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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAVAID MASOUD, CHARLES H. DUDDING, and
ROBERT A. PATRIAS

Appeal 2018-002130¹
Application 11/554,245²
Technology Center 3700

Before PHILLIP J. KAUFFMAN, JEREMY M. PLENZLER, and
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

FINAMORE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellants appeal from the Examiner's decision to reject claims 1–22. We have jurisdiction under § 6(b). We reverse.

¹ We reference herein the Specification filed October 30, 2006 (“Spec.”), Final Office Action mailed December 29, 2016 (“Final Act.”), Appeal Brief filed June 12, 2017 (“Appeal Br.”), Examiner’s Answer mailed October 20, 2017 (“Ans.”), and Reply Brief filed December 20, 2017 (“Reply Br.”).

² Appellants identify Medtronic, Inc., a wholly owned subsidiary of Medtronic plc, as the real party in interest. Appeal Br. 3.

CLAIMED SUBJECT MATTER

Claims 1, 8, and 14 are the independent claims on appeal. Independent claim 1 is illustrative of the claimed subject matter and reproduced below.

Claim 1. A method for operating an implantable medical device (“IMD”), the method comprising:
obtaining contextual meaning information for data to be transmitted via telemetry communication from the IMD;
adjusting a data retransmission configuration for the IMD in response to the contextual meaning information;
transmitting the data to be transmitted from the IMD via telemetry communication; and
managing retransmission, by the IMD, of the previously transmitted data from the IMD via telemetry communication in accordance with the data retransmission configuration.

Appeal Br., Claims App.

REJECTIONS

The Examiner rejects the claims on appeal as follows:
claims 1, 3, 4, 8, 10, 11, 21, and 22 under 35 U.S.C. § 102(b) as anticipated by Goedeke;³
claims 2, 5, 7, 9, 12, and 14–20 under 35 U.S.C. § 103(a) as unpatentable over Geodeke and Ngo;⁴
claims 6 and 13 under 35 U.S.C. § 103(a) as unpatentable over Goedeke and Meadows;⁵ and
claims 1–22 under 35 U.S.C. § 101 as patent-ineligible subject matter.

³ US 2002/0072783 A1; pub. June 13, 2002.

⁴ US 2005/0251579 A1, pub. Nov. 10, 2005.

⁵ US 6,516,227 B1, iss. Feb. 4, 2003.

ANALYSIS

Anticipation

Independent claim 1 recites a method including the step of “adjusting a data retransmission configuration for the IMD in response to the contextual meaning information.” Appeal Br., Claims App. Appellants argue Goedeke does not disclose this limitation. *Id.* at 16; Reply Br. 4–6. For the reasons below, Appellants’ argument is persuasive.

Goedeke discloses medical communications system 120 including diagnostic equipment 122 that is capable of processing information collected from IMD 110 via communications link 115. Goedeke ¶ 20, Figs. 1–2. In one embodiment, transceiver unit 114A of diagnostic system 122 sends downlink command messages via signals 113 to IMDs 110A–D, and the IMDs send back signals 111A–D indicating whether or not they are ready to establish the uplink transmission with transceiver 114A and diagnostic system 122. *Id.* ¶ 24, Fig. 2. If ready, an IMD sends a block of data with a cyclic redundancy check (“CRC”) code to ensure proper transmission to diagnostic system 122. *Id.* ¶ 24. Diagnostic system 122 checks the CRC code and verifies the integrity of the transmitted data. *Id.* If a block of data is corrupted, diagnostic unit 122 determines that the IMD must retransmit the block of data. *Id.*

In the Answer, the Examiner explains how this description satisfies the disputed limitation. Ans. 4. Namely, the Examiner interprets “adjusting a data retransmission configuration for the IMD in response to the contextual meaning information” to read on Goedeke’s disclosure of including a CRC code with each block of data in response to an IMD previously sending a signal indicating the IMD is ready for uplink. The Examiner’s

interpretation, however, ignores the plain language of the disputed limitation and is inconsistent with Appellants' Specification.

Beginning with plain language, the disputed limitation recites “*adjusting a data retransmission configuration.*” Appeal Br., Claims App. (emphasis added). The disputed limitation therefore requires an adjustment to a configuration for data retransmission. The Examiner does not expressly identify “a data retransmission configuration” in Goedeke, and, therefore, fails to show the addition of a CRC code is an adjustment thereto. To the extent the Examiner relies on the transmission of a block of data without a CRC code as “a data retransmission configuration,” the Examiner has not explained how sending a block of data is a configuration for data retransmission. Rather, we agree with Appellants that sending a block of data is a configuration for data transmission. Appeal Br. 16; Reply Br. 5–6.

Moreover, the Examiner's interpretation of the disputed limitation to encompass including a CRC code to a block of data is inconsistent with Appellants' Specification. The Specification explains:

Conventional IMDs may employ data retransmission techniques for redundancy and/or to ensure that data is successfully transmitted under poor channel conditions. Some IMDs employ a default retransmission scheme where each transmitted packet or frame is always retransmitted at least once, regardless of channel conditions. Such data retransmission schemes and redundant transmission schemes are somewhat limited in that data is retransmitted even when it is undesirable or unnecessary to do so. Consequently, such IMDs may transmit extraneous telemetry signals, resulting in wasted transmitter output power and decreased IMD battery life.

An IMD as described herein can dynamically configure a data retransmission functionality to suit the particular contextual meaning of the data to be transmitted by the IMD. By reducing

the amount of transmitted data in this manner, the IMD can conserve operating power and extend its battery life.

Spec. ¶¶ 7–8; *see also id.* ¶ 58.

The Specification discusses an example of IMD 500 that supports the dynamic data retransmission functionality. Spec. ¶ 53, Fig. 5. As shown in Figure 5, IMD 500 includes transmitter 502, receiver 504, data packetizing module 506, transmit control module 508, and data retransmission module 510. *Id.* ¶ 54, Fig. 5. In accordance with this example, data 514 stored in a memory unit within IMD 500 is packetized, that is, formatted into packets or frames, by data packetizing module 506. Transmit control module 508 controls transmitter 502 to both regulate the initial transmission of data 514 packetized by data packetizing module 506, and to manage retransmission of data 514. *Id.* ¶ 56. Data retransmission module 510 adjusts a data retransmission configuration in response to contextual meaning information 516, that is, “information that is indicative of the type, purpose, or function of the data [514] to be transmitted by IMD 500.” *Id.* ¶ 59; *see also id.* ¶ 58. Transmit control module 508 manages retransmission of data 514 in accordance with the data retransmission configuration. *Id.* ¶ 56.

IMD programming device 400, external to a patient’s body, may be configured to receive data 514 uplinked from IMD 500. *Id.* ¶ 67; *see also id.* ¶ 51, Fig. 4.

In this embodiment, receiver 504 is suitably configured to receive acknowledgement (“ACK”) messages and negative acknowledgement (“NAK”) messages associated with data transmitted from IMD 500. An ACK message may be generated and transmitted by the destination device upon successful receipt of data, while a NAK message may be generated and transmitted by the destination device upon receipt of corrupted data (e.g.,

data that does not pass an error check procedure), if the destination device receives real-time data (e.g., data having time sensitivity or time significance, such as event markers, or device operating status) out of sequence, and/or if the destination device fails to receive data within an expected period of time. IMD 500 can process ACK and NAK messages in connection with the data retransmission scheme described herein.

Spec. ¶ 67; *see also id.* ¶ 52.

The discussion in these paragraphs provides guidance as to how Appellants intend the term “data retransmission configuration” to be understood. In particular, the teaching that “IMD 500 can process ACK and NAK messages in connection with the data retransmission scheme described herein” (Spec. ¶ 67) implies that the data retransmission scheme is distinct from the generation of ACK and NAK messages based on error checking procedures. This usage implies that CRC codes, which are used in error check procedures, are not “data retransmission configurations.”

In view of the foregoing, the Examiner has not persuasively shown that Goedeke discloses “adjusting a data retransmission configuration for the IMD in response to the contextual meaning information,” as recited in independent claim 1. Independent claim 8 similarly recites “a data retransmission module . . . configured to adjust a data retransmission configuration for the IMD in response to the contextual meaning information” (Appeal Br., Claims App.), and the Examiner’s rejection of independent claim 8 suffers from the same deficiency as the rejection of independent claim 1 (Final Act. 6). Accordingly, we do not sustain the Examiner’s rejection of independent claims 1 and 8 under 35 U.S.C. § 102(b), and we similarly do not sustain the Examiner’s rejection of claims 3, 4, 10, 11, 21, and 22 depending therefrom.

Obviousness

Claims 2, 9, and 14–20

Claim 2 recites a method according to claim 1, “further comprising generating a priority for the data to be transmitted.” Appeal Br., Claims App. Claim 9 similarly recites an IMD according to claim 8, “further comprising prioritization logic . . . configured to generate a priority for the data to be transmitted.” *Id.* Independent claim 14 recites a method including the step of “associating a retransmission priority to the data packet, based upon contextual meaning information for the data to be transmitted.” *Id.*

The Examiner finds that Goedeke fails to teach these limitations. Final Act. 8. Instead, the Examiner reasons that it would have been obvious “to modify the method/device taught by Goedeke with a similar priority transmission technique as taught by Ngo in order to yield the predictable results of allowing the most important data acquired to be transmitted immediately for review.” *Id.*; *see also* Ans. 6.

Even assuming, for the sake of argument, that the Examiner’s reasoning is correct, it does not prove that the subject matter of claims 2, 9, and 14–20, as a whole, would have been obvious. The Examiner’s reasoning addresses only prioritizing the initial transmission of some data over the initial transmission of other data, not retransmission priority. Appeal Br. 23–24; *see generally* Ngo ¶¶ 11, 59–71. In the case of dependent claims 2 and 9, the teachings of Ngo fail to remedy the deficiencies in the description of Goedeke as applied to independent claims 1 and 8, respectively. In the case of independent claim 14, neither Goedeke nor Ngo

teaches or suggests associating a retransmission priority (as opposed to an initial transmission priority) to a data packet.

In view of the foregoing, the Examiner has not persuasively shown that the subject matter of claims 2, 9, and 14 would have been obvious over Goedeke and Ngo. We, therefore, do not sustain the Examiner's rejection of claims 2, 9, and 14 under 35 U.S.C. § 103(a), nor do we sustain the Examiner's rejection of claims 15–20, which depend from independent claim 14.

Claims 5 and 12

Claim 5 recites a method according to claim 1 “wherein adjusting the data retransmission configuration comprises setting a maximum number of retransmission attempts for the IMD.” Appeal Br., Claims App. Claim 12 similarly recites an IMD according to claim 8 “wherein the data retransmission module is configured to adjust the data retransmission configuration by setting a maximum number of retransmission attempts for the IMD.” *Id.*

Ngo teaches scheduling data transmissions at regular intervals from telemetry devices 103 mounted on vehicles 105 to a network operations center (“NOC”) 101 tracking the vehicles. Ngo ¶ 41. Ngo also teaches offsetting the transmission times scheduled for various telemetry devices 103 from one another to avoid overwhelming NOC 101. *Id.* The Examiner finds this teaching suggests setting a maximum number of retransmission attempts, albeit within a particular time frame. Final Act. 8; Ans. 5.

The finding is insufficiently supported. Ngo teaches scheduling the initial transmissions of data, not setting a maximum number of retransmissions. Appeal Br. 21; Reply Br. 8. Consequently, the Examiner has not shown that either Goedeke or Ngo teaches setting a maximum number of retransmission attempts. Moreover, the Examiner's rejection of claims 5 and 12 suffers from the same deficiency as the rejection of independent claims 1 and 8, respectively, discussed above.

In view of the foregoing, the Examiner has not demonstrated persuasively that the subject matter of claims 5 or claim 12 would have been obvious from the combined teachings of Goedeke and Ngo. We, therefore, do not sustain the Examiner's rejection of these claims under 35 U.S.C. § 103(a).

Claim 7

Claim 7 recites a method according to claim 1 "wherein the IMD performs a redundant transmission procedure for data transmitted via telemetry communication from the IMD." Appeal Br., Claims App. Claim 7 also recites the additional steps of "receiving a successful transmission indication for a quantity of data previously transmitted via telemetry communication from the IMD; and disabling, in response to the successful transmission indication, the redundant procedure for the quantity of data." *Id.*

Goedeke describes attaching a CRC code to each block of data uplinked by the IMD; checking the CRC code in diagnostic system 122 after the diagnostic system receives of the block; verifying the integrity of the transmitted data; and determining if the block of data must be retransmitted.

Goedeke ¶ 24. This description may satisfy the additional steps recited in claim 7. Nevertheless, as discussed earlier, Geodeke fails to teach or suggest the performance of a redundant transmission procedure. Ngo, which only teaches the scheduling of initial transmissions, fails to remedy this deficiency. Consequently, the Examiner has not shown that the subject matter of claim 7 would have been obvious from the combined teachings of Goedeke and Ngo, and we do not sustain the Examiner's rejection of claim 7 under 35 U.S.C. § 103(a).

Claims 6 and 13

The Examiner concludes that the subject matter of claims 6 and 13 would have been obvious from the combined teachings of Goedeke and Meadows. Final Act. 9–10. In doing so, the Examiner finds that “Meadows teaches another type of CRC where the coding may contain information sufficient to allow the received data to be corrected, thereby avoiding retransmission of data.” *Id.* Assuming this finding correct, it fails to remedy the deficiencies of Goedeke as applied to independent claims 1 and 8 discussed above. Accordingly, the Examiner has not shown that the subject matter of claim 6 or claim 13 would have been obvious from the combined teachings of Goedeke and Meadows, and we do not sustain the Examiner's rejection of these claims under 35 U.S.C. § 103(a).

Patent Eligibility

Under 35 U.S.C. § 101, “[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.” Independent

claims 1 and 14 fall within the literal scope of this provision because they claim processes. Independent claim 8 falls within the literal scope of this provision because it claims a machine or article of manufacture.

Nevertheless, the Supreme Court has identified three exceptions to the broad scope of eligibility as literally set forth in § 101, namely, laws of nature, physical phenomena, and abstract ideas. *See Bilski v. Kappos*, 561 U.S. 593, 601 (2010). To determine whether a claim is judicially excepted from patent eligibility, the Court has provided a two-step framework. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 217 (2014) (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012)).

First, we must identify the judicial exception to which the claim is purportedly directed. *Alice*, 573 U.S. at 217 (citation omitted). Notably, “it is not enough to merely identify a patent-ineligible concept underlying the claim; [we] must determine whether that patent-ineligible concept is what the claim is ‘directed to.’” *Endo Pharms. Inc. v. Teva Pharms. USA, Inc.*, Nos. 2017-1240, 2017-1455, 2017-1887, slip op. at 9–10 (Fed. Cir. Mar. 28, 2019) (quoting *Rapid Litig. Mgt. Ltd. v. CellzDirect, Inc.*, 827 F.2d 1042, 1050 (Fed. Cir. 2016)). Although it is the language of the claims that defines their subject matter, “[t]he ‘directed to’ inquiry may also involve looking to the specification to understand ‘the problem facing the inventor’ and, ultimately, what the patent describes as the invention.” *ChargePoint, Inc. v. SemaConnect, Inc.*, 2019 WL 1388304 at *4 (Fed. Cir. 2019).

If the claim is not directed to a judicial exception, the analysis ends. Otherwise, we proceed to the second step where we must address whether the claim recites “something more,” otherwise referred to as an “inventive concept,” so as not to preempt all applications of the purported exception

within a given field of endeavor. *Alice*, 573 U.S. at 217–18 (citations omitted).

The Office recently published revised guidance on the application of § 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (“*2019 Guidance*”). Under this 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) (9th ed. Rev. 08.2017, Jan. 2018)).

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.

In rejecting claims 1–22 under 35 U.S.C. § 101, the Examiner concludes that the claims “appear to be directed to a judicial exception (i.e. an abstract idea) without significantly more.” Final Act. 4. In particular, pursuant to the first step of the *Alice* analysis, the Examiner determines that independent claim 1 is directed to an abstract idea because it includes steps

“which obtain, adjust, transmit, and manage retransmission of data.” *Id.* The Examiner characterizes the remaining two steps recited in independent claim 1 as insignificant extra-solution activity. *Id.* With respect to independent claims 8 and 14, the Examiner concludes these claims raise “[s]imilar issues.” *Id.*

Regardless of whether each independent claim recites an abstract idea, each integrates whatever could be considered an abstract idea into a practical application. Consequently, independent claims 1, 8, and 14, as a whole, are not directed to an abstract idea. Alternatively, the claims include an inventive concept, or “something more,” such that the claims, as a whole, do not preempt all applications of the purported abstract idea.⁶ *See* Appeal Br. 7.

Independent claims 1, 8, and 14 are tied to IMDs. *See Bilski*, 561 U.S. at 603 (“The machine-or-transformation test is a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under § 101.”); *see also 2019 Guidance*, 84 Fed. Reg. at 55 (explaining an additional element that “implements a judicial exception with, or uses a judicial exception in conjunction with, a particular machine or manufacture that is integral to the claim” may integrate the judicial exception into a practical application (footnote omitted)). The preambles of claims 1 and 14 recite “method[s] for operating an [IMD].” Each step recited in claim 1, and each step recited in claim 14, with one exception, acts

⁶ Some of the considerations for determining whether a claim integrates a judicial exception into a practical application may be properly evaluated under the second step of the *Alice* analysis. Solely for purposes of maintaining consistent treatment within the Office, we take these considerations into account under the first step.

either on an IMD or on data to be transmitted by an IMD. The preamble of claim 8 recites an IMD. The noun “IMD” appears in each indented limitation recited in claim 8. The tie between the subject matter of independent claims 1, 8 and 14, on the one hand, and IMDs, on the other, is a clue that the claims are directed to subject matter eligible for patent protection.

Furthermore, the Specification explains the methods and apparatuses that are the subject matter of the underlying application address problems related to IMDs. *See 2019 Guidance*, 84 Fed. Reg. at 55 (explaining an additional element that “reflects an improvement to other technical or technical field” may integrate the judicial exception into a practical application (footnote omitted)). According to the Specification, managing retransmission of data in accordance with a data retransmission configuration adjusted in response to contextual meaning information for the data “can result in power savings and increased battery life by reducing the number of unnecessary data retransmissions.” Spec. ¶ 58; *see also id.* ¶¶ 7–8. IMDs are implanted in patients. As such, the batteries of IMDs can only be recharged telemetrically or by means of permanent, percutaneous leads that might result in either infection vulnerabilities or unsightly artifacts. Loss of power in an IMD may seriously affect the patient’s health or survival. In view of these considerations, power savings and extended battery life are particularly significant design considerations for IMDs. Given the particular significance of power savings and extended battery life in the field of IMDs, independent claims 1, 8, and 14 are directed to improving IMD technology.

In view of the foregoing, independent claims 1, 8, and 14 integrate the recited abstract ideas into a practical application. Considering the subject matter of claims 1–22, as a whole and in light of the entire record, we are persuaded that the claims are not directed to abstract ideas. For similar reasons, we are persuaded that the claims, as a whole, recite “something more” than the purported abstract idea articulated by the Examiner. Therefore, the claims are patent eligible.

DECISION

The Examiner’s decision to reject claims 1, 3, 4, 8, 10, 11, 21, and 22 under 35 U.S.C. § 102(b) is reversed.

The Examiner’s decision to reject claims 2, 5–7, 9, and 12–20 under 35 U.S.C. § 103(a) is reversed.

The Examiner’s decision to reject claims 1–22 under 35 U.S.C. § 101 is reversed.

REVERSED