravened *Berkheimer*, *Diehr*, and the party-presentation principle, and that it conflicted with the Federal Circuit's own recent decision in *Astellas Pharma Inc. v. Sandoz Inc.*, 117 F.4th 1371, 1377-1379 (Fed. Cir. 2024), which vacated a district court's invalidity ruling rendered on grounds not advanced by any party. The Federal Circuit denied rehearing. Pet.App.47a-48a.

REASONS FOR GRANTING THE PETITION

I. The decision below permits courts to create their own invalidity argument when a challenger raises a statutory argument but fails to support it.

Whether courts may create their own Section 101 invalidity argument – by independently developing evidence, making factual findings, and assembling rationales – has not been squarely addressed by this Court. The general party-presentation principle is well established, but its application to judicial creation of Section 101 arguments is novel. The Federal Circuit's recent decision in *Astellas Pharma Inc. v. Sandoz Inc.* underscores the stakes. In *Astellas*, the Federal Circuit vacated a district court's *sua sponte* Section 101 ruling, holding that "it is for the parties – not the court – to chart

the course of the litigation," that validity defenses must be carried by the challenger, and that the presumption of validity and clear-and-convincing standard apply equally to Section 101 defenses. *Astellas Pharma, Inc. v. Sandoz Inc.*, 117 F.4th 1371, 1378 (Fed. Cir. 2024).

Yet here, the Federal Circuit's single-word affirmance allowed the district court's departure from party-presentation to stand. District courts are left to wonder: To what extent does *Astellas* – or party presentation generally – constrain Section 101 adjudication in practice? And litigants face an even more troubling question: Must they brief against every conceivable argument that might support an opponent's motion, or only the arguments actually raised? If courts may construct their own rationales to rescue inadequately supported motions, then litigants will be forced to divine and respond to all possible arguments. This is an impossible standard – and one that is especially damaging in a national regime of uniform patent law.

This Court should grant review to resolve the question whether courts may create their own invalidity argument when the movant has raised a defense but failed to adequately support it. The answer to that question should be no. A contrary rule would require every nonmovant to litigate against the entire universe of potential arguments that could theoretically support an opponent's position, rather than the arguments actually raised and briefed. That is an unworkable standard that no litigant can meet.

a. The party-presentation principle ought to apply with special force in Section 101 cases.

This Court has repeatedly reaffirmed that courts follow the party-presentation principle, under which the parties frame the issues and "the court serves as neutral arbiter of matters the parties present." *Sineneng-Smith*, 590 U.S. at 375-76. Courts "call balls and strikes"; they do not "take a turn at bat." *Clark v. Sweeney*, 607 U.S. at 9-10. In *Greenlaw*, the Court admonished that "[i]n our adversary system . . . we rely on the parties to frame the issues for decision and assign to courts the role of neutral arbiter of matters the parties present." 554 U.S. at 243-244.

This principle is not limited to patent cases. In any civil action, a party that raises a defense or motion but fails to support it with adequate evidence or argument should not receive a judicial assist. The adversarial system depends on parties presenting their own cases. But in Section 101 cases, the need for adherence to party-presentation is particularly acute.

The Federal Circuit has repeatedly acknowledged that it cannot administer Section 101 doctrine uniformly. In *American Axle*, active judges divided evenly on whether to rehear *en banc* a decision invalidating a mechanical manufacturing process under Section 101. 966 F.3d 1347 (Fed. Cir. 2020). In the same case, Judge Moore observed that the court is "bitterly divided" and "at a loss as to how to uniformly apply § 101." *American Axle*, 977 F.3d 1379, 1382 (Fed. Cir. 2020) (Moore, J., concurring in denial of stay). The specialized patent court has admitted it cannot do its job. Practitioners and former judges have noted that

Section 101 law lacks coherence and that the resulting uncertainty chills investment in American innovation.[3]

When governing doctrine is this unsettled, the risks of judicial expansion – here, a court creating its own rationales – are magnified. A court constructing its own invalidity rationale may easily reach conclusions the parties would have contested had they been given an opportunity to respond. That is precisely what happened here. The complexity of Section 101 law demands adversarial testing, not judicial improvisation. The Federal Circuit's summary affirmance authorizes such improvisation. This Court's party-presentation decisions do not contain a Section 101 exception.

In *Astellas*, the district court invalidated patents on Section 101 grounds not raised by any party and explained that it did "not [sit] as an arbiter to resolve the disputes on the parties' favored terrain." 117 F.4th at 1375-77. The Federal Circuit vacated, invoking *Sineneng-Smith* and *Greenlaw* and holding that the district court "disregarded

3. *See, e.g.*, Anthony J. Fuga, Judge O'Malley: "Absurd" that Supreme Court Won't Address Section 101 Patent Eligibility, Holland & Knight Section 101 Blog (Mar. 28, 2022), https://www.hklaw.com/en/insights/publications/2022/03/judge-omalley-absurd-that-supreme-court-wont-address-section-101 (*citing* Dani Kass, From Alice to Fintiv: Judge O'Malley Dishes on Patent Law, Law360 (Mar. 21, 2022), https://www.law360.com/ip/articles/1476073/from-alice-to-fintiv-judge-o-malley-dishes-on-patent-law); Rose Esfandiari, Judge O'Malley Reflects on CAFC Tenure, Patent Law Challenges, and Advice for New IP Attorneys at IPWatchdog Women's IP Forum, IPWatchdog (Sept. 23, 2025), https://ipwatchdog.com/2025/09/23/judge-omalley-reflects-cafc-tenure-patent-law-challenges-advice-new-ip-attorneys-ipwatchdog-womens-ip-forum/.

the longstanding principle of party presentation" and thereby abused its discretion. *Id.* at 1377. The court recognized that rendering a patent invalid on grounds not advanced by any party is not a permissible exercise of a court's "modest initiating role." *Id.* at 1377-78.

But while "supple," the Federal Circuit acknowledged that the party-presentation principle is not "ironclad." *Id.* This leaves a potential opening for a court to create its own invalidity argument when the challenger raises a Section 101 defense but fails to support it – precisely what happened here.

The district court's conduct here is different from *Astellas* but equally problematic. In *Astellas*, the district court raised the Section 101 defense entirely on its own; here, the movant *raised* the defense but failed to support it. This did not dissuade the court, which found its own support. Pet.App.10a-23a, 37a-41a. *Astellas* holds that courts may not raise Section 101 defense *sua sponte*. The question remains whether a court is free to create entirely different grounds the movant never provided.

The answer should be a resounding no. Both practices usurp the challenger's statutory burden and eviscerate the patent's statutory presumption of validity. The Federal Circuit's admonition in *Astellas* – "It is for the parties—not the court—to chart the course of litigation," *id.* at 1378 – applies with equal force here.

Similarly, Rule 56 does not permit a court to circumvent the adversarial process. Summary judgment is appropriate only when there is no genuine dispute of material fact and the movant is entitled to judgment as

a matter of law, with all reasonable inferences drawn in favor of the nonmovant. *Celotex Corp. v. Catrett*, 477 U.S. 317, 322–26 (1986). Yet the district court granted summary judgment on a set of unbriefed, court-constructed rationales that raised new fact disputes and resolved them against the nonmovant. That is precisely what party-presentation and Rule 56 forbid – or, again, *ought* to forbid.

b. If the challenger does not meet its burden of proving invalidity, the court should not be permitted to step in.

The "burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity." 35 U.S.C. §282. An invalidity defense must "be proved by clear and convincing evidence." *Microsoft Corp. v. I4I Ltd. P'ship*, 564 U.S. 91, 95 (2011). That burden does not evaporate in Section 101 cases. Whether claim elements and their ordered combinations were well-understood, routine, and conventional at the relevant time under *Alice* step two is factual and must be proven by the challenger by clear and convincing evidence. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368, 1368-69 (Fed. Cir. 2018).

The evidence and the argument are for the challenger to provide, not the court. The court is to be a "neutral arbiter of matters the parties present." *Greenlaw*, 554 U.S. at 243-244. When a court independently marshals prior art, constructs theories regarding conventionality, and synthesizes evidentiary showings the movant did not provide, the court is carrying the challenger's burden for it. That is advocacy, not adjudication.

Here, while not having the burden of proof, the nonmovant's expert supplied affirmative evidence that the claimed approach was not conventional. The movant, Firstbeat, despite having the burden of proof supplied none – no evidence at all. *See* C.A.App.183-187. Under § 282 and *i4i*, it was not the court's role to engage in a *sua sponte* effort to develop grounds to support the movant's defense, that is, find prior art references the movant did not present, combine selected portions of the references, make factual findings from its prior art analysis, and declare a patent invalid on the court's own evidentiary synthesis. The burden was Firstbeat's, and the court creating its own grounds allowed Firstbeat to prevail without meeting that burden.

The district court's conduct here illustrates the problem. The court seemingly quipped that "the '227 patent was not valid at the time it issued, and it has been in search of an inventive concept since that time." Pet.App.43. This framing reveals a fundamental inversion of the statutory framework: Rather than presuming the patent valid and requiring the challenger to prove otherwise, the court treated the patent as suspect from conception. A patent "in search of" validity is incompatible with a statutory scheme that presumes validity and demands a challenger meet a high burden.

While the party-presentation principle is well established, this Court should make equally clear that a court cannot meet the challenger's burden by finding its own evidence and creating its own grounds to support a movant's otherwise failed motion. The adversarial system assigns to the challenger the task of proving invalidity; when a court assumes that task, it abandons its role as neutral arbiter.

c. The District Court Deprived Polar of Due Process.

Section 282 provides that "[a] patent shall be presumed valid." This presumption is not a formality; it reflects Congress's judgment that issued patents deserve protection against casual invalidation. The presumption must mean something: that the issued patent stands unless the challenger – not the court – demonstrates invalidity by clear and convincing evidence. *i4i*, 564 U.S. at 95; *Berkheimer*, 881 F.3d at 1368. When a court independently assembles an invalidity case from unbriefed materials, it transforms Section 282's presumption from meaningful protection into nullity.

Due process requires robust procedural safeguards, particularly when a court invalidates an issued patent. This Court has recognized that patents constitute property protected by the Fifth Amendment's Due Process Clause. *Florida Prepaid Postsecondary Education Expense Board v. College Savings Bank*, 527 U.S. 627, 642-43 (1999) ("Patents . . . have long been considered a species of property" protected under the Due Process Clause); *see also Oil States Energy Services, LLC v. Greene's Energy Group, LLC*, 584 U.S. 325, 344 (2018) (expressly cautioning that its holding "should not be misconstrued as suggesting that patents are not property for purposes of the Due Process Clause or the Takings Clause").

As property, patents are entitled to the guarantee that no person shall "be deprived of . . . property, without due process of law." U.S. Const. amend. V. Procedural due process requires, at minimum, that a party facing deprivation of a property interest receive notice and an

opportunity to be heard in a meaningful manner. *Mathews v. Eldridge*, 424 U.S. 319, 333 (1976).

When a court invalidates a patent on grounds the challenger never raised, the patentee is deprived of precisely what due process guarantees: a meaningful opportunity to respond to the case being used against it. The patentee cannot rebut arguments never made, cannot present contrary evidence to theories never disclosed, and cannot cross-examine expert witnesses on points never presented. This is deprivation of the "opportunity to be heard" that the Constitution demands.

As Judge Henry Friendly explained in his seminal article on due process, the core elements of a fair hearing include "[n]otice of the proposed action and the grounds asserted for it," "[t]he opportunity to present reasons for the proposed action not to be taken," "[t]he right to present evidence," "[t]he right to know the opposing evidence," and "[a] decision based only on the evidence presented." Henry J. Friendly, Some Kind of Hearing, 123 U. Pa. L. Rev. 1267, 1279–95 (1975). When a court constructs its own invalidity defense from unbriefed materials and makes factual findings based thereon, each of these safeguards is compromised.

The property character of patents heightens the need for procedural regularity. Patents represent a quid pro quo: The inventor discloses the invention to the public in exchange for a limited exclusive right. *See Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150–52 (1989). Patentees make substantial investments in reliance on that bargain – investments in research, development, commercialization, and enforcement. The statutory

presumption of validity, the clear-and-convincing evidentiary standard, and the allocation of burdens to the challenger all reflect Congress's recognition that casual invalidation undermines the incentives the patent system is designed to create.

The district court's insertion of itself into the adversarial position of a party deprived Polar of due process. Firstbeat presented a Section 101 motion devoid of prior art, expert testimony, or any developed conventionality theory. *See* C.A.App.173-188. The district court, rather than deciding the motion on the terms presented, assembled its own case. Pet.App.10a-23a, 37a-41a.

Polar had no opportunity to address the court's invalidity grounds because the court never disclosed them until it issued its opinion. Polar had no opportunity to respond to the court's prior-art synthesis because that synthesis emerged for the first time in the court's opinion. Polar had no opportunity to present contrary evidence because Polar did not know what evidence would be used against it.

In short, Polar was deprived of the very things procedural due process is designed to protect: notice of the grounds for decision and a meaningful opportunity to respond.

These features – the lack of clarity in the Section 101 doctrine, the allocation of burdens to the challenger, the presumption of validity, and the due process concerns inherent in depriving a patentee of property without a meaningful opportunity to respond – together establish

that courts must not create their own Section 101 invalidity argument when a challenger raises the defense but fails to support it. The risks of such judicial creation in this area are too great, the burden allocation too clear, the statutory presumption too important, and the procedural irregularities too serious to permit courts to supply the arguments and evidence that challengers fail to provide. This Court should grant review to make that principle explicit.

The Federal Circuit's heavy reliance on summary affirmance in Section 101 appeals compounds the problem. Scholars and practitioners have documented that patent appeals often end in one-word affirmances that provide no reasoned path for lower courts or the USPTO to follow.[4] That practice erodes transparency in an area of law that already suffers from uncertainty and invites inconsistent district-court applications like what occurred here.

This Court's supervisory role is at its zenith where systemic practices undermine uniformity and the adversarial process. Granting review here would supply needed guidance on both substance and procedure, ensuring that Section 101 patent eligibility determinations honor the party-presentation principle, the allocation of burdens to the challenger, the statutory presumption of validity, and the due process protections that patents as property deserve.

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4. Professor Dennis Crouch, *Million-Dollar Mysteries: Recent Complex Patent Cases Lost to Rule 36*, Patently-O (Feb. 10, 2025), https://patentlyo.com/patent/2025/02/million-mysteries-complex.html.

II. The decision below conflicts with this Court's holding in *Diehr* and cannot be reconciled with certain of the Federal Circuit's own eligibility precedents.

a. *Diehr* held that a claim reciting real-world inputs used in an improved process to yield more accurate technological outputs is patent eligible. The Federal Circuit applies this holding inconsistently.

In *Diehr*, this Court held patent eligible a process for curing rubber that used an improved process, including a mathematical formula, to calculate cure time based on real-time temperature measurements inside the mold. 450 U.S. at 177–79, 187–93. The claim took an input – temperature – and used it within a specific, improved control procedure to produce a better technological result: properly cured rubber. *Id.* at 178–80, 187–88. The mathematical relationship was a tool; the invention was the improved process. *Id.* at 187-93. That distinction is important.

Diehr applies with full force to device-implemented physiological processes. When a device takes a physiological input – heart rate, temperature – and uses that input within a defined, improved procedure to produce a more accurate technological output, the claim is eligible. The presence of equations, data models, or computational steps *within* the improved process does not defeat eligibility. *Id.* The '227 patent claims precisely this: a specific process using heart rate and a personalized physiological parameter (VO2max) in an improved procedure to produce more accurate energy expenditure estimation than

anything that came before. *See, e.g.*, C.A.App.43 at 2:18-50; C.A.App.253-265. Polar's unrebutted expert testimony described this as an "oddball" innovation. C.A.App.257-65. Yet the district court reduced these claims to "collect, analyze, and display" – ignoring the very specificity *Diehr* protects. This Court has instructed courts to "read carefully" because Section 101 could "swallow all of patent law." *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 217 (2014). The court below failed to heed such a warning, and the decisions cannot be reconciled with this Court's holdings.

b. Federal Circuit irregularity requires this Court's intervention.

The Federal Circuit has upheld eligibility where claims use data or rules within a specific, improved process. In *McRO, Inc. v. Bandai Namco Games America, Inc.*, the court sustained claims using rules applied to phoneme data within a defined animation process to generate improved lip synchronization – because the claims defined a specific process producing a better technological output, not merely rules or data. 837 F.3d 1299, 1307-16 (Fed. Cir. 2016). In *CardioNet, LLC v. InfoBionic, Inc.*, the court reversed ineligibility because claims to a cardiac monitoring device implemented a specific technique using sensed cardiac signals to more accurately distinguish atrial fibrillation from other rhythms. 955 F.3d 1358, 1368–74 (Fed. Cir. 2020). In *Enfish, LLC v. Microsoft Corp.*, the court sustained claims to a self-referential table because the claims recited a specific data structure that improved computer functionality. 822 F.3d 1327, 1335–39 (Fed. Cir. 2016).

These cases confirm *Diehr* in modern contexts: A claim taking real-world inputs and using them within a specific, improved process to yield better technological outputs remains eligible, even when equations or data manipulations serve as tools. The '227 patent claims fit this pattern: an improved process using personalized physiological inputs to produce more accurate energy expenditure outputs. Yet while the Federal Circuit sometimes follows *Diehr*, its application is unpredictable. In *American Axle & Manufacturing, Inc. v. Neapco Holdings LLC*, the court divided evenly 6-6 on rehearing en banc, with active judges noting that "What we have here is worse than a circuit split – it is a court bitterly divided." 977 F.3d at 1382. For improved process claims like these, there is no discernible line separating eligible from ineligible claims, and even the judges who confront these questions daily are divided. The Federal Circuit's Rule 36 one-word affirmances compound this confusion.

c. This Court's clarification will provide essential guidance to lower courts, the USPTO, inventors, and businesses.

A clear statement from this Court that claims to specific, improved processes taking real-world inputs and using them to produce more accurate technological results are patent eligible would restore coherence to an area of law affecting critical sectors: digital health, wearables, diagnostics, and manufacturing. The alternative – treating any claim involving measurements and computations as categorically suspect – chills innovation and invites courts to resolve complex factual issues under the guise of eligibility at early procedural stages. *Diehr* provides the framework, and this case provides the vehicle.

d. Administrative guidance cannot cure this doctrinal disorder. Only this Court can.

Whether specific, improved processes integrating real-world physiological inputs into device-implemented procedures remain eligible under Section 101 is exceptionally important. Modern health and fitness devices, clinical monitors, and wellness platforms depend on defined process architectures that measure physiological signals, incorporate personalized parameters, and yield more accurate outputs: arrhythmia detection, thermal status and, yes, even energy expenditure. Treating such claims as ineligible because they use data or utilize relationship models would subvert the clear teachings of *Diehr*.

The Executive Branch has attempted to stabilize this terrain but cannot. The Patent Office's 2019 Revised Eligibility Guidance and subsequent updates instruct

examiners to focus on whether claims integrate judicial exceptions into practical applications and to recognize improvements in technology as the hallmark of eligibility. The Office has memorialized that whether elements are "well-understood, routine, and conventional" is a factual question that must be supported, not assumed.

The Solicitor General has likewise urged this Court to clarify Section 101 patent eligibility. Those calls – combined with the Federal Circuit's internal divisions, its 6-6 deadlock in *American Axle*, and its judges' express acknowledgment that the court cannot uniformly apply Section 101 – confirm that the specialized patent court has exhausted its ability to resolve this question.

The absence of an inter-circuit split is no barrier to review. In patent cases, the Federal Circuit is the sole appellate court. Disuniformity manifests as tension between trial-level practice and this Court's precedent – and as intra-circuit uncertainty. This Court has granted review in such circumstances to restore uniformity in federal law where no other circuit can. When the only appellate court with jurisdiction over patent cases is "bitterly divided" and at a loss as to how to uniformly apply § 101, *American Axle*, 977 F.3d at 1382, this Court's review is essential.

III. The judicially created exceptions to 35 U.S.C. § 101 are judicial legislation, not statutory interpretation.

The Constitution assigns to Congress alone the power to write the patent laws. The courts have – and had – no authority to engraft onto a statute limitations that Congress did not write. The exceptions for abstract ideas, laws of nature, and natural phenomena appear nowhere in Section 101. They were created by judges, not legislators. And they have produced a body of law that the specialized patent court has admitted it cannot administer uniformly. *See American Axle*, 977 F.3d at 1382 (Moore, J., concurring in denial of stay). This Court should correct that error by returning Section 101 to what Congress actually wrote.

a. The Separation of Powers and Section 101

The Constitution establishes a government of separated powers. The legislature writes the law. The judiciary interprets it. These functions are not interchangeable. As Chief Justice Marshall declared in *Marbury v. Madison*, 5 U.S. (1 Cranch) 137, 177 (1803), it is "emphatically the province and duty of the judicial department to say what the law is." But that duty is one of interpretation, not legislation. Courts decide what statutes mean; they do not decide what statutes should say.

This Court recently reaffirmed that principle. In *Loper Bright Enterprises v. Raimondo*, 603 U.S. 369 (2024), the Court held that "[t]he interpretation of the meaning of statutes, as applied to justiciable controversies, is exclusively a judicial function." *Id.* at 387. Put even more clearly: "When the express terms of a statute give us one

answer and extratextual considerations suggest another, it's no contest. Only the written word is the law, and all persons are entitled to its benefit." *Bostock v. Clayton Cnty., Georgia*, 590 U.S. 644, 653 (2020).

Courts decide legal questions by applying their judgment – they do not supply legislative judgments that Congress withheld. When the executive or judiciary imposes limitations "which the Legislature has not expressed," this Court has held, the courts "should not read into the patent laws limitations and conditions which the Legislature has not expressed." *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933).

b. The Exceptions to Section 101 lack statutory foundation

Section 101 of Title 35 provides: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101. The statute says nothing about "abstract ideas." This term does not appear in the statutory text, definitions, and is not referenced in any other provision of Title 35.

The courts acknowledge as much. In *Bilski v. Kappos*, 561 U.S. 593 (2010), this Court observed that "Congress took this permissive approach to patent eligibility to ensure that 'ingenuity should receive a liberal encouragement.'" *Id.* at 601 (citations omitted). In *Diamond v. Chakrabarty*, 447 U.S. 303 (1980), the Court recognized that Congress

intended Section 101 to cover "anything under the sun that is made by man." *Id.* at 309.

Yet the courts have layered on top of this permissive statutory grant a set of exclusions that Congress never enacted. The abstract idea, law of nature, and natural phenomena exceptions are described by the courts as "implicit" in Section 101 – but an implicit limitation is not a statutory limitation. And this Court's recent jurisprudence has made clear that when Congress enacts a statute, courts must apply the statute as written. "The whole point of having written statutes," this Court has explained, is that "every statute's meaning is fixed at the time of enactment." *Loper Bright*, 603 U.S. at 398 (*citing Wisconsin Central Ltd. v. United States*, 585 U.S. 274, 284 (2018)).

This "implicit exception" framework invites oversimplification by requiring courts to identify an "abstract idea" that the statute never defines – an idea that, to this day, has no definition. The absence of statutory definition is not accidental. Congress did not include these exceptions because Congress did not intend them to exist as categorical bars to eligibility. The courts created them – and having done so, created a doctrine that is, at best, difficult to administer.

The courts have given themselves the power to decide which categories of invention merit patent protection. But this is a policy judgment, and it belongs to Congress.

c. *Stare Decisis* does not require perpetuation of error

Stare decisis is not an inexorable command. This Court is not constrained to follow precedent when governing decisions are "unworkable or badly reasoned." *Payne v. Tennessee*, 501 U.S. 808, 827 (1991). The doctrine fosters and promotes the "evenhanded, predictable, and consistent development of legal principles, fosters reliance on judicial decisions, and contributes to the actual and perceived integrity of the judicial process." *Janus v. AFSCME*, 585 U.S. 878, 916-17 (2018). But when precedent undermines rather than promotes these values – *e.g.*, when the doctrine produces inconsistent results and unpredictable outcomes – *stare decisis* counsels correction, not perpetuation.

This Court has identified factors that inform the *stare decisis* analysis: (1) the quality of the prior decision's reasoning; (2) the workability of the rule; (3) consistency with related decisions; (4) developments since the decision; and (5) reliance interests. *See Janus*, 585 U.S. at 917–20; *Dobbs v. Jackson Women's Health Organization*, 597 U.S. 215, 267–80 (2022). The judicially created exceptions to Section 101 fail on every count that matters.

As to reasoning: The exceptions rest on no statutory text. Courts have characterized them as "implicit" in Section 101, but there is no explanation as to how an "implicit" exception squares with the statute's express and broad language authorizing patents on "any new and useful process." Policy judgments ought to be left to the legislature.

As to workability: The Section 101 doctrine has proven to be a morass. *See supra* (discussing, for example, *American Axle*). A doctrine is not workable when the specialized court charged with administering it cannot agree on what it means.

As to consistency: The Section 101 exceptions have produced contradictory results on materially similar facts. Claims to improved processes using real-world inputs have been held eligible in some cases, *see McRO*, 837 F.3d at 1313–16, and ineligible in others, e.g., this case, with no principled distinction.

As to developments: Since the current framework was established, the Federal Circuit, the Executive Branch, and Congress have all signaled that the doctrine requires reconsideration. The USPTO has issued guidance attempting to cabin the doctrine's scope. The Solicitor General has urged this Court's intervention. Congress has considered legislation – the Patent Eligibility Restoration Act – that would abolish the judicial exceptions entirely. These developments confirm that the doctrine, as currently constituted, does not reflect a stable legal settlement.

As to reliance: Reliance interests weigh less heavily in the patent eligibility context than in commercial settings involving settled contract or property expectations. The doctrine has been in flux since at least *Alice*; no patent applicant can reasonably rely on a framework that even the Federal Circuit cannot apply consistently – especially where the USPTO and courts are seemingly playing under different rules.

This Court has demonstrated its willingness to revisit entrenched doctrines that lack sound legal foundation. In *Loper Bright*, the Court overruled Chevron deference after forty years because the doctrine was "misguided" and inconsistent with the APA's command that courts exercise independent judgment on questions of law. 603 U.S. at 400.

The same analysis applies here. The judicially created exceptions to Section 101 patent eligibility rest on reasoning that cannot be squared with the statutory text. They have proven unworkable in practice. They are inconsistent with surrounding law. Subsequent developments have undermined their foundations. And no legitimate reliance interests protect their perpetuation. *Stare decisis* counsels correction, not continued adherence to error.

The heightened burden that applies to overruling statutory precedents does not counsel a different result. It is true that Congress can alter what the courts have done. But that rationale assumes Congress can legislate a fix. Here, Congress has tried and failed. Legislative proposals to address Section 101 have stalled. The Patent Eligibility Restoration Act has languished. The very complexity of the judicially created doctrine – its multiple steps, its undefined terms, its inconsistent applications – makes legislative correction difficult.

Moreover, the rationale for heightened deference in statutory cases – that Congress can fix judicial errors – assumes the error is one of interpretation. But the Section 101 exceptions are not interpretations of statutory text. They are judicial *additions* to that text. Courts cannot

claim the mantle of statutory interpretation when the words they are "interpreting" do not exist in the statute and never have. The exceptions for abstract ideas, laws of nature, and natural phenomena are judge-made rules, not constructions of legislative text. The heightened *stare decisis* standard for statutory cases should not apply to judicially created doctrines that wholly lack statutory foundation.

d. The return to statutory text

The proper remedy is not to refine the judicially created framework. It is to abandon that framework and return to what Congress actually wrote. Section 101 authorizes patents for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. The statute's conditions and requirements are found in Sections 102, 103, and 112, which address novelty, nonobviousness, and adequate disclosure. Congress designed these provisions to perform the screening functions that the Section 101 exceptions have usurped.

If an invention lacks novelty, Section 102 addresses it. If an invention is obvious, Section 103 addresses it. If the patent's description is inadequate, Section 112 addresses it. The judicial exceptions duplicate, confuse, and complicate inquiries that Congress already assigned to other provisions.

This Court made the same observation in *Dubilier* nearly a century ago. There, the Court confronted the government's request to impose a limitation on patent rights that no statute required. The Court refused. "We should not read into the patent laws limitations and

conditions which the Legislature has not expressed," the Court held. 289 U.S. at 198-99. The "formulation" of patent policy "belongs solely to the Congress." *Id.* The same principle applies to Section 101, and courts should apply the statute Congress wrote.

IV. The questions presented are exceptionally important, and this case is an ideal vehicle.

a. The questions recur constantly and affect critical industries, and the first question presents a novel issue that has not been addressed in the Section 101 context.

The adversarial system is not a procedural nicety; it is a constitutional and structural feature of the Article III judiciary. The general party-presentation principle is well established, but its application to *judicial creation* of Section 101 arguments – where a court takes a party's unsupported defense and constructs entirely different invalidity grounds using independently gathered evidence – has not been squarely addressed.

This novel question is important, and its resolution is urgent. Since 2014, Section 101 motions are filed in the bulk of patent cases, and courts may be tempted to create their own invalidity grounds when challengers raise Section 101 but fail to support their motions – because, as one recent journal noted, Section 101 has become much like the subject of Justice Stewart's famous concurrence: judges "know it when they see it."[5]

5. Matthew G. Sipe, *Patent Law 101: I Know It When I See It*, 37 Harv. J.L. & Tech. 447 (2024).

Without authoritative clarification, litigants cannot know whether successfully rebutting the arguments actually raised will be sufficient, or whether they must also anticipate and address any ground that a court might independently construct. The resulting uncertainty prejudices every nonmovant who cannot reasonably be expected to litigate against grounds that were never advanced by the opposing party. The structural features identified above – the confusion of Section 101 doctrine, the burden allocation, the presumption of validity, and the due process concerns that arise when a patentee is deprived of property without a meaningful opportunity to respond – demonstrate why such judicial creation should be explicitly prohibited.

And whether device-implemented physiological processes remain eligible affects investment in digital health, medical devices, fitness technology, and diagnostics. These industries are critical to American competitiveness and public health. Treating such claims as ineligible because they incorporate mathematical relationships or data analysis risks shutting the door on the very types of technological advances this Court recognized as eligible in *Diehr*. A clear, reaffirmed rule that improved processes that take physiological inputs and use them to produce more accurate technological outputs remain eligible would supply needed predictability for courts, the USPTO, investors, and innovators.

Whether the judicially created exceptions to Section 101 should be overruled affects all patent applicants, all patent owners, and all challengers. The doctrine has destabilized the patent system. Its abolition would restore the statutory framework Congress designed.

b. This case presents all three questions cleanly.

The district court's opinion expressly relied on prior art it assembled *sua sponte*. Pet.App.10a-23a, 37a-41a. It expressly rejected Dr. Levine's unrebutted expert testimony. *Id*. The Federal Circuit's Rule 36 affirmance leaves the district court's reasoning as the operative law of the case, with no alternative grounds. The record is fully developed, the posture is final, and no vehicle problems exist.

CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted,

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APPENDIX

TABLE OF APPENDICES

APPENDIX A — JUDGMENT OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT, FILED DECEMBER 3, 2025

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2024-1801

POLAR ELECTRO OY,

Plaintiff-Appellant,

v.

SUUNTO OY, AMER SPORTS WINTER & OUTDOOR,

Defendants,

FIRSTBEAT TECHNOLOGIES OY,

Defendant-Appellee.

Filed December 3, 2025

JUDGMENT

Appeal from the United States District Court for the District of Utah in No. 1:17-cv-00139-CW, Senior Judge Clark Waddoups.

THIS CAUSE having been heard and considered, it is

Appendix A

ORDERED and ADJUDGED:

PER CURIAM (DYK, REYNA, and CHEN, *Circuit Judges*).

AFFIRMED. See Fed. Cir. R. 36.

ENTERED BY ORDER OF THE COURT

/s/ Jarrett B. Perlow
Jarrett B. Perlow
Clerk of Court

December 3, 2025
Date

APPENDIX B — MEMORANDUM DECISION AND ORDER OF THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF UTAH, FILED APRIL 5, 2024

IN THE UNITED STATES DISTRICT COURT
DISTRICT OF UTAH

Case No. 1:17-cv-0139 CW

POLAR ELECTRO OY,

Plaintiff,

v.

SUUNTO OY, AMER SPORTS WINTER & OUTDOOR D/B/A/ SUUNTO USA, AND FIRSTBEAT TECHNOLOGIES OY,

Defendants.

Signed April 4, 2024
Filed April 5, 2024

MEMORANDUM DECISION AND ORDER

Judge Clark Waddoups

INTRODUCTION

U.S. Patent No. 6,537,227 (hereinafter, "the '227 Patent") has been challenged through three re-examinations. Over that course, some claims were

confirmed, others were cancelled, and new claims were added and found patentable. Now, Plaintiff Polar Electro Oy ("Polar") moves for summary judgment on the grounds that the '227 Patent is valid and that Defendant Firstbeat Technologies Oy ("Firstbeat") has infringed Polar's patent. In turn, Firstbeat moves for summary judgment on the grounds that its Sports products do not infringe the '227 Patent; the '227 Patent is invalid because it pertains to a non-patentable subject area; and the patent has other statutory infirmities. Firstbeat offers expert testimony from Thomas Blackadar to support part of its assertions. Polar moves to exclude such testimony on the ground that Mr. Blackadar is not an expert. Polar offers its own experts to support its summary judgment motions and its assertion that Mr. Blackadar's opinions fail.

The parties submitted comprehensive briefing on the issues. Ultimately, however, the court reaches only one issue because the issue is dispositive. The court concludes the claims at issue under the '227 Patent are invalid because they comprise an abstract idea. Summary judgment is granted in favor of Firstbeat.

FACTUAL BACKGROUND

1. Polar asserts Firstbeat has infringed Claims 5, 15, 21, and 43 of the '227 Patent.[1] *See* Polar's Amended Final Infringement Claim Chart, at 3–50 (ECF No.

1. Polar asserted that Firstbeat also infringed Claim 18, but Polar subsequently filed an unopposed Notice of Withdrawal (ECF No. 485) of that claim, so Claim 18 is no longer at issue.

313-1).[2] Claim 5 is an independent methods claim and Claim 21 is an independent apparatus claim. Claims 15 and 43 depend from Claim 5.

2. According to the '227 Patent, "[t]he object of the invention is to provide an improved method and equipment implementing the method for assessing energy consumption during exercise." '227 Patent, Col. 1, Lines 49–51 (ECF No. 205-1).

3. "For 200 hundred years, scientists have sought to measure energy expenditure." Declaration of Dr. James A. Levine, M.D., PhD., ¶ 26 (ECF No. 456-3) (hereinafter "Levine Decl. II").

4. "Sports and exercise increase the heart muscle mass and the capability of the system to supply oxygen to the body." '227 Patent, Col. 1, Lines 23–25. In turn, "[t]he heart's capability to pump oxygenated blood into the body improves, and consequently by one contraction, i.e. beat, the heart is able to pump a larger amount of blood in the body, whereby the beat rate can be lower than that of an unfit person." *Id.* Col. 1, Lines 25–29. These principles govern a person's energy consumption.

5. Prior art for heart rate monitors have assessed energy consumption "on the basis of the heart rate and the person's weight, gender and age, for instance." *Id.* Col. 1, Lines 37–39.

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2. When the court cites to a page in the record, the citation is to the ECF page numbering at the top of the page and not to page numbering elsewhere on the document.

6. According to the '227 Patent's specification, however, prior art did "not take into account that a fit person performs a larger amount of work at a given heart rate level than an unfit person, whereby the amount of energy consumed by the fit person is larger than that of the unfit person." *Id.* Col. 1, Lines 42–45.

7. Polar's expert Dr. James A. Levine, M.D., Ph.D. has opined that the '227 Patent "involves a determination/input of maximum heart rate and maximum oxygen consumption and uses this information to assess and determine energy expenditure." Levine Decl. II, ¶ 2 (ECF No. 456-3). Dr. Levine asserts this is "an unusual approach" for "personalizing a heart rate monitor . . . to assess a person's energy consumption during exercise." *Id.* ¶¶ 2–3.

8. The "relationship between heart rate and energy expenditure" varies "from one person to the next," resulting in "substantial inter-individual variance." Declaration of James A. Levine, ¶ 4 (ECF No. 157) (hereinafter "Levine Decl. I"). Factors such as emotions and hormone levels may affect "[a] person's heart rate," and other factors such as age and illness may impact the relationship between a person's heart rate and "volume of blood pumped per beat." *Id.* ¶¶ 4.1, 4.3.

9. The inter-individual variance impedes the accuracy of heart rate monitors to estimate a person's energy consumption. "[T]he precision of heart rate for predicting energy consumption," however, "can be improved by using individual calibration of the heart rate

monitor for every person being measured." Levine Decl. I, ¶ 7 (ECF No. 157).

10. Regression equations allow for such "individualization," thereby increasing the accuracy of heart rate monitors to determine energy consumption. *Id.* ¶ 8. The individualization also has been referred to by Dr. Levine as the personalization phase. Levine Decl. II, ¶ 70 (ECF No. 456-3).

11. According to Dr. Levine, the '227 Patent contains a "unique method" for "defining an individual calibration curve for each user whereby maximum heart rate, resting heart rate and potentially intermediate values are used to define an individual calibration curve." Levine Decl. I, ¶ 9 (ECF No. 157). The calibration curve is combined with "physiological variables," thereby allowing energy consumption to be calculated by a portable device as the device receives "continuous heart rates values." *Id.*

12. Assessment of a person's energy consumption occurs during the "use" phase. At least two calculating parameters have to be present: "the heart rate parameter and the energy consumption reference value." Second Reexamination Certificate, Col. 1, Lines 42–45 (ECF No. 205-7). The use phase also depends on "the maximum value of energy consumption and a lower value of energy consumption, wherein the person's energy consumption is substantially linear dependent on the heart rate parameter between the maximum value of energy consumption and the lower value of energy consumption." *Id.* Col. 1, Lines 46–52.

13. According to Dr. Levine, the '227 Patent advanced the technology. Levine Decl. I, ¶ 10 (ECF No. 157); Levine Decl. II, ¶ 67 (ECF No. 456-3). Both of Dr. Levine's declarations focus on the personalization or individualization phase as being a technological advancement.

14. The '227 Patent has a priority date of March 7, 2000. *See* '227 Patent, Foreign Application Priority Data, at 1 (ECF No. 205-1); First Reexam File History, at 41 (ECF No. 205-6) (stating "[t]he '227 patent claims priority to Finnish Application No. 000522, filed March 7, 2000").

15. "In the Year 2000, the idea of using heart rate to predict[ ] oxygen or energy consumption had been published." Levine Decl. I, ¶ 10 (ECF No. 157). Additionally, in that same year, "portable electronic devices for measuring heart rate in free-living people and the use of portable computers to analyze and store heart rate data had been published." *Id.* Moreover, in the Year 2000, "[t]he concept of individual calibration of a physiological device had been published." *Id.* ¶ 11. Thus, the '227 Patent's alleged advancement goes to "the method used for individual calibration." *See id.* (opining Polar's method "was unique at the time").

16. Dr. Levine asserts "the scientists behind the '227 Patent had the idea to individually calibrate the heart rate monitor for each person using it—personalization—and specifically how it should be calibrated." Levine Decl. II, ¶ 37 (ECF No. 456-3). In particular, Dr. Levine reports that "The Personalized Heart Rate Monitor and Method in

the '227 Patent looks at a person's heart rate at maximum exertion to represent the maximum energy consumption, or what is also referred to as VO2max (the maximum amount of oxygen a person uses during exercise; this is also called maximal oxygen consumption or maximal oxygen uptake)." *Id.*

17. Dr. Levine further asserts, "VO2max is an important aspect of The Personalized Heart Rate Monitor and Method described in the '227 Patent." Levine Decl. II, ¶ 38. Specifically, "[w]hen a person is at maximum physical performance, their heart rate is maximum, and their oxygen consumption is maximum, which is referred to as VO2max. When a person is at rest, the heart rate is lowest, and their oxygen consumption is lowest." *Id.*

18. Thus, according to Dr. Levine, the '227 Patent "exploit[s] the idea that a person's maximum physical performance corresponds uniquely to the person's maximum oxygen consumption, VO2max, and maximal heart rate," which "was not an *obvious* approach to using heart rate to assess energy expenditure. In fact, it was an oddball approach." Levine Decl. II, ¶ 40 (ECF No. 456-3) (emphasis added).

Claim at Time of Application

19. When the application for the '227 Patent was filed, Claim 1 read as follows:

> A method for assessing a person's energy consumption during exercise, which method

> measures the person's heart rate information during exercise,
>
> provides an assessment of the person's energy consumption by means of at least two calculating parameters, one of which is a heart rate parameter during exercise measured from the person's heart rate information, wherein an energy consumption reference value is used as one calculating parameter,
>
> the reference value being obtained by using one or more performance parameters describing the person's physical performance.

'227 Patent File History, at 94 (ECF No. 205-5) (line breaks inserted). The claim did not mention oxygen, and the concepts of VO2max, maximum heart rate, and maximum energy expenditure were not stated in the claim.

20. The Patent and Trademark Office ("PTO") rejected the claim as being "anticipated by Richardson et al, U.S. Patent No. 5,976,083," because Richardson "discloses a personal fitness monitoring device and method for assessing the fitness of an individual as the individual exercises." *Id.* at 29. Moreover, the Richardson patent "discloses the computation of fitness by computing the user's maximum heart rate, then a linear regression is fitted to the time series of heart rate and energy expenditure points. Using this regression, the value of energy expenditure associated with the user's maximum

heart rate is computed." *Id.* at 29–30. Under Richardson, that "value [was] the user's estimated maximum aerobic energy expenditure, which is taken as the user's aerobic fitness value." *Id.* at 30.

21. Polar did not rebut the PTO's conclusions. '227 Patent File History, at 24 (ECF No. 205-5). Instead, Polar rewrote all the claims in its application. *Id.* at 17, 24. Claim 1 was changed to read as follows:

> A method for assessing a person's energy consumption during exercise, the method comprising the steps of:
>
> measuring the person's heart rate information during exercise, the heart rate information including a heart rate parameter;
>
> obtaining an energy consumption reference value from one or more performance parameters that describe the person's physical performance with at least one of the performance parameters being oxygen uptake;
>
> assessing the person's energy consumption by means of a plurality of calculating parameters including at least the heart rate parameter and the energy consumption reference value.

Id. at 17; '227 Patent, Col. 10, Lines 37–49 (ECF No. 205-1). The amended Claim 1 required oxygen uptake to be "one of the performance parameters used to obtain an energy consumption value." First Reexam File History,

at 67 (ECF No. 205-6) (reviewing history of patent during initial prosecution). The amended Claim 1 did not require VO2max, maximum heart rate, or maximum energy expenditure.

22. The PTO accepted the changes and issued a Notice of Allowability. '227 Patent File History, at 16 (ECF No. 205-5). The '227 Patent issued on March 25, 2003. '227 Patent, at 1 (ECF No. 205-1).

First *Ex Parte* Reexamination

23. About nine years later, Firstbeat requested an *ex parte* reexamination of the '227 Patent, which the PTO granted on or about October 25, 2012. First Reexam File History, at 64–66 (ECF No. 205-6). The reexam resulted in Claims 1 and 16 being cancelled; Claims 2–15 and 17–31 being amended; and Claims 32–42 being added. *Id.* at 6. The first Reexamination Certificate issued on June 4, 2013. *Id.* at 1.

24. Polar had to combine Claim 1 with dependent Claim 5, such that Claim 5 became the independent methods claim at issue in this case. Claim 5, following the first reexamination reads as follows, with bracketed language deleted from Claim 5 and italicized language added from Claim 1 to Claim 5:

> A method [as claimed in claim 1] *for assessing a person's energy consumption during exercise, the method comprising the steps of:*

> *measuring the person's heart rate information during exercise, the heart rate information including a heart rate parameter;*
>
> *obtaining an energy consumption reference value from one or more performance parameters that describe the person's physical performance with at least one of the performance parameters being oxygen uptake;*
>
> *assessing the person's energy consumption by means of a plurality of calculating parameters including at least the heart rate parameter and the energy consumption reference value*, wherein the plurality of calculating parameters include at least a maximum value of energy consumption and a lower value of energy consumption, wherein the person's energy consumption on the heart rate parameter is substantially linear dependent between the maximum value of energy consumption and the lower value of energy consumption.

First Reexamination Certificate, Col. 1, Lines 36–55 (ECF No. 205-6).

25. The amended Claim 5 did not require VO2max or maximum heart rate, but as of June 4, 2013, the independent claim required maximum energy expenditure, which previously was only a dependent claim limitation.

26. The PTO granted the first request for a

reexamination, in part, due to Lubell et al., U.S. Patent No. 4,566,461, issued on January 28, 1986. The Lubell "invention relates to health and fitness monitors." Lubell Patent, Col. 1, Lines 4–5. Lubell reported, "[r]ecently, the capacity of the subject's cardiovascular system to bring oxygen to the body tissues has been determined to be perhaps the most meaningful index of aerobic fitness," which "fitness index is commonly referred to as the maximal oxygen uptake, or VO_2max." *Id.* Col. 1, Lines 42–45, 48–49.

27. Lubell reported the "fitness index VO_2max is higher," generally, "the greater the level of fitness is for a given individual." Lubell Patent, Col. 1, Lines 49–51. Additionally, "[a]s a general proposition, this fitness index declines with age, and, for the same fitness level, is slightly lower for women than for men." *Id.* Col. 1, Lines 58–60. Lubell also reported, "[t]he application of maximal oxygen uptake VO_2max as an index of fitness, is discussed, e.g., in Astrand and others . . . in the Journal of Physiology, November 1963." *Id.* Col. 1, Lines 61–64.

28. Lubell improved on prior art that "require[d] manual entry of resting heart rate, minimum exercise heart rate, maximum exercise heart rate, and a previously-calculated fitness index or maximal oyxgen [sic] uptake level VO_2max," by changing a device's programming to "measur[e] the subject's fitness automatically." Lubell Patent, Col. 2, Lines 26–34. Its objective was to "automatically calculate an appropriate fitness parameter (e.g., maximal oxygen uptake level or VO_2max) by automatically pacing the subject through a

straightforward training protocol" that was portable. *Id.* Col. 2, Lines 48–51, 62–64.

29. The Lubell patent also is relevant to the issue here because the data entry for the heart rate monitor was based on "selected data peculiar to the subject, . . . and also displaying one or more fitness parameters calculated on the basis of the entered selected data and the detected heart beats of the subject." Lubell Patent, Col. 3, Lines 3–7. The fitness parameters had to "include at least the maximal oxygen uptake VO_2max as a fitness index," *id.*, Col. 3, Lines 19–21, which Lubell taught how to implement. *Id.* Col. 3, Lines 23–57.

30. Lubell's protocol "continuously measures the heart rate" until the subject reaches maximal heart rate, whereupon VO2*max* is determined and "displayed as the calculated fitness index." Lubell Patent, Col. 3, Lines 41–56. That calculated fitness is then "used to monitor the aerobic training of the subject." *Id.* Col. 3, Lines 56–57.

31. Lubell noted that "the correlation between actual VO_2max values and the values calculated using data from the submaximal exercise stress tolerance test is extremely good," which correlation was depicted on a table. Lubell Patent, Col. 9, Lines 42–56. Lubell further noted "[a] well-established linear relationship exists between the percent of VO_2max required for a given workload, and the heart rate achieved at that [workload]." *Id.* Col. 10, Lines 8–11.

32. In Lubell's method claim, a person's heartbeat is detected, "selected data peculiar to the said subject"

is inputted pertaining to physiological parameters, and "VO_2max is calculated as a fitness index," based in part on the time it takes for the subject's heart rate to reach maximum level. *Id.* Col. 16, Lines 19–52.

33. The PTO concluded that Lubell teaches:

> [A] health fitness monitor for monitoring aerobic exercise training. The monitor automatically calculates a fitness parameter for a subject by monitoring heart rate during an exercise stress test protocol. At the point of maximum heart rate, the subject's maximal oxygen uptake capacity is calculated and is displayed as a fitness parament. During exercise, the submaximal oxygen uptake is calculated at regular intervals using the individual's heart rate and this parameter can be used to calculate caloric consumption . . . during training for the particular subject . . . Hence Lubell measures heart rate during exercise, obtains an energy consumption reference value that comprises oxygen uptake, and assesses the person's energy consumption value by calculating calorie expenditure in accordance with Claim 1.

First Reexam File History, at 53 (ECF No. 205-6).

34. The PTO further concluded that Lubell "discloses the plurality of calculating parameters include at least one of: a maximum heart rate corresponding to the person's maximum performance . . .; a lower heart rate lower than

the maximum heart rate . . . ; and an intermediate heart rate which is between the maximum heart rate and the lower heart rate . . . . First Reexam File History, at 54 (noting teachings of the Lubell Patent, but addressing Claim 11 of the '227 Patent as it existed during the first reexamination).

35. As to energy consumption, however, Firstbeat admitted and the PTO concurred that Lubell did "not explicitly disclose" the following:

> the plurality of calculating parameters include a lower value of energy consumption; and
>
> wherein the person's energy consumption on the heart rate parameter is substantially linear dependent between the maximum value of energy consumption and the lower value of energy consumption.

First Reexam File History, at 60, 122.

36. The limitations in Paragraph 35 above pertain to the "use" phase of Claim 5 and not to the "personalization" phase of that Claim. According to Dr. Levine, the inventive concept that advanced the technology pertains to "an oddball approach to *personalizing* a heart rate monitor, specifically to assess a person's energy consumption during exercise." Levine Decl. II, ¶ 2 (ECF No. 456-3) (emphasis added).

Appendix B

Second *Ex Parte* Reexamination

37. On January 29, 2014, Firstbeat filed a second request for *ex parte* reexamination, which the PTO granted on or about March 18, 2014. Third Reexam File History, at 152 (ECF No. 205-8). The PTO concluded on or about June 13, 2014, that Claims 5, 15, and 21 were unpatentable over prior art. *Id.*

38. During the second reexamination, Jimenez et al., U.S. Patent No. 4,367,752, issued on January 11, 1983, was considered along with three other references. According to the PTO, "Jimenez disclose[d] all the claimed method steps of independent claim 5 and structure of claim 21 to assess a person's energy consumption during exercise." Second Reexam File History, at 50, 83 (ECF No. 205-7); Third Reexam File History, at 155 (ECF No. 205-8).

39. The '227 Patent, however, survived invalidity because "[e]ach of the independent claims" was amended to require further limitations. Second Reexam File History, at 7 (ECF No. 205-7). Claim 5, following the second reexamination reads as follows, with bracketed language deleted from Claim 5 and the italicized language added to survive invalidity:

> A method for assessing a person's energy consumption during exercise, the method comprising [the steps of]:
>
> measuring the person's heart rate information during exercise, the heart rate information including a heart rate parameter;

> obtaining an energy consumption reference value from one or more performance parameters that describe the person's physical performance with at least one of the performance parameters being *a maximal* oxygen uptake, *the energy consumption reference value being a maximum value of energy consumption associated with the person, the maximum value of energy consumption representing a value of energy consumption that is associated with the person and corresponds to a maximum heart rate associated with the person;*
>
> assessing the person's energy consumption by means of a plurality of calculating parameters including at least the heart rate parameter and the energy consumption reference value, wherein the plurality of calculating parameters include at least [a] *the* maximum value of energy consumption and a lower value of energy consumption, wherein the person's energy consumption *is substantially linear dependent* on the heart rate parameter [is substantially linear dependent] between the maximum value of energy consumption and the lower value of energy consumption.

Second Reexamination Certificate, Col. 1, Lines 26–53 (ECF No. 205-7).

40. The second Reexamination Certificate issued on October 2, 2014, approximately fourteen and a half

years after the '227 Patent's priority date of March 7, 2000. *Id.* at 1; '227 Patent, at 1 (ECF No. 205-1) (stating "Foreign Application Priority Data"). Through the amendment, VO2max and maximum heart rate became limitations for the first time, and it is the language from the second reexamination that Dr. Levine relies upon for his declarations.

41. During the second reexamination, Claim 43 was added, which depends from Claim 5. Second Reexamination Certificate, Col. 4, Lines 5–7 (ECF No. 205-7).

42. During a third ex parte reexamination, Claims 5, 15, 21, and 43 were confirmed, with no further modifications. Third Reexam File History, at 5 (ECF No. 205-8).

Statements about Maximum Oxygen Uptake in Prior Art

43. As stated above, Firstbeat proffered Lubell, Jimenez, and other publications when challenging the '227 Patent on novelty and obviousness grounds before the PTO.

44. Jimenez disclosed that one object of that invention was "to provide a portable apparatus which can be worn" during exercise that measured heart rate, distance, speed, "and, upon completion of 12 minutes of maximum activity, his fitness based on maximum oxygen uptake." Jimenez Patent, Col. 5, Lines 23–31.

45. Jimenez further stated, "there is a roughly linear relationship between oxygen uptake and heart rate during exercise for a particular subject," and noted that "[t]he roughly linear relationship has a slope that changes with the physical fitness of the subject." *Id.* Col. 20, Lines 45–49." Similar to the '227 Patent, Jimenez stated physical fitness mattered "because a physically fit person is able to transport the same amount of oxygen at a lower heart rate than an unfit person." *Id.* Col. 20, Lines 49–51. "The hypothesis for the caloric consumption equations employed in the [Jimenez] invention relie[d] upon" these "known phenomena." *Id.* Col. 20, Lines 42–44.

46. Another prior art cited by Firstbeat was Maruo et al., U.S. Patent No. 5,853,351, issued on December 29, 1998. Figure 2 of Maruo is similar to Figure 1 of the '227 Patent to show a linear relationship between heart rate and aerobic capacity, including when maximum heart rate and maximum aerobic capacity is reached. *Cf* '227 Patent, Figure 1 (ECF No. 205-1) (charting energy consumption and heart rate) *with* Maruo Patent, Figure 2 (charting aerobic capacity and heart rate).

47. Maruo included regression formulas that represented "[t]he maximum heart rate," and stated, "[t]o be exact, the maximum heart rate is defined as a heart rate corresponding to a maximal oxygen uptake (VO_2max) taken in the body per 1 kg of the body weight and per 1 minute." Maruo Patent, Col. 1, Line 40–51.

48. Maruo further provided a formula showing how maximum oxygen uptake could be converted to maximum

aerobic capacity. *See id.* Col. 3, Lines 36–44; Col. 10, Lines 30–33.

49. Maruo defined "maximum aerobic capacity . . . as maximum workload corresponding to a maximum heart rate (HR_{max}) of the individual user." *Id.* Col. 2, Line 67 to Col. 3, Lines 1–2; *see also id.* Col. 13, Lines 65–67 to Col. 14, Line 1.

50. Firstbeat further cited to the work done by Kenneth H. Cooper that was published in the Journal of the American Medical Association, Vol 203, No 3, at 135–38 (Jan. 15, 1968) entitled *A Means of Assessing Maximal Oxygen Intake* (hereinafter "*Cooper*"). *Cooper* reported that oxygen consumption is "the most objective method by which one can determine the physical fitness of an individual as reflected by his cardiovascular system." *Cooper*, at 2 (ECF No. 438-25).

51. *Cooper* developed a 12-minute field test, at submaximal exertion, to evaluate whether the field test could be substituted in place of determining VO2max in a laboratory. *See id.* at 3–4 (ECF No. 438-25) (describing test and validating procedures). After testing 115 subjects both in a laboratory and in the field, *Cooper* demonstrated the field test could "provide a good assessment of maximal oxygen consumption," with some variability based on the motivation of the test subject. *Id.* at 4. Moreover, the publication reported that *Cooper* found a linear "correlation between *maximal* oxygen consumption and [the] 12-minute walk-run performance in normal males." *Id.* at 3 (emphasis added).

52. Those who were able to travel the greatest distance in the 12-minute test also were those with the highest VO2max. *Cooper*, Correlation Graph, at 3 (ECF No. 438-25). Additionally, *Cooper* included two tables to show how distance traveled by a subject during the 12-minute test predicted maximum oxygen consumption and that person's fitness level. *Cooper*, Table 1 - Predicted Maximal Oxygen Consumption on the Basis of 12-Minute Performance, at 4 (ECF No. 438-25); *Cooper*, Table 2 – Levels of Cardiovascular Fitness Based on 12-Minute Performance and Maximal Oxygen Consumption, at 4 (ECF No. 438-25). Thus, the test provided an "indicator of cardiovascular fitness." *Id.* at 2.

Dependent Claims 15 and 43 and Independent Claim 21 of the '227 Patent

53. To the method in Claim 5, Claim 15 adds that when measuring the heart rate, it is measured with a heart rate monitor and includes the step of "displaying the assessment on the display of the heart rate monitor." First Reexamination Certificate, Col. 2, Lines 17–23 (ECF No. 205-6).

54. Claim 43 provides "[a] method as claimed in claim 5, wherein the plurality of calculating parameters includes the maximum heart rate associated with the person." Second Reexamination Certificate, Col. 4, Lines 5–7 (ECF No. 205-7).

55. Independent Claim 21 is an apparatus that implements the method of Claim 5. It contains "a

measuring means for measuring a person's heart rate," and "a calculating unit for calculating an assessment of the person's energy consumption during exercise," along with "a presenting means for presenting the formed assessment of the person's energy consumption." Second Reexamination Certificate, Col. 2, Lines 24–26, 40–41 (ECF No. 205-7). Much of the remaining language is the same as Claim 5. Claim 21 reads as follows, with bracketed language deleted from Claim 21 and the italicized language added to survive invalidity:

> A heart rate measuring arrangement comprising:
>
> > a measuring means for measuring a person's heart rate;
> >
> > a calculating unit for calculating an assessment of the person's energy consumption during exercise from a plurality of calculating parameters, the plurality of calculating parameters including the heart rate and an energy consumption reference value, the energy consumption reference value being obtained from one or more performance parameters that describe the person's physical performance with at least one of the performance parameters being *a maximal* oxygen uptake, *the energy consumption reference value being a maximum value of energy consumption associated with the person, the maximum value of energy consumption representing a value of energy consumption that is associated with the person*

> *and corresponds to a maximum heart rate associated with the person*; and
>
> a presenting means for presenting the formed assessment of the person's energy consumption, wherein the plurality of calculating parameters include at least [a] *the* maximum value of energy consumption and a lower value of energy consumption, wherein the person's energy consumption *is substantially linear dependent* on the heart rate parameter [is substantially linear dependent] between the maximum value of energy consumption and the lower value of energy consumption.

Second Reexamination Certificate, Col. 2, Lines 23–48 (ECF No. 205-7).

ANALYSIS

I. '227 PATENT CLAIMS AT ISSUE

As discussed above, the '227 Patent has gone through three *ex parte* reexaminations. An "ex parte reexamination is a curative proceeding meant to correct or eliminate erroneously granted patents." *Fresenius USA, Inc. v. Baxter Intern., Inc.*, 721 F.3d 1330, 1338 (Fed. Cir. 2013) (citations omitted). This means "[t]he reexamination statute [has] authorized the PTO to reconsider patents of doubtful validity, and to cancel defectively examined and therefore erroneously granted patents." *Id.* (quotations, citations, and alteration omitted). If a claim is invalid, it

is cancelled under the reexamination statute. *Id.* at 1339. "Even if the claim is amended during reexamination to render the claim valid, no suit can be maintained for the period prior to the validating amendment," and enforcement is limited to the "reissued claims." *Id.*

Although this decision pertains to section 101, the above is still applicable to inform that only the latest amended versions of Claims 5, 15, and 21 are applicable when determining if they contain an inventive concept. For Claim 15, the applicable version is that stated in the first Reexamination Certificate issued on June 4, 2013. For Claims 5 and 21, the applicable versions are those stated in the second Reexamination Certificate issued on October 2, 2014. Claim 43 also was added at that time.

II. STANDARD OF REVIEW

By statute, a patent is "presumed valid," and "[e]ach claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim." 35 U.S.C. § 282(a). "This presumption reflects the fact that the Patent and Trademark Office has already examined whether the patent satisfies the prerequisites for issuance of a patent, including § 101." *Cellspin Soft. Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1319 (Fed. Cir. 2019) (quotations and citation omitted). Congress also has placed "[t]he burden of establishing invalidity of a patent or any claim thereof . . . on the party asserting such invalidity." 35 U.S.C. § 282(a).

Moreover, in *Microsoft Corp. v. i4i Limited Partnership*, 564 U.S. 91, 95 (2011), the United States Supreme Court held that "the party asserting such invalidity," must prove the "invalidity defense . . . by clear and convincing evidence."

Because Firstbeat is challenging the validity of Polar's '227 Patent, Firstbeat bears the burden of proving the claims at issue are invalid by clear and convincing evidence. The '227 Patent has fifty claims. *See* Third Reexamination Certificate, Col. 1, Lines 15–18 (ECF No. 205-8). Only four of the claims are at issue in this case. Since each claim in a patent is presumed valid independent of the validity of other claims, Firstbeat's obligation extends only to those claims at issue and not to proving the '227 Patent is invalid as a whole.

III. SECTION 101 CHALLENGE

Firstbeat asserts the '227 Patent claims at issue are invalid because they claim an abstract idea and fail to contain an inventive concept. "Section 101 of title 35 defines patent-eligible subject matter." *Intell. Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1312 (Fed. Cir. 2016). The statute states, "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101. Although the subject area is broad, "[f]or over 150 years, the Supreme Court has recognized an implicit exception to these broad categories encompassing laws

of nature, natural phenomena, and abstract ideas, which are not patentable." *Intell. Ventures I LLC*, 838 F.3d at 1312 (quotations, citations, and alterations omitted). To do otherwise would preempt or impede innovation rather than promote it. *Alice Corp. Pty. Ltd., v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (quotations and citations omitted); *see also Bilski v. Kappos*, 561 U.S. 593, 602 (2010) (stating "[t]he concepts covered by these exceptions are part of the storehouse of knowledge of all men . . . free to all men and reserved exclusively to none") (quotations and citation omitted) (alteration in original)).

The exception to patentability is easily stated, but application is not. The Federal Circuit "as well as the Supreme Court, has long grappled with the exception that laws of nature, natural phenomena, and abstract ideas are not patentable." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016) (quotations, citations, and alteration omitted). In the cases of *Mayo* and *Alice*, the United States Supreme Court provided "'a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.'" *Alice Corp. Pty. Ltd., v. CLS Bank Int'l*, 573 U.S. at 217; *see also Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012). The framework is a two-step process.

A. *Alice* Step One

i. Patent Ineligible Subject Matter

Under the *Alice* "step one, a court must determine whether the claims at issue are directed to one of those

patent-ineligible concepts." *Intell. Ventures I LLC*, 838 F.3d at 1313 (quotations and citation omitted). "'Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.'" *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1374 (Fed. Cir. 2016) (quoting *Gottschalk,* 409 U.S. at 67). "Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry." *Id.* (quotations and citation omitted).

As to what constitutes an "abstract idea," the Supreme Court has not "delimited the precise contours of [the] category." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (quotations, citation, and alteration omitted). What is known is that "fundamental practices long prevalent are abstract ideas." *Intell. Ventures I LLC*, 838 F.3d at 1314 (quotations, citation, and alteration omitted). Mental processes are considered abstract for the following reasons:

> [m]ethods which can be performed entirely in the human mind are unpatentable not because there is anything wrong with claiming mental method steps as part of a process containing non-mental steps, but rather because computational methods which can be performed *entirely* in the human mind are the types of methods that embody the basic tools of scientific and technological work that are free to all men and reserved exclusively to none.

Synopsys, Inc. v. Mentor Graphics Corp., 839 F.3d 1138, 1146 (Fed. Cir. 2016) (emphasis in original) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)) (other citation omitted). Mental processes do not have to be done exclusively with one's mind. It is permissible for a "pencil and paper" to be involved where the method is performed by hand. *See id.* at 1147. If basic tools are applied when working with pencil and paper it does not change a concept from being abstract. *See Int'l Business Machines Corp. v. Zillow Group Inc.*, 50 F.4th 1371, 1377 (Fed. Cir. 2022) (listing a map, knife or scissors, and transparent overlay as part of tools allowing one to perform an abstract method by hand).

"The first stage of the *Alice* inquiry" also "looks at the focus of the claims," or "their character as a whole." *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) (quotations and citations omitted). In this case, Polar contends the '227 Patent involves "personalizing the energy consumption estimation by developing and then using a special energy consumption reference value based on a user's fitness, and specifically the user's maximal oxygen uptake (VO_{2max})." Polar's Opp'n to S. Jdmt. Mot., at 24 (ECF No. 458). With the stated purpose of the patent in mind, the court now addresses Firstbeat's contention that the claims at issue fall under the abstract idea category.

ii. Claim 5 Is an Abstract Idea

In *SAP America, Inc.*, 898 F.3d at 1165, 1167, the Court addressed the focus of the patent at issue, where it

involved a plurality of items from which an analysis was performed. The Court stated the focus was "on selecting certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis." *Id.* at 1167. The Court concluded it was "all abstract." *Id.* It noted that "[i]nformation as such is an intangible, hence abstract, and collecting information, including when limited to particular content (which does not change its character as information), is within the realm of abstract ideas." *Id.* (quotations, citation, and alteration omitted). Likewise, "analyzing information by mathematical algorithms, without more," also is abstract. *Id.* (quotations, citations, and alteration omitted).

Here, the first element of Claim 5 requires measuring a person's heart rate information during exercise and including a heart rate parameter. Neither the claim nor the specification limit how "measuring" is to occur or what the heart rate parameter must be. Measuring and including a heart rate parameter can be accomplished simply by taking someone's pulse while they are walking in place and counting the beats per minute while looking at the second hand on a watch. The focus of the first element is on gathering information.

The second element of Claim 5 involves obtaining an energy consumption reference value from one or more performance parameters, with at least one of the performance parameters being maximal oxygen uptake, otherwise known as VO2max. Although the '227 Patent allows for multiple performance parameters, Claim 5 requires no more than VO2max. VO2max is a fundamental

concept when assessing energy consumption and has been utilized for decades to determine fitness.[3] Consequently, formulas and tables exist where one can obtain a person's estimated VO2max. *See e.g.*, Maruo Patent, Col. 10, Lines 20–23 (predicting "maximum oxygen uptake" based on certain variables); *Cooper*, at 4 (ECF No. 438-25) (providing tables for predicted maximum oxygen uptake and fitness). Neither the claim nor the specification preclude one from simply utilizing formulas and tables to obtain the required information.[4] Consequently, this part of the second element merely pertains to gathering or collecting information.

Besides "obtaining" an energy consumption reference value from VO2max, the remainder of second element

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3. Firstbeat has referenced an article by Howley et al., *Criteria for Maximal Oxygen Uptake: Review and Commentary*, Medicine and Science in Sports and Exercise, at 1292–1301 (1995). The article states that "[m]aximal aerobic power (VO_{2max}) is one of the most common measurements made in exercise physiology laboratories. It is generally accepted as the best measure of the functional limit of the cardiovascular system . . . and is commonly interpreted as an index of cardiorespiratory fitness." *Id.* at 1292. The article further states, "because VO_{2max} *describes such a basic physiological characteristic*, it has become a common descriptive variable much like height, weight, and age." *Id.* (emphasis added).

4. During Claim Construction, the court concluded the term "maximal oxygen uptake" should not include "the limitations of 'measured' and 'breathing gases.'" *Polar Electro Oy v. Suunto Oy*, No. 1:17-CV-0139, 2019 WL 6791353, at *5, 8 (D. Utah Dec. 12, 2019). Instead, the court construed the term to mean "An objectively determined maximum oxygen consumption associated with a person during the person's physical performance at maximum heart rate."

states, "the energy consumption reference value being a maximum value of energy consumption associated with the person, the maximum value of energy consumption representing a value of energy consumption that is associated with the person and corresponds to a maximum heart rate associated with the person." Second Reexamination Certificate, Col. 1, Lines 36–41 (ECF No. 205-7). Thus, the energy consumption reference value is defined as the maximum value of energy consumption associated with a person and corresponds to that person's maximum heart rate. Dr. Levine attested that "[w]hen a person is at maximum physical performance, their heart rate is maximum, and their oxygen consumption is maximum." Levine Decl. II, ¶ 38 (ECF No. 456-3).

Applying that to the second element, the energy consumption reference value reflects a known correlation, namely, when a person is at VO2max (the required performance parameter), that person's heart rate is at maximum, that person's physical performance is a maximum, and thus, that person's energy consumption is at maximum. *Id.* ¶¶ 37–38; *see also* '227 Patent, Col. 3, Lines 24–30 (ECF No. 205-1) (remarking that "known physiological formulae" make it "possible to calculate the energy consumption reference value corresponding to the maximum value of the performance parameter"). Accordingly, the limitations added during the second reexamination appear duplicative of the requirement to obtain an energy consumption reference value from VO2max, where nothing is added because when one factor is at maximum, so are the other factors as a product of nature. Moreover, while the units of measurements may

change through known formulas, their character remains as information.

Specifying that the maximum energy consumption and maximum heart rate must be associated with a person also does not remove the claim from being abstract. Again, these units of measurement are interchangeable with VO2max. Obtaining VO2max from a formula or table that reports VO2max based on gender or age, *see* Lubell Patent, Col. 1, Lines 50–60 (reporting VO2max levels based on fitness, and stating "[a]s a general proposition, this fitness index [of VO2max] declines with age, and, for the same fitness level, is slightly lower for women than for men"), or distance traveled by a person in a 12-minute field test, can satisfy the requirement that it be "associated with a person." Neither Claim 5 nor the specification states that being "associated with a person" requires something other than obtaining the VO2max from a generalized table or known formulas or obtaining maximum heart rate from a known formula. Consequently, the latter part of the second element also pertains to gathering or collecting information.

The third element of Claim 5 involves assessing a persons' energy consumption using at least the heart rate parameter and the energy consumption reference value. Additionally, there needs to be a substantial linear relation between the heart rate parameter and the maximum and lower values of energy consumption. Firstbeat contends the third element can be performed with a pencil and paper, and nothing within the element requires use of a computer. The court agrees.

In *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016), the case involved claims that did "not call for any form of computer implementation of the claimed methods." Instead, the claims were "so broad as to read on an individual performing the claimed steps mentally or with pencil and paper." *Id.* The same is true here. Nothing in the third element of Claim 5, or in any of the other elements, requires use of a computer. With the exception of using a watch to help determine a person's heartrate, the steps can be performed mentally or with pencil and paper using known formulas and relationships.

iii. *CardioNet*

Polar asserts that Claim 5 cannot be reduced simply to measuring, obtaining, and assessing because the '227 Patent asserts it provides an improved method for determining a person's energy consumption. Polar cites to *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358 (Fed. Cir. 2020) for support. *CardioNet* involved cardiac monitoring technology "for detecting and distinguishing atrial fibrillation and atrial flutter from other various forms of cardiac arrythmia." *Id.* at 1362. The patent uses known R-waves, along with some known correlations. *Id.* at 1362–63. Nevertheless, the Federal Circuit concluded the patent was directed to allowable subject matter.

In doing so, the Federal Circuit recognized that "at some level all inventions embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *Id.* at 1367 (quotations, citations, and alterations omitted). The *CardioNet* patent did not just claim an

improvement, however. Through testing, it showed "a positive predictivity in excess of 96%" based on the method used. *Id.* at 1366. When looking at the claims, the Federal Circuit concluded the claims were "directed to technological improvements." *Id.* at 1369. The claims did not "merely computerize pre-existing techniques." *Id.* at 1370. Instead, the claims "achieve[d] speedier, more accurate, and clinically significant detection of two specific medical conditions out of a host of possible heart conditions." *Id.* Accordingly, the Court rejected the district court's finding that "doctors long used the claimed diagnostic processes," and that the processes could be performed "mentally or manually." *Id.* at 1370–71. The Court therefore concluded its analysis at *Alice* step one and did not reach *Alice* step two because the patent was not directed to an abstract idea. *Id.* at 1371.

In this case, Polar and its expert assert Claim 5's personalization phase develops an individualized calibration curve to better predict a person's energy consumption based on that person's fitness level. Yet, unlike the method in *CardioNet*, the elements of Claim 5 do not require use of a computer to implement, and there were no tests or studies to show how the method in Claim 5 improved the prediction of a person's energy consumption. Because the method in Claim 5 can be reduced to collecting information about a heart rate, obtaining an energy consumption reference value from known formulae or tables, and applying that individualized calibration through a pencil and paper, the court concludes this case is distinguishable from *CardioNet* and that Claim 5 is directed to an abstract idea.

B. Alice Step Two

At *Alice* step two, a court "must examine the elements of the claim to determine whether it contains an inventive concept sufficient to transform the claimed abstract idea or law of nature into a patent-eligible application." *Genetic Techs. Ltd.*, 818 F.3d at 1376 (quotations, citations, and alteration omitted). "The question is whether the claims do significantly more than simply describe a natural relation." *Id.* (quotations, citation, and alterations omitted). Under *Alice*, "a claim directed to" an unpatentable subject area cannot survive based "on the novelty of" the concept; "instead, the application must provide something inventive, beyond mere well-understood, routine, conventional activity." *Id.* (quotations and citations omitted). Whether something is well-understood or routine is a question of fact, and it "goes beyond what was simply known in the prior art." *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368–69 (Fed. Cir. 2018). The court now turns to Dr. Levine's declarations to determine if an issue of fact exists.

i. Dr. Levine's Declarations

Polar's expert Dr. Levine declared that he could not "find a single scientific publication that uses VO2max to determine free-living energy expenditure," and "VO2max was not used to personalize a heart rate monitor before the '227 Patent." Levine Decl. II, ¶ 50 (ECF No. 456-3). Dr. Levine further declared, "[i]nterestingly, this Court substantiated my research." *Id.* ¶ 51. He then quoted a passage from a prior decision of this court to support his declaration. *Id.* Given that the '227 Patent survived

the second reexamination by adding VO2max as a claim limitation, one would expect that VO2max was not expressly stated in prior art to calibrate a heart rate monitor. The passage that Dr. Levine quoted, however, is a statement made by the PTO, not this court. *See Polar Electro Oy v. Suunto Oy*, No. 1:17-CV-0139, 2019 WL 6791353, at *6 (D. Utah Dec. 12, 2019). Consequently, this court did not "substantiate" Dr. Levine's research, nor has this court engaged in a section 102 or 103 analysis.

Second, Dr. Levine further declared the '227 Patent involves an "oddball" approach to determining energy expenditure, which was not well-understood or routine when invented. Levine Decl. II, ¶¶ 52–53 (ECF No. 456-3). According to Dr. Levine, "[t]he claimed invention takes a value for VO2max and works backwards from there and does not depend upon the source of the VO2max. It is used in this weird way." *Id.* ¶ 52. Notably, however, the court is not doing a novelty or obviousness analysis. An invention can be novel or "oddball" and still be unpatentable. *SAP Am., Inc.*, 898 F.3d at 1163 (finding a patent abstract after it survived reexamination). Instead, the court's section 101 analysis focuses on whether Claim 5 supports an advancement in technology to transform an abstract idea into an inventive concept.

Dr. Levine provides significant detail about the challenges of determining energy expenditure and how the field of technology seeks more accurate measurements outside of a laboratory. When addressing the inventive concept of the '227 Patent, however, Dr. Levine paints with a wide brush of generality. One of his most specific

statements is the one quoted above where "the claimed invention takes a value for VO2max and works backwards from there and does not depend upon the source of the VO2max." Levine Decl. II, ¶ 52 (ECF No. 456-3). Dr. Levine does not explain why this concept advanced technology to predict energy consumption *more accurately*, particularly when individual calibration of heart rate monitors was already known.

The specification for the '227 Patent states prior art had a disadvantage because their methods did "not take into account that a fit person performs a larger amount of work at a given heart rate level than an unfit person." '227 Patent, Col. 1, Lines 41–46 (ECF No. 205-1). Yet, Lubell took into account that the fitness index of VO2max is higher the greater the level of a person's fitness, and the patent utilized maximum heart rate and maximum oxygen uptake to calculate a fitness parameter. Lubell Patent, Col. 1, Lines 49–51, 61–64. Jimenez also took into account that "a physically fit person is able to transport the same amount of oxygen at a lower heart rate than an unfit person," and utilized such "known phenomena" when developing the patent's caloric consumption equations. Jimenez Patent, Col. 20, Lines 42–44, 49–51. Thus, while the '227 Patent's specification stated prior art did not take into account a person's fitness, the prior art offered by Firstbeat tells a different story.

Additionally, it is important to note the relationship between maximum oxygen uptake, maximum heart rate, and maximum energy expenditure. As stated in Maruo, "the maximum heart rate is defined as a heart rate

corresponding to a maximal oxygen uptake (VO_{2max})," with known conversion formulas. Maruo Patent, Col. 1, Lines 40–51. Dr. Levine further reported that "when a person is at maximum physical performance, their heart rate is maximum, and their oxygen consumption is maximum, which is referred to as VO2max." Levine Decl. II, ¶ 38 (ECF No. 456-3). Consequently, when the PTO concluded that Richardson used maximum heart rate to determine the value of the user's estimated maximum aerobic energy expenditure, one could interchange maximum heart rate with VO2max. This calls into question what technological advancement the '227 Patent made when VO2max can be interchanged, and when it has not only been a prominent factor in prior art, but consists of a basic physiological characteristic that is a common descriptive variable when determining fitness.

If the '227 Patent were the technological advancement Polar contends it to be, one would expect Dr. Levine to declare in detail why it is inventive and more accurate in determining energy consumption. In other words, one would expect detail similar to what Dr. Levine provided when discussing the background of energy expenditure. He did not do so. Instead, he largely quoted language from the specification that is repetitive of the language in Claim 5, without connecting how the quotations showed a technological advancement. He also quoted means for obtaining maximum oxygen uptake that are not required by Claim 5, such as by obtaining VO2max via breathing gases or neural networks. *Id.* ¶ 61.

This is similar to the expert statements in *Move, Inc. v. Real Estate Alliance Ltd.*, 721 F. App'x 950 (Fed. Cir.

2018). In that case, the Federal Circuit concluded the claims were directed to abstract ideas, and it therefore proceeded to an *Alice* step two analysis. *Id.* at 955–56. The Court reviewed "the individual claim limitations [and] their ordered combination," and a declaration from the patentee's expert. *Id.* at 957. The expert's declaration stated the following:

> It was considered neither routine nor conventional in the mid-1980s for a computer-displayed map to be able to zoom to display a higher level of detail in the sense of displaying information that wasn't present at the lower level of detail at all, and this zooming step cannot be performed by a human.

Id. The Court noted that the expert failed to provide additional rationale beyond the conclusory statements. *Id.* Consequently, the bald assertions did "not satisfy the inventive concept requirement." *Id.* The Court further stated "[w]here the claim language does not provide any specific showing of what is inventive about the limitation in question or about the technology used to generate and process it," the Court has "concluded that the claims do not satisfy Alice's second step." *Id.* (quotations, citations, and alteration omitted).

Based on the above, the court concludes Dr. Levine's declarations fail to show why the '227 Patent is a technological advancement so as to transform abstract ideas into an inventive concept.

ii. Polar's Ordered Combination Contention

Polar contends that when the relevant claim elements are analyzed as a combination, they "satisfy step two of the *Alice* analysis." Mem. in Opp'n to S. Jdmt., at 43 (ECF No. 458). According to Polar, "[t]his particular solution leads to a personalized and a more accurate assessment of energy consumption that depends upon the unconventional ordered steps of obtaining an energy consumption reference value prior to assessing the person's energy consumption using the person's measured heart rate." *Id.*

In *SAP America., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163–64 (Fed. Cir. 2018), the patent was directed at improving financial forecasting so risk and rewards could be better assessed. "[T]he patent propose[d] a technique that utilizes resampled statistical methods for the analysis of financial data." *Id.* at 1164 (quotations and citation omitted). Although it contained limitations on the particular methods used, the Federal Circuit concluded "those features simply provide further narrowing of what are still mathematical operations. They add nothing outside of the abstract realm." *Id.* at 1169.

Here, the '227 Patent collects information about a person's heart rate information and then, like *SAP America*, it uses known correlations and formulas to carry out the elements. Individual calibration of heart rate monitors was already known in 2000. Measuring a person's heart rate through any mechanism, setting a heart rate parameter without limitation on what it must be, and then obtaining an energy consumption reference

value from the VO2max performance parameter without limiting how VO2max is obtained, show steps that read broadly. VO2max does not have to be obtained through breathing gases, like other prior art. It does not have to be obtained by the particular subject performing a fitness test correlated to maximum oxygen consumption. It simply can be obtained from a formula or table. Accordingly, it is not apparent why the '227 Patent provides a more accurate calibration curve, thereby advancing the technology.

The '227 Patent was not valid at the time it issued, and it has been in search of an inventive concept since that time. Because Claim 5's ordered combination fails to show an inventive concept sufficient to transform abstract ideas and known correlations under laws of nature, the court concludes Claim 5 is directed to an unpatentable subject matter. Accordingly, Claim 5 is invalid under section 101.

C. Representative Claim and Invalidity of Claims 15, 21, and 43

As stated above, the claims at issue in this case are Claims 5, 15, 21, and 43. Firstbeat centered its argument on Claim 5 as a representative claim "to demonstrate that each of the Asserted Claims are directed to the abstract idea of assessing a person's energy consumption during exercise." Mot. for S. Jdmt. on Invalidity, at 25 (ECF No. 441). It did so "[g]iven the similarity of the method and apparatus claims." *Id.* Polar disputes that Claim 5 is a representative claim and asserts that the calculating unit in Claim 21 is not a generic computer because it "performs specific, inventive functions." Polar's Mem. in

Opp'n to Mot. for S. Jdmt., at 6–7, 15 (ECF No. 458). It does not appear that Polar addressed whether Claim 5 is representative of Claims 15 or 43.

"When addressing the patent eligibility of multiple asserted claims, the Court may designate a representative claim or claims where the parties are unable to reach an agreement." *e-Numerate Sols., Inc. v. United States*, 149 Fed. Cl. 563, 574 (2020) (citing *Berkheimer*, 881 F.3d at 1365). In *Berkheimer*, the Federal Circuit stated, "[c]ourts may treat a claim as representative in certain situations, such as if the patentee does not present any meaningful argument for the distinctive significance of any claim limitations not found in the representative claim or if the parties agree to treat a claim as representative." *Berkheimer*, 881 F.3d at 1365 (citations omitted). Because Polar did not dispute that Claim 5 is representative of Claims 15 and 43, the court concludes Claim 5 is representative of those two claims.

As to Claim 21, in *Accenture Global Services, GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1341 (Fed. Cir. 2013), the Federal Circuit recognized "that system claims that closely track method claims and are grounded by the same meaningful limitations will generally rise and fall together." *Id.* (citation omitted). In that case, "the method and system claims were so closely related that the system claim essentially implemented the process of the method claim on a general purpose computer." *Id.* (citation omitted). The same is true in this case.

Although Claim 21 has "a measuring means for measuring a person's heart rate," and "a calculating

unit for calculating an assessment of the person's energy consumption during exercise," along with "a presenting means for presenting the formed assessment of the person's energy consumption," those limitations do not change that Claim 21 essentially implements the method of Claim 5 on a general purpose computer. Claim 21 does not disclose an advancement to the computer itself or to the display or to the means for measuring a person's heart rate. Instead, it merely uses those limitations generically to implement Claim 5's method. Accordingly, the court concludes that Claim 5 also is representative of Claim 21, and that Claims 15, 21, and 43 are invalid under section 101.

CONCLUSION

For the reasons stated above, the court concludes Claims 5, 15, 21, and 43 of the '227 Patent are invalid under section 101. Because that conclusion is dispositive, the court does not reach the parties' other contentions. Accordingly, the court rules on the pending motions as follows:

1. Firstbeat's Motion for Summary Judgment on Non-Infringement and Invalidity (ECF No. 439) is granted in part and denied as moot in part. The court grants Firstbeat's motion on the ground that Claims 5, 15, 21, and 43 of the '227 Patent are invalid under section 101 and denies as moot the remainder of the motion.

2. Polar's Motion for Summary Judgment on Validity (ECF No. 435) is denied as moot.

3. Polar's Motion for Summary Judgment on Infringement (ECF No. 436) is denied as moot.

4. Polar's Motion to Exclude Firstbeat's Technical Expert Thomas Blackadar (ECF No. 475) is denied as moot.

DATED this 4th day of April, 2024.

BY THE COURT:

/s/ Clark Waddoups
Clark Waddoups
United States District Judge

APPENDIX C — ORDER OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT, FILED FEBRUARY 4, 2026

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2024-1801

POLAR ELECTRO OY,

Plaintiff-Appellant,

v.

SUUNTO OY, AMER SPORTS
WINTER & OUTDOOR,

Defendants,

FIRSTBEAT TECHNOLOGIES OY,

Defendant-Appellee.

Appeal from the United States District Court for the District of Utah in No. 1:17-cv-00139-CW, Senior Judge Clark Waddoups.

Filed February 4, 2026

Appendix C

ON PETITION FOR PANEL REHEARING AND REHEARING EN BANC

Before MOORE, *Chief Judge*, LOURIE, DYK, PROST, REYNA, TARANTO, CHEN, HUGHES, STOLL, CUNNINGHAM, and STARK, *Circuit Judges*.[1]

PER CURIAM.

ORDER

Polar Electro Oy filed a combined petition for panel rehearing and rehearing en banc. The petition was referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc was referred to the circuit judges who are in regular active service.

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for panel rehearing is denied.

The petition for rehearing en banc is denied.

For the Court

February 4, 2026
Date

/s/ Jarrett B. Perlow
Clerk of Court

1. Circuit Judge Newman did not participate.