UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/360,691	05/27/2014	Amy Oi Mee CHEUNG	2011P01709WOUS	2051

24737 7590 12/26/2019

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
465 Columbus Avenue
Suite 340
Valhalla, NY 10595

EXAMINER
HEIN, DEVIN C

ART UNIT	PAPER NUMBER
3686	

NOTIFICATION DATE	DELIVERY MODE
12/26/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

katelyn.mulroy@philips.com
marianne.fox@philips.com
patti.demichele@Philips.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte AMY OI MEE CHEUNG, MARYAM ATAKHORRAMI, CHOO CHIAP CHIAU, DAVID PAUL WALKER, TAMARA MATHEA ELISABETH NIJSEN, and REBECCA TSAO

Appeal 2019-000997
Application 14/360,691
Technology Center 3600

Before MAHSHID D. SAADAT, JENNIFER L. McKEOWN, and ALEX S. YAP, *Administrative Patent Judges*.

McKEOWN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant[1] appeals under 35 U.S.C. § 134(a) from the Examiner's decision to reject claims 1–16. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

---

[1] Koninklijke Philips Electronics N.V. ("Appellant") is the applicant as provided in 37 C.F.R. § 1.46 and is identified as the real party in interest. App. Br. 2.

STATEMENT OF THE CASE

Appellant's disclosed and claimed invention relates to "the monitoring of the activity of a subject, in particular, for calculating a total risk score using the time dependent activity of the subject." Spec. p. 1, ll. 23.

Claim 1 is illustrative of the claimed invention and reads as follows:

> 1. A wearable device comprising:
> one or more sensors for acquiring activity data descriptive of time dependent motion of a subject;
> a memory for storing machine readable instructions; and
> a processor for executing the instructions that, when executed, causes the wearable device to:
> monitor the activity data via the one or more sensors;
> detect, based on the monitoring, an activity count for each instance of activity that the activity data indicates as satisfying a predetermined threshold amount of activity for a predetermined threshold amount of time to derive activity counts from the activity data, each of the activity counts being associated with a given time;
> store the activity counts in the memory;
> determine at least two statistical parameters from the activity counts, wherein the at least two statistical parameters are descriptive of the activity counts as a function of time and indicate:
> (1) a total amount of activity by the subject over time; and
> (2) an intensity level of the activity of the subject over time;
> obtain a parameter baseline for each of the at least two statistical parameters, each of the parameter baselines being derived based on the wearable device's monitoring of prior activity data via the one or more sensors;
> determine a risk score for each of the at least two statistical parameters; and
> determine a total risk score for the subject using the risk scores and the parameter baselines, wherein the total

> risk score is indicative of a risk of acute exacerbations and/or re-hospitalizations of the subject.

REJECTIONS

The Examiner rejected claims 1–16 under 35 U.S.C. § 101 as directed to patent ineligible subject matter. Final Act. 2–6.

The Examiner rejected claims 1–4 and 8–16 under 35 U.S.C. § 103 as unpatentable over Kording et al. (US 2013/0041290 A1, pub. Feb. 14, 2013) ("Kording") and Boschetti Sacco et al. (US 2013/0184540 A1, pub. July 18, 2013) ("Sacco"). Final Act. 7–15.

The Examiner rejected claims 5–7 under 35 U.S.C. § 103 as unpatentable over Kording, Sacco, and Pacione et al. (US 2005/0113650 A1, May 26, 2005) ("Pacione"). Final Act. 16–18.

ANALYSIS

THE 35 U.S.C. § 101 REJECTION

Claims 1–16

Based on the record before us, we are not persuaded that the Examiner erred in concluding that claims 1–16 are directed to patent ineligible subject matter.

An invention is patent-eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: "[l]aws of nature, natural phenomena, and abstract ideas" are not patentable. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (citation omitted).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court's two-step framework, described in *Mayo* and *Alice*. *Id*. at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is "directed to." *See Alice*, 573 U.S. at 219 ("On their face, the claims before us are drawn to the concept of intermediated settlement, i.e., the use of a third party to mitigate settlement risk."); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) ("Claims 1 and 4 in petitioners' application explain the basic concept of hedging, or protecting against risk.").

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as "molding rubber products" (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); "tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores" (*id*. at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. (15 How.) 252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that "[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula." *Diehr*, 450 U.S. at 176; *see also id*. at 191 ("We view respondents' claims as nothing more than a process for molding rubber

products and not as an attempt to patent a mathematical formula."). Having said that, the Supreme Court also indicated that a claim "seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment." *Id*. (citing *Benson* and *Flook*); *see, e.g.*, *id*. at 187 ("It is now commonplace that an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.").

If the claim is "directed to" an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where "we must examine the elements of the claim to determine whether it contains an 'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 221 (citation omitted). "A claim that recites an abstract idea must include 'additional features' to ensure 'that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].'" *Id*. (alterations in original) (quoting *Mayo*, 566 U.S. at 77). "[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention." *Id*.

The PTO has published revised guidance on the application of section 101. USPTO's 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Memorandum"). Under that guidance, we first look to whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing

> human activity such as a fundamental economic practice, or mental processes); and
>
> (2) additional elements that integrate the judicial exception into a practical application (see MANUAL OF PATENT EXAMINING PROCEDURE ("MPEP") § 2106.05(a)-(c), (e)-(h) (9th ed. 2018)).

See Memorandum 52, 55–56. Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

> (3) adds a specific limitation beyond the judicial exception that are not "well-understood, routine, conventional" in the field (see MPEP § 2106.05(d)); or
>
> (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

See Memorandum 56.

Analysis – Revised Step 2A

Under the Memorandum, in prong one of step 2A we look to whether the claims recite a judicial exception. The claimed invention includes "monitor the activity data;" "detect, based on the monitoring, an activity count for each instance of activity" that the activity data that satisfies the two recited thresholds; "determine at least two statistical parameters from the activity counts, wherein the at least two statistical parameters are descriptive of the activity counts as a function of time and indicate:" "(1) a total amount of activity by the subject over time;" and "(2) an intensity level of the activity of the subject over time;" "obtain a parameter baseline for each of the at least two statistical parameters, each of the parameter baselines being

derived based on the wearable device's monitoring of prior activity data;" "determine a risk score for each of the at least two statistical parameters;" and "determine a total risk score for the subject using the risk scores and the parameter baselines, wherein the total risk score is indicative of a risk of acute exacerbations and/or re-hospitalizations of the subject."

In other words, the claimed invention evaluates the activity data to detect activity counts meeting certain thresholds and then calculates statistical parameters from collected activity counts, uses the parameters to determine a baseline, and then determines risk scores for the parameters and a total risk score for the subject. Monitoring activity data and detecting whether data is above certain thresholds is a process that can be performed in a human mind. *See Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (noting that the Federal Circuit has "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."); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011) (holding that a claim whose "steps can be performed in the human mind, or by a human using a pen and paper" is directed to an "unpatentable mental process[]"). As such, the claimed invention recites a mental process, which is an abstract idea. Additionally, determining statistical parameters from the activity counts, obtaining a parameter baseline, and determining a risk score and total risk score all are mathematical calculations. As such, the claimed invention recites a mathematical concept - an abstract idea. *See also* Ans. 5–6.

Under prong two of revised step 2A, we determine whether the recited judicial exception is integrated into a practical application of that exception

by: (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and (b) evaluating those additional elements individually and in combination to determine whether they integrate the exception into a practical application.

The claimed invention additionally recites "one or more sensors for acquiring activity data descriptive of time dependent motion of a subject;" "a memory for storing machine readable instructions;" "a processor for executing the instructions;" and "stor[ing] the activity counts in the memory." *See* Ans. 6. Here, the additional limitations recited beyond the judicial exception itself, alone or in combination, fail to integrate the exception into a practical application. More particularly, and contrary to Appellant's unsupported assertions, the claimed invention is not: (i) an improvement to the functionality of a computer or other technology or technical field (*see* MPEP § 2106.05(a)); (ii) a "particular machine" to apply or use the judicial exception (*see* MPEP § 2106.05(b)); (iii) a particular transformation of an article to a different thing or state (*see* MPEP § 2106.05(c)); or (iv) any other meaningful limitation (*see* MPEP § 2106.05(e)). *See also* 84 Fed. Reg. at 55.

Appellant argues that the claimed invention provides a technical improvement to health monitoring systems. Appeal Br. 6–8; Reply Br. 3–5. Namely, Appellant asserts that the claimed invention saves memory space on the wearable device by saving only detected activity counts, i.e., activity of a predetermined amount and predetermined time. Appeal Br. 6; Reply Br. 3; *see also* Appeal Br. 15–16 (arguing that the Examiner fails to consider "the ordered combination of the claim limitations that enables embodiments of the claimed invention to save memory space on a wearable device's

limited memory while still enabling the wearable device to perform its risk determinations."). Appellant explains the claimed invention

> reduces the amount of data that needs to be stored on the wearable device's memory while still enabling the wearable device to perform its risk determinations (e.g., from the stored activity counts), thereby saving memory space on the wearable device's limited memory (e.g., limited as compared to memory available on laptops, desktops, servers, or other computing devices).

Reply Br. 3.

Appellant, however, fails to persuasively support this argument. As the Examiner explains, "[t]he specification makes no mention of reducing stored data, saving memory or even the limited memory available on wearable devices." Ans. 4. Instead, the Specification describes a method of monitoring activity of a subject to calculate a total risk score to provide appropriate intervention on time to ensure the patent avoids hospitalization. Spec. p. 1, ll. 2–13. As such, the Specification describes improving patient treatment, i.e., provide on time monitoring to avoid hospitalization, not improving the functioning of the computer or a technical field. *See ChargePoint, Inc. v. Semaconnect, Inc.*, 920 F.3d 759, 767 (Fed. Cir. 2019) (considering the Specification to identify "the problem facing the inventor" and description of the invention in finding the claimed invention ineligible).

The Examiner also points out

> a wearable device does not necessarily imply that it contains limited memory as compared to other devices, as many device having sensors, memory and a processor (as required by the claim) could be worn, including those the Appellant considers to be less limited than a wearable device, such as laptops or other computing devices as argued on page 19 of the appeal brief.

Ans. 4. The Examiner further identifies that the claimed invention "do[es] not necessarily require [] not [storing] activity data." Ans. 4. In other words, the claimed invention does not recite *only* storing activity data meeting the recited thresholds so nothing precludes also storing data that did not meet the recited thresholds. As such, Appellant's conclusory assertions, without more, are unpersuasive.

Appellant also asserts that the claimed invention improves the accuracy of the risk determination by using multiple baseline parameters. Appeal Br. 8–9; Reply Br. 5. Merely using an additional mathematical parameter, however, is not an improvement to the functioning of the computer or technical field. *Cf. Thales Visionix, Inc. v. United States*, 850 F.3d 1343, 1348-48 (Fed. Cir. 2017) (relying on the particular arrangement of sensors, not the mathematical equations, as the improvement in finding claims eligible); *see also OIP Techs., Inc., v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (finding that "relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible."). As such, we are unpersuaded that the claimed invention provides a technical improvement to health monitoring systems. Instead, the claimed invention merely uses computers as tools to implement the abstract idea. *See Gottschalk v. Benson*, 409 U.S. 63 (1972).

We further note that the additional steps of receiving and storing activity data is insignificant extra-solution activity. *See* Ans. 7–8; MPEP § 2106.05(g); *see also*, *e.g.*, *OIP Techs., Inc.,* 788 F.3d at 1363 (noting that storing data is well-understood, routine, and conventional and does not render claims eligible); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 ("That a computer receives and sends the information over a network—with

no further specification—is not even arguably inventive."). As such, based on the record before us, we determine that the claimed invention is not integrated into a practical application.

Analysis – Revised Step 2B

Under step 2B, we determine that the claimed additional limitations, alone or in combination, does not add significantly more to the abstract idea. In particular, Appellant argues that the Examiner fails to sufficiently show that the claimed invention is well-known, routine, and conventional. App. Br. 16–19. Specifically, Appellant alleges that "in the instant case, there is no evidence that the claimed invention (or the inventive concept as a whole) was well-understood, routine, and conventional. It is this claimed invention (which had not been done before) that improves upon pre-existing health monitoring assessment systems." App. Br. 20.

We find this argument unpersuasive. As the Examiner points out, the additional limitations, alone or in combination, namely the "[s]ensors for acquiring data, memory for storing data and processors for analyzing data[,] are generic computer structure[s] that serve[] to perform[] generic computer functions that are well-understood, routine, and conventional activities previously known to the pertinent industry." Ans. 7. The Examiner supports this finding by relying on the Specification and prior art. *See, e.g.*, Ans. 7 (citing Spec. 10–16 and Pacione). Appellant generally asserts that the Examiner findings are insufficient, but notably fails to address the cited support. *See* Reply Br. 16–18. For example, Appellant challenges the Examiner's analysis of "ordered combination" but fails to explain persuasively how the ordered combination renders the claimed invention eligible. *See id*. As discussed above, we agree that the claimed invention as

a whole is directed to the mental steps and mathematical calculations, which are abstract ideas, and are not persuaded that the claimed invention as a whole is directed to eligible subject matter. As outlined in the Berkheimer memorandum[2], the Examiner has cited to factual support to show that the additional limitations, alone and in combination, are well-known, routine, and conventional. *See, e.g.*, Ans. 7–8. Therefore, without more, we find Appellant's argument unpersuasive. *See also Elec. Power Grp*., *LLC*, 830 F.3d at 1355 (finding that use of "conventional computer, network, and display technology for gathering, sending, and presenting the desired information" does not add significantly more to the claimed abstract idea); *Content Extraction & Transmission LLC v. Wells Fargo Bank*, *Nat'l Ass'n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (discussing that data collection, recognition, and storage is well-known); *CyberSource Corp*., 654 F.3d at 1375 ("[T]he incidental use of a computer to perform the [claimed process] does not impose a sufficiently meaningful limit on the claim's scope.").

We similarly find Appellant's argument with respect to claims 3 and 4 unavailing. As the Examiner explains, claims 3 and 4 additionally include identifying and classifying data, which are mental steps – an abstract idea. Ans. 8. Claim 3 also recites the additional limitation to "band pass filter accelerometer data." The Examiner points to Kording to factually support the finding that "signal conditioning, such as band pass filtering is a well-understood, routine and conventional waveform analysis technique."

---

[2] *See* "Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*)" at 3 (Apr. 19, 2018), available at https://www.uspto.gov/sites/default/files/documents/memo-berkheimer-20180419.PDF.

Appellant generally asserts the Examiner's findings are insufficient, but again fails to address the teaching of Kording and, thus, fails to identify persuasively error in the Examiner's rejection. *See, e.g.*, Reply Br. 10.

Accordingly, based on the record before us, we affirm the rejection of claims 1−16 as directed to patent ineligible subject matter.

THE 35 U.S.C. § 103 REJECTION BASED ON KORDING AND SACCO

Claims 1−4 and 8−16

Based on the record before us, we are persuaded that the Examiner erred in concluding that claims 1−4 and 8−16 are unpatentable over Kording and Sacco.

Appellants argue that Kording does not teach or suggest a wearable device that (i) "detect[s], based on the monitoring, an activity count for each instance of activity that the activity data indicates as satisfying a predetermined threshold amount of activity for a predetermined threshold amount of time to derive activity counts from the activity data," (ii) "store[s] the activity count in the memory," and (iii) "determine[s] at least two statistical parameters from the activity counts," as recited in claim 1. App. Br. 25. In particular, Appellant argues that Kording's evaluation station "classifies and stores all monitored activity regardless of how long an activity occurred." According to Appellant, Kording's wearable device does not detect a count for each instance of activity that "satisfying both the conditions of (i) a predetermined threshold amount of activity and (ii) that such amount of activity occurred for a predetermined threshold amount of time." App. Br. 25; *see also* Reply Br. 17.

The Examiner finds that Kording's paragraph 81 detects:

> a predetermined threshold amount of activity (a predetermined number/set of vertical displacements representing acceleration exceeding a predetermined threshold) for a predetermined threshold amount of time (a predetermined number/set of vertical displacements separated by a predetermined time relative to each other represents a predetermined time that the activity must be performed to satisfy the pattern indicating an activity/behavior as the horizontal axis in in the time domain) to derive activity counts from the activity data (number of times an activity/behavior is performed).

Ans. 13. The Examiner explains that the predetermined time threshold "is the required set of vertical displacements. . . relative to each other." Namely, the Examiner finds that Kording satisfies the recited time threshold determination as "the number/set of vertical displacements on the time domain axis represents a required time that the vertical displacements must occur to constitute an activity/behavior." Ans. 13.

We agree with Appellant. Kording teaches collecting and storing *continuous* activity data. *See* Reply Br. 17; Kording ¶ 59. The collected data is analyzed to identify features of interest or patterns that can be used to identity activities. *See, e.g.*, Kording ¶¶ 62, 65, 93, 115. For example, as Appellant explains, Kording teaches using the collected data to distinguish between walking and running. While Kording describes identifying an activity based on recognized pattern of activity, the Examiner fails to explain how these teachings satisfy detecting both a predetermined activity amount for a predetermined activity length of time, and then saving that detected activity count. *See, e.g.*, Reply Br. 16–17. As such, we are persuaded of error in the Examiner's rejection.

Accordingly, based on the record before us, we reverse the rejection of claims 1–4 and 8−16 as unpatentable over Kording and Sacco.

THE 35 U.S.C. § 103 REJECTION BASED ON KORDING, SACCO, AND PACIONE

Claims 5−7

As discussed above, we are persuaded that the Examiner erred in rejecting independent claim 1, from which claims 5–7 depend. Pacione does not cure the deficiencies from Kording and Sacco. As such, for the reasons discussed above we likewise find error in the rejection of claims 5–7 and reverse the rejection.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–16	101	Eligibility	1–16	
1–4, 8–16	103	Kording, Sacco		1–4, 8–16
5–7	103	Kording, Sacco, Pacione		5–7
Overall Outcome			1–16	

AFFIRMED