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patti.demichale@philips.com
marianne.fox@philips.com
katelyn.mulroy@philips.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JUERGEN WEESE, ALEXANDRA GROTH, and
JOERG BREDNO

Appeal 2017-001288
Application 12/597,361
Technology Center 3600

Before JEAN R. HOMERE, JEREMY J. CURCURI, and
MICHAEL M. BARRY, *Administrative Patent Judges*.

CURCURI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants¹ appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1, 2, 4–6, 8–10, 20–25, and 29–33. Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

Claims 1, 2, 4–6, 8–10, 20–25, and 29–33 are rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter. Final Act. 2–5.

We affirm.

¹ Appellants identify Koninklijke Philips N.V. as the real party in interest (App. Br. 2).

STATEMENT OF THE CASE

Appellants' invention relates to "computing a risk, the risk relating to injuring an anatomical structure by a medical device during a medical procedure." Spec. 1:3–4. Claim 1 is illustrative and reproduced below:

1. A system for computing a risk, the risk relating to injuring an anatomical structure of a patient, by a medical device comprising a needle object, during a medical procedure, the system comprising:

an image acquisition unit which acquires image data of the anatomical structure;

a memory, including computer readable instructions; and

a computer processor, wherein the computer processor executes the computer readable instructions, which causes the computer processor to: obtain, during the medical procedure, a position of the anatomical structure based on the acquired image data, wherein the anatomical structure comprises at least one blood vessel; obtain, during the medical procedure, a current actual position of the medical device used in the medical procedure with respect to the anatomical structure; obtain risk data associated with the anatomical structure; and compute the risk relating to injuring the anatomical structure for the current actual position of the medical device, based on the current actual position of the medical device, the position of the anatomical structure, and the risk data, wherein the risk is defined as a ratio calculated by summing a first distance and a second distance and dividing the sum by a third distance, wherein the first distance is defined from an axis of the needle object to a nearest point on the at least one blood vessel, wherein the second distance is defined as a predefined distance, and

wherein the third distance is defined as a distance from the end of the needle object to a second nearest point on the blood vessel.

PRINCIPLES OF LAW

We review the appealed rejections for error based upon the issues identified by Appellants, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

ANALYSIS

Contentions

The Examiner finds claims 1, 2, 4–6, 8–10, 20–25, 29–33 are directed to a judicial exception without significantly more. *See* Final Act. 2–5; *see also* Ans. 2–4.

Appellants present the following principal arguments:

i.

The claims include eligible subject matter. “In *Diehr*, 450 U. S. 175, by contrast, we held that a computer-implemented process for curing rubber was patent eligible, but not because it involved a computer. The claim employed a “well-known” mathematical equation, but it used that equation in a process designed to solve a technological problem in “conventional industry practice.” *Id.*, at 177, 178. *Alice Corp v. CLS Bank*. The risk calculation involving distance from the needle object to the blood vessel solves a technological problem of injury to blood vessels in the conventional practice of surgery, such as biopsies. Furthermore, as analogous with the rubber mold, there is a medical device, such as a needle object, and the images obtained from the recited image acquisition apparatus. Thus, the claims are eligible subject matter. Accordingly, the 101 rejections should be removed.

App. Br. 5.

ii.

The claims recite an image acquisition unit, which acquires image data of the anatomical structure which is not something a person can do without an imaging acquisition using modalities as now recited in claim 8, and noted in the Office Action. Furthermore, as emphasized in claim 30 the medical device is not a human activity and thus, the claims should be eligible subject matter.

App. Br. 5 (citing Spec. claims 8, 30).

iii.

“[T]he claims do include more than a computing device analogous to the computed timing and the rubber mold in *Diehr*.”

App. Br. 6 (citing Spec. claim 32).

iv.

What appellants have done is to discover an application of an algorithm to process steps, which are themselves, part of an overall process, which is statutory. In accordance with *In re Abele*, claim 1 is not a mere procedure for solving a given mathematical problem; the algorithm is but a part of the overall claimed process. The claimed invention is an improved patent eligible process, the improvement at least residing in the application of an image-processing algorithm within the context of a process, which encompasses significantly more than the algorithm alone.

Reply Br. 4 (citing Spec. claims 1, 8).

Our Review

A patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has held that this provision contains an important implicit exception: laws of nature, natural

phenomena, and abstract ideas are not patentable. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (“Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work”). Notwithstanding that a law of nature or an abstract idea, by itself, is not patentable, the application of these concepts may be deserving of patent protection. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71–72 (2012). In *Mayo*, the Court stated that “to transform an unpatentable law of nature into a patent-eligible *application* of such a law, one must do more than simply state the law of nature while adding the words ‘apply it.’” *Mayo*, 566 U.S. at 72 (internal citation omitted).

In *Alice*, the Supreme Court reaffirmed the framework set forth previously in *Mayo* “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of these concepts.” *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Id.* If the claims are directed to a patent-ineligible concept, then the second step in the analysis is to consider the elements of the claims “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 566 U.S. at 79, 78). In other words, the second step is to “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.* (brackets in

original) (quoting *Mayo*, 566 U.S. at 72–73). “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.* at 2357 (brackets in original) (quoting *Mayo*, 566 U.S. at 77–78). The prohibition against patenting an abstract idea “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment or adding ‘insignificant post[-]solution activity.’” *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (internal citation omitted). The Court in *Alice* noted that “[s]imply appending conventional steps, specified at a high level of generality,’ was not ‘enough’ [in *Mayo*] to supply . . . [the] ‘inventive concept.’” *Alice*, 134 S. Ct. at 2357 (quoting *Mayo*, 566 U.S. at 82–83, 77–78, 72–73).

Step one: Are the claims at issue directed to a patent-ineligible concept?

Claim 1 is a “system for computing a risk” and includes a computer processor executing instructions to perform multiple method steps. The method steps could be performed in the human mind or by a human using pen and paper. In particular, the steps could be performed by a person reviewing data to obtain a position of the anatomical structure, to obtain a position of the medical device, and to obtain risk data. The remaining step of computing the risk could also be performed mentally or on paper based on the data.

Contrary to Appellants’ arguments, claim 1 is not akin to the claim at issue in *Diehr*, which was directed to a non-abstract “process for molding raw, uncured synthetic rubber into cured precision products.” *Diamond v. Diehr*, 450 U.S. 175, 177 (1981). In *Diehr*, the Supreme Court found that

limitations directed to a formula in an otherwise patent-eligible process did not render it patent ineligible. *Id.* at 178. Claim 1’s limitations directed to a mathematical formula or algorithm do not change the result here as well, but the distinction is that claim 1 otherwise is directed to an abstract idea of a human activity. Determining risk from using a medical device with a needle during a medical procedure is a routine activity for doctors.

Because all the method steps of claim 1 required of the computer processor can either be performed by human thought alone, or by a human using pen and paper, claim 1 is directed to a patent-ineligible abstract idea. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011) (“[U]npatentable mental processes” include “steps [that] can be performed in the human mind, or by a human using a pen and paper”). Independent claim 10 recites limitations similar to those discussed with respect to claim 1. Thus, claim 10 is also directed to a patent-ineligible abstract idea.

Step two: Is there something else in the claims that ensures they are directed to significantly more than a patent-ineligible concept?

Because claims 1 and 10 are directed to an abstract idea, the question to be settled next, according to *Alice*, is whether claims 1 and 10 recite an element, or combination of elements, that is enough to ensure that the claim is directed to significantly more than the abstract idea.

Claim 1 is a “system for computing a risk” and includes “an image acquisition unit,” “a memory,” and “a computer processor.” Claim 10 is a corresponding method claim that recites multiple steps “implemented by a computer processor.”

These claimed hardware and software components are generic, purely conventional elements. Thus, the claims do no more than require generic computer elements to perform generic computer functions, rather than improve computer capabilities.

Appending various combinations of a conventional “computer processor,” “memory,” and “image acquisition unit” is not enough to transform the idea into a patent-eligible invention. *See Alice*, 134 S. Ct. at 2358 (“[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention”).

Regarding Appellants’ argument (i), this argument does not show any error in the Examiner’s findings and conclusions. Appellants assert that the claimed risk calculation solves a technological problem; however, the claim language does not support this assertion. Claim 1 recites “compute the risk relating to... wherein the risk is defined as...” As discussed above, this risk may be computed mentally or on paper. Further, the claim does not recite improving computer or machine functionality because the computed risk is not used to improve the computer or machine; rather, the computer is operating as a generic computer performing steps that would otherwise be performed with pen and paper. Again, because all the method steps of claims 1 and 10 can either be performed by human thought alone, or by a human using pen and paper, claims 1 and 10 are directed to a patent-ineligible abstract idea. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011). Further, information collection and analysis, including when limited to particular content, is within the realm of abstract ideas. *See, e.g., Elec. Power Grp. LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (explaining that a claim to “gathering and

analyzing information of a specified content, then displaying the results,” absent “any particular assertedly inventive technology for performing those functions,” is directed to an abstract idea).

Regarding Appellants’ argument (ii), this argument does not show any error in the Examiner’s findings and conclusions because the claimed hardware and software components are generic, purely conventional elements. The computed risk is not used to improve the computer or machine in claims 1, 8 (reciting various types of image acquisition units, but not reciting using the computed risk to improve the image acquisition unit), 10, and 30 (reciting various types of medical devices, but not reciting using the computed risk to improve the medical device).

Regarding Appellants’ argument (iii), this argument does not show any error in the Examiner’s findings and conclusions because to the extent the practice of surgery may be improved, claims 1 and 10 do not recite improving computer or machine functionality because the computed risk is not used to improve the computer or machine. Regarding claim 32, claim 32 recites “in response to the computed risk, moving the medical device which changes at least one of the first distance or the third distance.” Although this claim does recite an action in response to the computed risk, there is still no recitation of using the computed risk to improve the computer or machine. Thus, we agree with the Examiner that claim 32’s requirement for moving the medical device that has a needle does not recite “significantly more” than the abstract idea to which claim 1 is directed.

Regarding Appellant’s argument (iv), this argument also does not show any error in the Examiner’s findings and conclusions. First, in determining subject matter eligibility, we apply the two-part analysis from

Alice and *Mayo*. Based on this two-part analysis, we have determined that the claims are directed to an abstract idea, without reciting significantly more. In short, contrary to Appellants' assertions, claims 1 and 10 do not recite the risk computation as part of an overall eligible system or process. Rather, there is no recitation of using the computed risk to improve the computer or machine. For example, the image acquisition unit, the memory, and the computer processor all function as generic hardware.

Accordingly, we sustain the rejection of independent claims 1 and 10 under 35 U.S.C. § 101. Claims 2, 4–6, 8, 9, 20–25, 29–33 variously depend from claims 1 and 10. Appellants have not presented any additional substantive arguments with respect to these claims, other than those specifically addressed above. Therefore, we sustain the rejection of claims 2, 4–6, 8, 9, 20–25, 29–33 under 35 U.S.C. § 101, for the same reasons discussed with respect to independent claims 1 and 10.

ORDER

The Examiner's decision rejecting claims 1, 2, 4–6, 8–10, 20–25, 29–33 is affirmed.

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).

AFFIRMED