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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TOUBY A. DREW, JONATHON E. GIFTAKIS, DAVID L. CARLSON, NINA M. GRAVES, and JONATHAN C. WERDER

Appeal 2018-003799
Application 13/803,462¹
Technology Center 3600

Before ROBERT E. NAPPI, JASON J. CHUNG, and
MATTHEW J. McNEILL, *Administrative Patent Judges*.

CHUNG, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the Final Rejection of claims 1–12. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

INVENTION

The invention “relates to techniques for selecting, storing[,] and reporting data associated with physiologic signals that may be further associated with a neurological event.” Spec. ¶ 2. Claim 1 is illustrative of the invention and is reproduced below:

1. A method for reporting neurologic data of a plurality of-neurologic events of a patient from an implantable

¹ According to Appellant, Medtronic, Inc. is the real party in interest. App. Br. 3.

medical device to an external device, comprising:

using a plurality of monitoring elements connected to the implantable medical device, measuring a plurality of physiological signals including signals occurring within a brain of the patient and creating a plurality of data records that include indications of a plurality of neurologic events with the implantable medical device, the data record of each neurologic event including data for each of a plurality of activities occurring during the neurologic event, each data record including data for each activity of the neurologic event where the data for each activity is generated from each physiological signal of the plurality of physiological signals that corresponds to the activity;

respectively assigning a plurality of severity levels to the activities of each neurologic event with the implantable medical device, the severity level being assigned to each activity based on the severity of that instance of the activity;

determining a priority index for the data record of each neurologic event with the implantable medical device, wherein the determination of the priority index depends upon the plurality of severity levels respectively assigned to the plurality of activities occurring during the neurologic event;

selecting a set of data records from the plurality of data records, the selection based upon the data records of the selected set being higher in the priority index than the other data records of the plurality of data records; and

communicating a set of the selected data records from the implantable medical device to the external device via telemetry.

REJECTIONS AT ISSUE

Claims 1–12 stand rejected under 35 U.S.C. § 101 as being directed to patent ineligible subject matter. Final Act. 8–13.

Claims 1–5, 7, 8, and 10–12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dirnberger (US 6,589,187 B1; issued July 8, 2003), Haller (US 2001/0051787 A1; published Dec. 13, 2001), and Dorfmeister (US 5,995,868; issued Nov. 30, 1999). Final Act.

13–20.

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dirnberger, Haller, Dorfmeister, and Eberle (US 6,526,314 B1; issued Feb. 25, 2003). Final Act. 21.

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dirnberger, Haller, Dorfmeister, and Osorio (US 2012/0116183 A1; filed Nov. 3, 2011). Final Act. 21–22.

ANALYSIS

I. Claims 1–12 Rejected Under 35 U.S.C. § 101

A. Legal Principles

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. *E.g.*, *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

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, 69 (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 187; *see also id.* at 192 (“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 (quotation marks 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.* (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 recently published revised guidance on the application of § 101. USPTO’s January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance* (“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* MPEP § 2106.05(a)–(c), (e)–(h)).

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.

B. The Examiner's Conclusions and Appellants' Arguments

The Examiner concludes the present claims are directed to assigning severity levels to monitored neurological activity data, determining a priority index for the activity data based on the assigned severity and selecting data based on the priority index. Final Act. 9; Ans. 5. The Examiner also determines the present claims do not amount to significantly more than an abstract idea because the Examiner finds the abstract idea is implemented on generic components that are well-understood, routine, and conventional previously known to the industry. Final Act. 10–12; Ans. 7.

Appellants argue, similar to *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016) and *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299, 1308–14 (Fed. Cir. 2016), the present claims are directed to an improvement to the function of the implantable medical device. App. Br. 6–8; Reply Br. 2. We agree with Appellants.

C. Discussion

1. Step 2A, Prong 1 (Alice Step 1)

We consider claim 1 (with emphases), reproduced below.

1. A method for reporting neurologic data of a plurality of-neurologic events of a patient from an implantable medical device to an external device, comprising:

using a plurality of monitoring elements connected to the implantable medical device, measuring a plurality of physiological signals including signals occurring within a brain of the patient and *creating a plurality of data records that include indications of a plurality of neurologic events with the implantable medical device, the data record of each neurologic*

event including data for each of a plurality of activities occurring during the neurologic event, each data record including data for each activity of the neurologic event where the data for each activity is generated from each physiological signal of the plurality of physiological signals that corresponds to the activity;

respectively assigning a plurality of severity levels to the activities of each neurologic event with the implantable medical device, the severity level being assigned to each activity based on the severity of that instance of the activity;

determining a priority index for the data record of each neurologic event with the implantable medical device, wherein the determination of the priority index depends upon the plurality of severity levels respectively assigned to the plurality of activities occurring during the neurologic event;

selecting a set of data records from the plurality of data records, the selection based upon the data records of the selected set being higher in the priority index than the other data records of the plurality of data records; and

communicating a set of the selected data records from the implantable medical device to the external device via telemetry.

The italicized portions of claim 1 is directed to concepts performed in the human mind (including an observation, evaluation, judgment, opinion). According to the Memorandum, concepts performed in the human mind (including an observation, evaluation, judgment, opinion) fall into the category of mental processes, which the Memorandum explains is one category of abstract ideas. *See* Memorandum.

Because claim 1 recites mental processes, we proceed to prong 2.

2. *Step 2A, Prong 2 (Alice Step 1)*

Claim 1 recites the mental processes integrated into a practical application. In particular, we agree with Appellants' argument that, similar to *Enfish* and *McRO*, claim 1 (and similarly recited claim 11) recites an improvement to the functionality of the implantable medical device. App.

Br. 6–8; Reply Br. 2. That is, data from signals captured from the brain of the patient that have the highest priority index to be communicated to ensure that those data records with the highest assigned priority index can be preserved externally should they eventually be overwritten or otherwise discarded by the implantable device. This prevents the implantable medical device from failing to communicate a data record with a high importance while instead communicating data records of lower importance during the transmission period. Communicating the data records about brain activity that are of higher importance, as specified by the higher priority index as recited in claim 1, is an improvement to the operation of that implantable medical device.

The present case is distinguishable from *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016). The claims in *Electric Power* displayed certain results, whereas claim 1, in the present case, communicates data with higher priority levels that include a set of selected records that improve the operation of the implantable medical device as stated in the preceding paragraph.

Because claim 1 recites the mental processes integrated into a practical application, we need not proceed to Step 2B. Accordingly, we do not sustain the Examiner’s rejection of: (1) independent claims 1 and 11; and (2) dependent claims 2–10 and 12 under 35 U.S.C. § 101.

II. Claims 1–12 Rejected Under 35 U.S.C. § 103

The Examiner finds Dorfmeister teaches the fields of cardiac monitoring and seizure detection are related. Final Act. 16–17 (citing Dorfmeister, 9:40–55); Ans. 13 (citing Dorfmeister, 9:40–55). Moreover, the Examiner finds it would have been obvious to a person having ordinary

skill in the art at the time of the invention to combine Dirnberger's monitoring of cardiac events with Dorfmeister's detection of the onset of a seizure to continuously monitor and analyze these signals to detect precursors predictive of an impending change as soon as it occurs. Final Act. 17–18.

Appellants argue Dirnberger and Dorfmeister are non-analogous art because Dirnberger monitors cardiac events and handles that data in limited storage environment by reducing the amount of cardiac data that must be maintained, whereas Dorfmeister detects the onset of a seizure. App. Br. 10; Reply Br. 5–6. Appellants argue that combining Dorfmeister's collecting brain signal information with Dirnberger's limited storage space collecting cardiac data is counter-productive because the combination creates more excessive data. App. Br. 10; Reply Br. 6–8. We disagree with Appellants.

At the outset, we note that the test for determining whether a prior art reference constitutes analogous art to the claimed invention is: (1) whether the prior art is from the same field of endeavor, regardless of the problem addressed, or (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *See In re Bigio*, 381 F.3d

1320, 1325 (Fed. Cir. 2004).^{2,3}

In determining the field of endeavor, we look to the Appellants' written description and claims, including the structure and function of the invention. *Bigio*, 381 F.3d at 1326. We determine that in defining the field of invention, and in determining the relevance of Dirnberger and Dorfmeister to the obviousness inquiry, a broad approach should be taken. Indeed, the Supreme Court provided guidance in determining the applicability of a reference's teachings in an obviousness inquiry. In *KSR Int'l Co. v. Teleflex Inc.*, the Court explained that if a feature has been used to improve one device, and a person of ordinary skill in the art would have recognized that it would improve a similar device in that field or another, implementing that feature on the similar device is likely obvious. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

Here, the appropriate scope of the field of endeavor relates to techniques for selecting, storing, and reporting data associated with

² Appellants' argument that Dirnberger and Dorfmeister are not analogous with each other (App. Br. 10) appears to be a misstatement of the law. The correct statement is that a reference "qualifies as prior art for an obviousness determination under § 103 only when it is analogous to the claimed invention." *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011) (emphasis added). Nonetheless, we find that Dirnberger and Dorfmeister are analogous to the claimed invention for the reasons stated *infra*.

³ In the Reply Brief, to the extent that Appellants are arguing that Dirnberger and Dorfmeister are not analogous to the claimed invention (Reply Br. 5–6), we respectfully remind Appellants that new arguments in the Reply Brief are considered untimely and waived without showing good cause. *See* 37 C.F.R. § 41.41(b)(2); *compare* Reply Br. 5–6 (arguing that Dirnberger's monitoring cardiac events is non-analogous to neurological events) *with* App. Br. 10 (arguing that Dirnberger and Dorfmeister are not analogous with each other).

physiologic signals (e.g., Appellants’ Specification states “neurological signal can include, for example, . . . heart rate signals”) that may be further associated with a neurological event. Spec. ¶¶ 2, 5. We determine Dirnberger is within the field of endeavor because it teaches collecting cardiac signals. Dirnberger, 4:27–35 (cited at Final Act. 14). In addition, we determine that Dorfmeister is within the field of endeavor because it teaches collecting neurological brain signals. Dorfmeister, 4:64–5:3, 2:29–41, 9:40–55 (cited at Final Act. 17; Ans. 13).

Because we determine that Dirnberger and Dorfmeister are within the same field of endeavor as the claimed invention, we need not consider whether Dirnberger and Dorfmeister are reasonably pertinent to the particular problem with which Appellants are involved.

Accordingly, the Examiner did not err in finding that Dirnberger and Dorfmeister are analogous to the claimed invention.

We disagree with Appellants’ argument that Dirnberger and Dorfmeister are counter-productive with each other. App. Br. 10; Reply Br. 6–8. Dorfmeister teaches the fields of cardiac monitoring and seizure detection are related. Dorfmeister, 9:40–55 (cited at Final Act. 16–17; Ans. 13). And we agree with the Examiner’s finding that it would have been obvious to a person having ordinary skill in the art at the time of the invention to combining Dirnberger’s monitoring of cardiac events with Dorfmeister’s detection of the onset of a seizure to continuously monitor and analyze these signals to detect precursors predictive of an impending change as soon as it occurs. Final Act. 17–18. We, therefore, find the Examiner has set forth sufficient “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 at 418 (quoting

Kahn, 441 F.3d at 988).

Appellants do not argue claims 1–12 separately with particularity, but assert the rejections of those claims should be withdrawn for at least the same reasons. App. Br. 9–11. Accordingly, we sustain the Examiner’s rejection of: (1) independent claims 1 and 11; and (2) dependent claims 2–10 and 12 under 35 U.S.C. § 103.

We have only considered those arguments that Appellants actually raised in the Briefs. Arguments Appellants could have made, but chose not to make, in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

DECISION

We reverse the Examiner’s decision rejecting claims 1–12 under 35 U.S.C. § 101.

We affirm the Examiner’s decision rejecting claims 1–12 under 35 U.S.C. § 103(a).

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