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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GUIDO MUESCH, ROBERT PINTER,
and LENA GOURMELON

Appeal 2017-007834
Application 13/876,251[1]
Technology Center 3700

Before MICHAEL J. FITZPATRICK, ULRIKE W. JENKS,
and ELIZABETH A. LAVIER, *Administrative Patent Judges*.

LAVIER, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellants seek review of the Examiner's rejections of claims 1–3, 5, 7–12, and 14–25. We have jurisdiction under 35 U.S.C. § 6(b). For the reasons set forth below, we AFFIRM.

BACKGROUND

The Specification relates to a method and apparatus for collecting information from an awake patient, for use in diagnosing obstructive sleep apnea. Spec. 1:3–4.

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[1] Appellants state the real party in interest is Koninklijke Philips Electronics N.V. Appeal Br. 2.

Claim 1 is illustrative, and recites:

> 1. An apparatus for determining one or more parameters for use in diagnosing the presence of obstructive sleep apnea in a patient while the patient is awake, the apparatus comprising:
>
> a processor configured to: (i) receive signals representing measurements of a patient's breathing obtained during a plurality of breathing cycles by the patient, (ii) convert the signals into the frequency domain to generate frequency-domain converted signals, and (iii) determine a value for at least one parameter based on an analysis of the frequency-domain converted signals in one or more frequency bands covering frequencies below 100 Hz,
>
> wherein the processor is configured to do at least one of (i) determine a value for a first parameter by comparing the frequency-domain converted signals in a first frequency band during exhalation to the frequency-domain converted signals in a second frequency band during exhalation, (ii) determine a value for a second parameter by comparing the frequency-domain converted signals in a third frequency band during inhalation to the frequency-domain converted signals in the third frequency band during exhalation, and (iii) determine a value for a third parameter by comparing the frequency-domain converted signals in a fourth frequency band during an inhalation or exhalation to a noise level above a frequency threshold during the inhalation or exhalation, wherein the first frequency band, the second frequency band, and the third frequency band all cover only frequencies below 100 Hz.

Appeal Br. 14 (Claims Appendix).

REJECTIONS MAINTAINED ON APPEAL

1. Claims 1–3, 5, 7–12, and 14–25 stand rejected under 35 U.S.C. § 101. Ans. 2.

2. Claims 1–3, 5, 7–12, and 14–25 stand rejected under 35 U.S.C. § 112(a), as failing to comply with the enablement requirement. Ans. 2.

DISCUSSION

A. Rejection 1: § 101

"Laws of nature, natural phenomena, and abstract ideas are not patentable." *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012) (citation omitted). The Supreme Court articulated a two-step test for patent eligibility under § 101 that "distinguish[es] 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*, 134 S.Ct. 2347, 2355 (2014) (citing *Mayo*, 132 S.Ct. at 1296–97). "First," *Alice* instructs a tribunal to "determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Id.* (citation and quotations omitted). If the claims are directed to a patent ineligible concept then the court must proceed to the second step of the test—the "search for an inventive concept—i.e., an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself." *Id.* (quotations and alterations omitted).

1. Step One

Beginning with Step 1 of the *Alice* inquiry, the Examiner finds that the appealed claims "are directed to determining one or more parameters related to respiratory signals, similar to the abstract idea of organization of information through mathematical correlations." Final Action 5.

Appellants contend that the claims are not mere abstractions, insofar as they "are directed to a newly developed, novel and tangible system and method for diagnosing the presence of obstructive sleep apnea in a patient." Appeal Br. 7. We are not persuaded. Novelty[2] "does not avoid the problem of abstractness." *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1263 (Fed. Cir. 2016); *see also Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1340 (Fed. Cir. 2017) ("Eligibility and novelty are separate inquiries."). The apparatus of claim 1 comprises a generic processor, configured to receive, convert, and analyze signals. *See* Appeal Br. 14 (Claims Appendix). Claims reciting general-purpose computer components do not confer patent eligibility on an abstract idea. *See Alice*, 134 S. Ct. at 2360 ("Because petitioner's system and media claims add nothing of substance to the underlying abstract idea, we hold that they too are patent ineligible under § 101."). The method of claim 12 does not recite a processor, but similarly pertains to the abstract ideas of obtaining, converting, and analyzing signals. *See* Appeal Br. 16–17 (Claims Appendix); *see also* Appeal Br. 8 (noting that claim 12 includes "similar limitations" as claim 1).

2. Step Two

The Step 2 inquiry of *Alice* considers whether there is something "significantly more" than the abstract idea, or in other words, an "inventive concept" embodied by the claim. The Examiner finds that "[t]he claims do

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[2] The Examiner acknowledges that "claims 1–3, 5, 7–12, and 14–25 include subject matter that is not taught by the prior art. The prior art of record does not teach use of only frequency ranges below 100 Hz in the determination of sleep apnea." Final Action 7.

not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional element of a processor is no more than a generic processor performing generic computer functions, such as receiving signals and performing comparisons, which are well-understood, routine and conventional in the art." Final Action 5.

Appellants' arguments (*see* Appeal Br. 8–10; *see also* Reply Br. 2–4) do not persuade us otherwise. The "example" Appellants give to show that claims 1 and 12 are directed to something significantly more than an abstract idea is simply to quote almost the entirety of claim 1. Appeal Br. 8; *see also* Reply Br. 2–3 (same). More specifically, Appellants maintain that they are "not trying to preempt any implementation of the abstract idea" but rather are "trying to protect a particular implementation" that features comparison that were "not well-understood, routine, or conventional in the art." *Id.* at 8–9. Appellants also assert that the preambles of claims 1 and 12, as well as the additional limitations of claims 2 and 3, demonstrate that the claims are directed to practical applications, i.e., to the diagnosis of obstructive sleep apnea. *See* Reply Br. 3–4.

We agree with the Examiner that whatever improvement[3] to which the claims are directed "is purely in the abstract idea itself and not the practical application of that idea" (Ans. 4). This does not confer patentability to the claims. *See Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1332

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[3] The Examiner further notes that it is not clear the claimed invention is an *improvement* over the prior art so much as an *alternative* means for diagnosis. *See* Ans. 4. Appellants insist otherwise (*see* Reply Br. 4), but do not explain why the exclusive use of frequency ranges below 100 Hz to generate comparisons used to diagnose obstructive sleep apnea is better than prior art methods.

(Fed. Cir. 2015) ("[T]he prohibition on patenting an ineligible concept cannot be circumvented by limiting the use of an ineligible concept to a particular technological environment."); *see also Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1377 (Fed. Cir. 2015) ("For process claims that encompass natural phenomenon, the process steps are the additional features that must be new and useful." (citing *Parker v. Flook*, 437 U.S. 584, 591 (1978) ("The process itself, not merely the mathematical algorithm, must be new and useful."))). Further, even if it were the case that the claims would not preempt all applications of the abstract idea, "the absence of complete preemption does not demonstrate patent eligibility" of a claim. *Ariosa*, 788 F.3d at 1379.

Appellants point out that certain dependent claims (9, 10, 21, and 22), which recite the use of flow rate and/or sound sensors, are patent eligible by virtue of being tied to a particular machine or apparatus under the machine-or-transformation test.[4] *See* Appeal Br. 9. But as with generic computer components, "recited physical components [that] behave exactly as expected according to their ordinary use" cannot confer patent eligibility on an otherwise ineligible claim. *In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 615 (Fed. Cir. 2016). Put differently, such physical components

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[4] As Appellants acknowledge (*see* Appeal Br. 9), the machine-or-transformation test is simply a "useful clue" in the second part of the *Alice* analysis, *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014). It is not a safe harbor. *See DDR Holdings, LLC v. Hotels.com L.P.*, 773 F.3d 1245, 1255–56 (Fed. Cir. 2014) ("[S]atisfying the machine-or-transformation test, by itself, is not sufficient to render a claim patent-eligible, as not all transformations or machine implementations infuse an otherwise ineligible claim with an "inventive concept.").

"simply provide[] the environment in which the abstract idea . . . is carried out." *Id.* at 614. Here, we discern no indication in the Specification that the sensors themselves are used in an unconventional way (for example, there is no suggestion that the sensors must be modified or arranged unconventionally to detect signals below 100 Hz), and Appellants make no such argument.[5] Accordingly, the claims "are not tied to any particular novel machine or apparatus," *Ultramercial*, 772 F.3d at 716, that might rescue these dependent claims (or any others) from the realm of abstraction.

For these reasons and those already of record, we affirm the Examiner's rejection of claims 1–3, 5, 7–12, and 14–25 under § 101.

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[5] For further discussion of sensors and abstract ideas (albeit applied to *Alice* step one), consider the Federal Circuit's discussion in *Thales Visionics*:

> The claims specify a particular configuration of inertial sensors and a particular method of using the raw data from the sensors in order to more accurately calculate the position and orientation of an object on a moving platform. The mathematical equations are a consequence of the arrangement of the sensors and the unconventional choice of reference frame in order to calculate position and orientation. Far from claiming the equations themselves, the claims seek to protect only the application of physics to the unconventional configuration of sensors as disclosed. As such, these claims are not directed to an abstract idea and thus the claims survive *Alice* step one.

Thales Visionix Inc. v. United States, 850 F.3d 1343, 1349 (Fed. Cir. 2017). In contrast to *Thales Visionics*, the present claims employ sensors for their ordinary purpose, in ordinary way. *See* Ans. 4 ("[T]he improvement is purely in the abstract idea itself and not the practical application of that idea.").

B. Rejection 2: § 112(a)

As discussed above, independent claims 1 and 12 recite the determination of parameters based on signals from bands of "frequencies below 100 Hz" in the diagnosis of obstructive sleep apnea. Appeal Br. 14 (Claims Appendix) (claim 1); *id.* at 16–17 (claim 12). The Examiner finds that, "[a]t most, the specification may provide enablement for the use of the exhalation frequency ranges of 30–40 Hz and 18–22 Hz," but not the broader claimed range. Final Action 3–4. According to the Examiner, the Specification lacks sufficient detail to allow the ordinarily skilled artisan to make and use the invention (*see id.* at 3), in part because the data in the Specification relate only to an exhalation frequency spectrum signal; no data are given "related to inhalation and its ranges" (*id.* at 4 (discussing Figures 5A and 5B)).

"[W]hen a range is claimed, there must be reasonable enablement of the scope of the range." *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1244 (Fed. Cir. 2003). We are satisfied that the Specification meets this standard in regard to the use of frequencies below 100 Hz. We need not decide whether the data presented in Figures 5A and 5B are sufficient to enable the entire claimed range, because the disclosure at pages 10–12 of the Specification gives further direction regarding the selection of frequency bands. While the 18–22 Hz and 30–40 Hz frequency bands are noted as particular examples, the Specification generally discusses obstructive sleep apnea-related changes in "certain frequency ranges or bands below 100Hz" (Spec. 10:17), and 100 Hz is suggested as a threshold frequency for separating useful signals from noise, for signals derived from inhalation or exhalation (*see id.* at 12:3–5). The Specification also teaches that the

difference between mean exhalation frequency amplitude in a given frequency band, and the mean inhalation frequency amplitude in the same or a similar band, can be a useful parameter in diagnosing obstructive sleep apnea. *See id.* at 11:18–28. While the examples given for use in determining the exhalation-inhalation difference set the frequencies no higher than 20 Hz (*see id.*), the general teachings regarding the changes in frequency bands below 100 Hz seen in patients with obstructive sleep apnea (*see id.* at 10:16–17) provide sufficient additional guidance to allow one of ordinary skill in the art to make and use the claimed invention, without undue experimentation, using frequencies below 100 Hz.

Accordingly, we reverse the rejection of claims 1–3, 5, 7–12, and 14–25 under § 112(a).

CONCLUSION

Rejection 1 is affirmed.

Rejection 2 is reversed.

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

AFFIRMED