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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte MICHAEL C. BROWN and NEIL VOSKOBOYNIKOV

_____

Appeal 2024-001413
Application 16/860,594
Technology Center 3700

_____

Before ROBERT E. NAPPI, JAMES R. HUGHES, and JENNIFER L. MCKEOWN, *Administrative Patent Judges*.

HUGHES, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Claims 1–18, 20, and 21 are pending, stand rejected, are appealed by Appellant, and are the subject of our decision under 35 U.S.C. § 134(a).[1] *See* Final Act. 1, 2; Appeal Br. 5.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

CLAIMED SUBJECT MATTER

The claimed subject matter, according to Appellant, generally "relates to a method and system for detecting suction conditions in a patient having an implantable blood pump." Spec. ¶ 3. An exemplary embodiment describes "a method of detecting a suction condition during operation of a rotary blood pump . . . connected to a ventricle" (*id.* ¶ 7), i.e., "a ventricular assist device or 'VAD'" (*id.* ¶ 4), by "measuring the rotational speed of [a] rotor" (*id.* ¶ 7). *See* Spec. ¶¶ 4–26; Abstr. Claim 1 (directed to a method) and claim 11 (directed to a device) are independent. Claim 1, reproduced below, is illustrative of the claimed subject matter:

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[1] We use the term "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Heart Ware, Inc. Appeal Br. 3. The Appellant has assigned their interest to Boston Scientific Scimed, Inc. *See* Assignment dated Nov. 22, 2024. Appellant is reminded of its obligation to update its real party in interest information within 20 days of any change during the appeal. *See* 37 C.F.R. § 41.8(a).

[2] We refer to Appellant's Specification ("Spec."), filed Apr. 28, 2020; Appeal Brief ("Appeal Br."), filed Aug. 1, 2023; and Reply Brief ("Reply Br."), filed Feb. 1, 2024. We also refer to the Examiner's Final Office Action ("Final Act."), mailed Feb. 13, 2023; and Answer ("Ans."), mailed Dec. 1, 2023.

> 1. A method of detecting a suction condition during operation of a blood pump at a set rotational speed, the method comprising:
>
> monitoring, by a control circuit configured to maintain a speed of a rotor of the blood pump within a range around the set rotational speed, a flow rate of blood through the blood pump for a period of time during one or more cardiac cycles of a patient;
>
> determining, by the control circuit, a duty parameter representing a proportion of the period of time during which the flow rate is above a crossover flow rate; and
>
> generating, by the control circuit, a suction detect signal based at least in part on the duty parameter.

Appeal Br. 13 (Claims App.).

REFERENCE

The Examiner relies on the following reference to reject the claims:

Name	Reference	Date
Medvedev et al. ("Medvedev")	US 7,645,225 B2	Jan. 12, 2010

REJECTIONS

1. The Examiner rejects claims 1–18, 20, and 21 under 35 U.S.C. § 102(a)(1) as being anticipated by Medvedev. *See* Final Act. 4–8.

2. The Examiner rejects claims 1–9 and 21 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. *See* Ans. 8–10.[3]

[3] The Examiner enters a new ground of rejection under 35 U.S.C. § 101 in the Examiner's Answer.

ANALYSIS

Anticipation

The Examiner rejects claims 1–18, 20, and 21 as being anticipated by Medvedev. *See* Final Act. 4–8; Ans. 10–12. Specifically, with respect to claim 1, the Examiner finds that Medvedev discloses "determining, by [a] control circuit, a duty parameter representing a proportion of the time during which the flow rate is above a crossover flow rate." Final Act. 4–5 (citing Medvedev col. 6, l. 39–col. 7, l. 28 and col. 7, l. 56–col. 8, l. 3); *see* Ans. 10–12.

Appellant contends Medvedev does not disclose the limitations of claim 1. *See* Appeal Br. 5–8; Reply Br. 6–8. Specifically, Appellant contends, *inter alia*, that "[n]one of the techniques for detecting a pre-suction condition described in Medvedev utilize 'a duty parameter representing **a proportion of the period of time** during which the flow rate is above a crossover flow rate'" (Appeal Br. 5) and

> None of the various techniques for calculating DQ described in Medvedev are based on a proportion of a period of time, much less determined using "a proportion of the period of time during which the flow rate is above a crossover flow rate," as set forth in claim 1. Instead, all the disclosed techniques for determining DQ utilize only a peak maximum flow rate, a peak minimum flow rate, and/or a mean flow rate. That is, all the techniques described in Medvedev determine DQ based on **magnitudes of the flow rate measurements**, and not "a proportion of the period of time during which the flow rate is above a crossover flow rate."

Appeal Br. 6.

We find Appellant's arguments persuasive of Examiner error. As pointed out by Appellant, nothing in the Examiner's cited portions of

Medvedev explicitly discloses calculating a duty parameter that represents a fraction (proportion) of a period of time (e.g., multiple cardiac cycles—*see* Ans. 11) in which the flow rate is above (greater than) a crossover flow rate (i.e., the average flow rate). *See* Appeal Br. 5–8; Reply Br. 6–8; Medvedev col. 6, l. 39–col. 7, l. 28 and col. 7, l. 56–col. 8, l. 3. Although Medvedev's Q (flow rate) measurements include a mean flow rate (Q_{mean}) and an average maximum instantaneous pump flow ($Q_{peak(+)}$) (*see* Medvedev col. 6, ll. 59–66) that implicate a time component (are calculated over a time period) Medvedev's flow pulsatility (DQ) is not a measure of time or a proportion of time. Contrary to the Examiner's interpretation of claim 1 and Medvedev (*see* Ans. 10–11), determining magnitudes of flow rates and pulsatility over a "control cycle" and/or cardiac cycles does not *disclose* calculating/determining a fraction of time value as required by claim 1. Accordingly, the Examiner has not sufficiently shown that Medvedev discloses the disputed features of claim 1.

We are a Board of review, and not a place of initial examination. On the record before us, we cannot affirm the Examiner's rejection based upon any degree of speculation on our part. We cannot sustain the Examiner's rejection without some concrete objective evidence in the record supporting the Examiner's underlying factual finding and legal conclusions. *See, e.g.*, *Vaidyanathan*, 381 F. App'x 985, 993 (Fed. Cir. 2010), and *In re Wallen*, 565 F. App'x 867, 869 (Fed. Cir. 2014), both citing *In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001) ("[T]he Board must point to some concrete evidence in the record in support of these findings. To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise." (footnote omitted) (citation omitted)).

Consequently, we are constrained by the record before us to find that the Examiner erred in finding Medvedev anticipates Appellant's claim 1. Independent claim 11 includes limitations of commensurate scope. Dependent claims 2–10, 12–18, 20, and 21 depend from and stand with claims 1 and 11, respectively. Thus, we do not sustain the Examiner's anticipation rejection of claims 1–18, 20, and 21.

Eligibility

The Examiner rejects claims 1–9 and 21 as being directed to patent-ineligible subject matter. *See* Ans. 8–10. Appellant argues independent claim 1 and claims 2–9 and 21 together as a group (with respect to the subject matter eligibility rejection). *See* Reply Br. 2–6. We select independent claim 1 as representative of Appellant's arguments with respect to claims 1–9 and 21. *See* 37 C.F.R. § 1.37(c)(1)(iv) (2022).

We have reviewed the Examiner's rejection in light of Appellant's arguments in the Reply Brief that the Examiner has erred. On this record, we are not persuaded by Appellant's arguments, we disagree with Appellant's conclusions, and we find Appellant has not identified an error in the Examiner's subject matter eligibility rejection. Except as otherwise noted, we concur with the determinations reached by the Examiner and we adopt as our own (1) the findings, reasons, and conclusions set forth by the Examiner in the Examiner's Answer (*see* Ans. 8–10). We highlight the following points.

The Examiner's § 101 Rejection—Alice/Mayo Framework: Parts 1 and 2

Applying the *Alice*/*Mayo*[4] framework using the 2019 Revised Guidance,[5] the Examiner determines that claim 1 recites abstract mental processes. *See* Ans. 8–9. Further applying the *Alice*/*Mayo* framework, the Examiner determines that the additional elements of claim 1 do not integrate the abstract idea into a practical application. *See id.* at 9. The Examiner then determines these additional elements are not "sufficient to amount to significantly more than the judicial exception" (do not evince an "inventive concept"). *Id.* at 10.

Statutory Subject Matter

Independent claim 1 recites "[a] method of detecting a suction condition during operation of a blood pump at a set rotational speed." Appeal Br. 13 (Claims App.). Appellant's claim delineates a method for performing the recited operations, i.e., processes for "detecting suction conditions in a patient having an implantable blood pump." Spec. ¶ 3. Accordingly, Appellant's claim 1 falls within the process category of invention (USPTO Step 1). *See* Ans. 8.

Step 2A, Prong 1: Does the Claim Recite a Judicial Exception (Abstract Idea)?

The Examiner determined that claim 1 recites limitations that are mental processes. *See* Ans. 8–9 (quoting claim 1). The Examiner further

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[4] *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216, 217–18 (2014) (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)).

[5] *See* Manual of Patent Examining Procedure ("MPEP") § 2106 (9th ed., rev. 01.2024, Nov. 2024).

determines that the steps of "determining . . . a duty parameter" and "generating . . . a suction detect signal . . . based on the duty parameter" "can be performed by a human using a mental process" and, therefore, the claim limitation(s) "falls within the 'Mental Process' grouping of abstract ideas." *Id.* at 9; *see* MPEP § 2106.04(a)(2)(III).

Appellant contends that claim 1 does not recite an abstract idea. *See* Reply Br. 2–5. Specifically, Appellant contends, *inter alia*, that the method of claim 1 "includes one or more limitations that cannot practically be performed by the human mind" and cites *CardioNet*[6] in support of the contention that "complex data acquisition and manipulation" does not constitute mental processes. Reply Br. 2. *See id.* at 2–5.

We disagree with Appellant's contentions. In rejecting claim 1 under 35 U.S.C. § 101, the Examiner analyzed the claims using the *Mayo*/*Alice* two-step framework, consistent with the guidance set forth in the USPTO's Revised Patent Subject Matter Eligibility Guidance. Appellant, on the other hand, provides conclusory arguments that claim 1 does not recite mental processes, and misconstrues the applicable legal precedent (the *CardioNet* case).

Contrary to Appellant's contentions, *CardioNet* is inapposite to Appellant's claim 1. In *CardioNet*, the court explained that the claims at issue focused on a specific means for improving cardiac monitoring technology, and were "not 'directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.'" *CardioNet*, 955 F.3d at 1368 (quoting *McRO, Inc. v. Bandai Namco Games*

[6] *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358 (Fed. Cir. 2020) ("*CardioNet*").

Am. Inc., 837 F.3d 1299, 1314 (Fed. Cir. 2016)). In other words, the court found the claims were directed to a technical improvement (under the USPTO's Step 2A, Prong 2 analysis), not that the claims could not be performed in the human mind, as Appellant contends. Further, Appellant's claim 1 is unlike the claims in *CardioNet* that recite a physical system incorporating beat detectors (sensors) and improved techniques for using raw data, and which were found not to be directed to an abstract idea "because they focused on a specific means or method that improved cardiac monitoring technology, improving the detection of, and allowing more reliable and immediate treatment of, atrial fibrillation and atrial flutter." *iLife Technologies, Inc. v. Nintendo of America, Inc.*, 839 F. App'x 534, 537 (Fed. Cir. 2021) (citing *CardioNet*, 955 F.3d at 1368). In contrast, claim 1 is not focused on a specific means or method to improve blood pump monitoring systems, nor is it directed to a specific physical configuration of detectors.

Rather, Appellant's claim 1 recites a straight-forward mental process of determining a data value—a duty parameter—and the pre-solution activity of monitoring a flow rate using undisclosed and unclaimed control circuit technology. Appellant contends that

> claim 1, much like the *CardioNet* claims, recites several data acquisition and manipulation steps that cannot practically be performed mentally or manually, and therefore, . . . the subject matter of claim 1 does not constitute a mental process. For example, it is completely impractical to think that a human could "monitor[] . . . a flow rate of blood through the blood pump for a period of time during one or more cardiac cycles of a patient" at a rate and accuracy sufficient to "determin[e] . . . a duty parameter representing a proportion of the period of time during

> which the flow rate is above a crossover flow rate" and use that duty parameter to detect a suction condition in a blood pump.

Reply Br. 5. Appellant, however, does not explain why the monitoring and determining functions cannot be performed mentally (using, e.g., undisclosed and unclaimed sensors and computer components (including the control circuit, discussed *infra*)). Appellant's monitoring (i.e., data-gathering) step (operation) amounts to insignificant pre-solution activity. *See In re Bilski*, 545 F.3d 943, 963 (Fed. Cir. 2008) (en banc), *aff'd Bilski v. Kappos*, 561 U.S. 593 (2010) (characterizing data gathering steps as insignificant extra-solution activity); *see also Versata Development Group, Inc. v. SAP America, Inc.*, 793 F.3d 1306, 1334 (Fed. Cir. 2015) ("retrieving applicable" data and "storing" the data (pricing information) amount to standard computer "activities"); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (sending and receiving data over a network amounts to "routine data-gathering steps" and "storing . . . results" amounts to standard "computer activities"); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (The recited "computer functionality is generic," "[t]hat a computer receives and sends the information over a network—with no further specification—is not even arguably inventive."); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371–72 (Fed. Cir. 2011) (noting that even if some physical steps are required to obtain information from a database (e.g., entering a query via a keyboard, clicking a mouse), such data-gathering steps cannot alone confer patentability); *accord* MPEP § 2106.05(g) ("The term 'extra-solution activity' can be understood as activities incidental to the primary process or product that are merely a nominal or tangential addition to the claim. Extra-solution activity includes both pre-solution and post-solution activity.").

With respect to Appellant's determining (of a duty parameter), this step (operation) recites determining a proportion or fraction of time the monitored flow rate is greater than an average (crossover) flow rate. *See* Spec. ¶¶ 53–62; Figs. 5, 6. Determining an average flow rate, comparing flow rates to the average, and determining a period of time the flow rate exceeds the average (none of which are affirmatively recited in the claim), and determining a fraction (proportion) of time (the recited limitation) can be performed by a human, using observation, evaluation, and judgment, because the steps involve making evaluations and judgments (calculations and/or determinations), which are mental tasks humans routinely perform in the course carrying out a process for evaluating data (using, for example, pen and paper). *See* Appellant's Figures 5 and 6, illustrating the recited determination. *See In re Killian*, 45 F.4th 1373, 1379–1380 (Fed. Cir. 2022); MPEP § 2106.04(a)(2)(III).

Further, it is well-settled that collecting information, as well as analyzing information by steps people go through in their minds, are essentially mental processes within the abstract-idea category. *See FairWarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1093 (Fed. Cir. 2016); *see also Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) ("[W]e have treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category."). Appellant's monitoring and determining operations are akin to the claims directed to an abstract mental process in *Elec. Power Grp*. *See Elec. Power Grp.*, 830 F.3d at 1353 ("The claims . . . fall into a familiar class of claims 'directed to' a patent-ineligible concept. The focus of the asserted claims

. . . is on collecting information, analyzing it, and displaying certain results of the collection and analysis.").

It matters not for our analysis that such mental analysis might be cumbersome. *See, e.g.*, *Int'l Business Machines Corp. v. Zillow Grp., Inc.*, 50 F.4th 1371, 1381–82 (Fed. Cir. 2022) (finding, with respect to a patent purporting to solve the problem "that the display of 'any system that has large numbers of objects in many categories with relationships is difficult to understand,'" and that "[w]hile moving objects between layers or rearranging layers may take longer using the manual method, a patent that automate[s] pen and paper methodologies to conserve human resources and minimize errors is a 'quintessential do it on a computer patent' directed to an abstract idea" (quoting *Univ. of Fla. Rsch. Found., Inc. v. Gen. Elec. Co.*, 916 F.3d 1363, 1367 (Fed. Cir. 2019) (internal quotation marks omitted))).

Moreover, as previously explained (*supra*), claim 1 does not require any particular type of analysis, calculations, or processes that cannot be performed by the human mind, with pencil and paper as an aid. In short, claim 1 recites mental processes, which are abstract ideas. We are not persuaded by Appellant's arguments that the claim does not recite abstract mental processes. *See* MPEP §§ 2106.04(a)(2)(III)(C), 2106.04(a)(2)(III)(B); 2019 Revised Guidance, 84 Fed. Reg. 50, 52 n.14 (Jan. 7, 2019) ("If a claim, under its broadest reasonable interpretation, covers performance in the mind but for the recitation of generic computer components, then it is still in the mental processes category unless the claim cannot practically be performed in the mind."); October 2019 Update: Subject Matter Eligibility 9, available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf (hereinafter "October 2019

Update") ("The use of a physical aid (i.e., the pen and paper) to help perform a mental step (e.g., a mathematical calculation) does not negate the mental nature of this limitation.").

In summary, the relevant delineated operations in claim 1 fall within the grouping of mental processes, which are abstract ideas. *See* MPEP § 2106.04(a)(2)(III). We conclude Appellant's claim 1 recites a judicial exception (USPTO Step 2A, Prong 1) because claim 1 recites mental processes—i.e., determining a duty parameter that represents a flow rate fraction (a proportion of the period of time during which the flow rate is above a crossover flow rate).

Step 2A, Prong 2: Is the Judicial Exception Integrated into a Practical Application?

Having determined that claim 1 recites abstract ideas, we next determine, under USPTO Step 2A, Prong 2 of the 2019 Revised Guidance, whether claim 1 is directed to those abstract ideas, or whether the claim integrates the abstract ideas into a practical application. *See* MPEP § 2106.04(d). Specifically, we consider any additional elements recited in the claim along with the limitations that recite an abstract idea to determine whether the claim integrates the abstract ideas into a practical application. *See* MPEP § 2106.04(d)(III); October 2019 Update 12.

Claim 1 recites additional elements, including a "blood pump" and "a control circuit." Appeal Br. 13 (Claims App.). The functionality of these additional elements is generally described in Appellant's Specification, but neither the claims, nor the Specification describe in detail the technical features (sensors, computer hardware, and/or software) of these additional elements that are relevant to claim 1. *See* Spec. ¶¶ 35–44, 50–63; Figs. 1–3.

Indeed, Appellant's Specification explains that the control circuit may comprise a "general-purpose processor" (Spec. ¶ 38) that is "well-known"—"processor 210 may be any well-known processor, such as commercially available processors" (Spec. ¶ 39).

The Examiner determines that claim 1 recites additional elements but these elements do not integrate the abstract idea into a practical application because they amount to pre-solution data gathering and generic computing elements or components that are recited at a high-level of generality, amount to mere instructions to implement the judicial exception (abstract idea) on a computer, and merely use a computer (i.e., the additional elements) as a tool to perform an abstract idea. *See* Ans. 9–10; MPEP § 2106.05(f).

Appellant contends that claim 1 "achieves the practical application of generating a suction detect signal." Reply Br. 5. Appellant further contends that, similar to other Patent Trial and Appeal Board ("Board") cases finding integration into a practical application, claim 1 "'addresses a need' in the field" ("detecting suction conditions in blood pumps") "by its use of a new 'duty parameter representing a proportion of the period of time during which the flow rate is above a crossover flow rate,' which had not previously been used, and 'presents functional and palpable applications in the field.'" *Id.* Appellant argues that "the duty parameter of claim 1 may be used to more accurately identify suction conditions in blood pumps," and claim 1, therefore, "is 'focused on a specific articulated improvement' in the field of detecting adverse cardiac events," and is "not directed to an abstract idea for

at least the same reasons as the claims in *CardioNet*." Reply Br. 5 (citing prior Board cases).[7]

We find Appellant's argument concerning integration of the abstract ideas into a practical application to be unpersuasive of Examiner error. With respect to the Board cases cited by Appellant, we note that these decisions are not controlling law, and we determine that Appellant's claim 1 is distinguishable from the claims in these decisions. Specifically, Appellant's claim 1 is not directed to the solution of a technical problem, nor is it directed to an improvement in computer functionality. Instead, claim 1 implements the abstract idea (monitoring blood flow, determining a duty parameter, and generating an output (a suction detect signal, which is extra-solution (post-solution) activity)) through the use of conventional devices (e.g., using a generic processor), without providing any technological solution or improvement. Instead, any "improvement" or "solution" resides in the abstract idea itself. As explicitly explained by Appellant, it is the "duty parameter" and the determining operation that provide the purported improvement. *See* Reply Br. 5.

Appellant's claim broadly describes using "generic" computing components, i.e., the control circuit, to perform the delineated process operations. Implementing the abstract idea using generic computer elements does not integrate the abstract idea into a practical application. Ans. 9–10.

Providing "simply generic descriptions of well-known computer components" does not integrate the abstract idea into a practical application.

[7] Appellant cites to *Ex Parle Huber et al.*, Appeal No. 2018-005800, 2018 WL 4941597 (PTAB Sept. 26, 2018) and *Ex Parle Ohrn et al.*, Appeal No. 2017-003914, 2017 WL 5649458 (PTAB Nov. 20, 2017).

Affinity Labs of Tex., LLC v. Amazon.com Inc., 838 F.3d 1266, 1270 (Fed. Cir. 2016) ("*Affinity II*"). Additionally, limiting the abstract ideas "to a particular existing technological environment does not render the claims any less abstract"—"[e]ven if all the details contained in the specification were imported into the [claims], the result would still not be a concrete implementation of the abstract idea. In fact, the specification underscores the breadth and abstract nature of the idea embodied in the claims." *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1259 (Fed. Cir. 2016) ("*Affinity I*") (citations omitted); *see also id.* at 1262 ("The patent in this case is not directed to the solution of a 'technological problem,' nor is it directed to an improvement in computer or network functionality. Instead, it claims the [abstract idea] through the use of conventional devices, without offering any technological means of effecting that concept." (citation omitted)).

In summary, "the focus of the claims is not on such an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools." *Elec. Power Grp.*, 830 F.3d at 1354; *see also* MPEP § 2106.05(f) (emphasis omitted) (instructing examiners to consider "[w]hether the claim invokes computers or other machinery merely as a tool to perform an existing process" in determining whether the claim recites mere instructions to apply the exception). For these reasons, we determine that claim 1 is not directed to a specific asserted improvement in computer technology or otherwise integrated into a practical application. *See* MPEP §§ 2106.05(a)–(c), (e), (f). Consequently, we conclude that claim 1 is "directed to" a judicial exception.

Step 2B – Does the Claim Include an "Inventive Concept" or "Significantly More"?

Having concluded claim 1 is directed to an abstract idea under the 2019 Revised Guidance (USPTO Step 2A analysis), we consider whether claim 1 has an inventive concept, that is, whether the claim has additional elements that "'transform the nature of the claim' into a patent-eligible application." *Alice*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 78, 79). We determine "whether a claim recites significantly more than a judicial exception," which requires us to evaluate whether "the additional element (or combination of elements)" add "a specific limitation other than what is well-understood, routine and conventional in the field" or simply append "well-understood, routine, conventional activities previously known to the industry," specified "at a high level of generality." MPEP § 2106.05(d).

The Examiner concludes that claim 1 "do[es] not include additional elements that are sufficient to amount to significantly more than the judicial exception," and the additional elements are well-understood, routine, conventional. Ans. 10.

Appellant generally contends that claim 1 embodies an inventive concept, in that "[t]he elements of claim 1 improve[] the technical field at least because the method utilizes a control circuit to facilitate determinations of a suction condition in a blood pump" and, therefore, claim 1 "amounts to significantly more than an alleged abstract idea and represents a patent-eligible inventive concept." Reply Br. 6.

Appellant does not persuade us of Examiner error with respect to the "inventive concept" analysis. In particular, Appellant does not specifically discuss how or why claim 1 embodies an inventive concept such that the

additional elements amount to more than the judicial exception—i.e., the additional elements are not well-understood, routine, conventional.

We agree with the Examiner's conclusion that the additional elements do not provide an inventive concept. *See* Ans. 10. Based on our analysis concerning integration into a practical application (*supra*), we further find that additional elements are well-understood, routine, and conventional computer components and functions. As discussed above with respect to USPTO Step 2A, Prong 2, the Specification describes the additional elements—the control circuit—in such broad terms so as to essentially define them as generic computer components performing generic instructions. Accordingly, the Specification itself describes the additional elements as being well-understood, routine, and conventional computing devices that perform standard computing processes. *See, e.g.*, Spec. ¶¶ 38–39. Such conventional processes operating on conventional computer hardware "do not alone transform an otherwise abstract idea into patent-eligible subject matter." *FairWarning IP*, 839 F.3d at 1096.

Thus, because claim 1 is directed to a judicial exception, without significantly more, we sustain the Examiner's rejection under 35 U.S.C. § 101 of independent claim 1, as well as claims 2–9 and 21 not separately argued with particularity (*supra*).

CONCLUSION

Appellant has not shown that the Examiner erred in rejecting claims 1–9 and 21 as being directed to patent-ineligible subject matter under 35 U.S.C. § 101. We, therefore, sustain the Examiner's subject matter eligibility rejection of claims 1–9 and 21. Appellant has shown that the Examiner erred in rejecting claims 1–18, 20, and 21 as being anticipated

under 35 U.S.C. § 102. We, therefore, do not sustain the Examiner's anticipation rejection of claims 1–18, 20, and 21.

DECISION SUMMARY

The following table summarizes our decision:

Claim(s) Rejected	35 U.S.C. §	Reference(s)/ Basis	Affirmed	Reversed
1–18, 20, 21	102	Medvedev		1–18, 20, 21
1–9, 21	101	Eligibility	1–9, 21	
Overall Outcome			1–9, 21	10–18, 20

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED IN PART