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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HAIYAN WANG, CIPRIANO A. SANTOS, ENIS KAYIS,
SHAIENDRA K. JAIN, SHARAD SINGHAL, and
MARIA TERESA GONZALEZ DIAZ

Appeal 2016-006323¹
Application 13/563,575²
Technology Center 3600

Before BRADLEY W. BAUMEISTER, KALYAN K. DESHPANDE, and
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

FINAMORE, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Our Decision references Appellants' Specification ("Spec.," filed July 31, 2012), Appeal Brief ("Appeal Br.," filed Dec. 7, 2015), and Reply Brief ("Reply Br.," filed June 7, 2016), as well as the Examiner's Final Office Action ("Final Act.," mailed July 7, 2015) and Answer ("Ans.," mailed Apr. 7, 2016).

² Appellants identify Hewlett Packard Enterprise Development LP, a wholly-owned affiliate of Hewlett Packard Enterprise, as the real party in interest. Appeal Br. 1.

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellants appeal from the Examiner's decision to reject claims 1–4, 6, 7, 10–14, and 17–21. We have jurisdiction under § 6(b).

We AFFIRM.

SUBJECT MATTER ON APPEAL

The invention relates to optimized surgery scheduling. Spec., Title. Claims 1, 10, and 18 are the independent claims on appeal. Independent claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method comprising:
 - receiving, at a scheduling system that executes on a processor, a plurality of surgery scheduling requests for surgical procedures to be performed on a plurality of patients at a surgical facility having a plurality of operating rooms;
 - identifying, using the scheduling system, resource constraints associated with the scheduling requests;
 - identifying, using the scheduling system, an optimization goal for the surgical facility, optimization goal being defined using weighted optimization parameters;
 - applying, using the scheduling system, an optimization model to the resource constraints and the optimization goal to generate a proposed surgery schedule for the surgical facility includes sequencing and operating room assignments for each of the surgical procedures performed on the plurality of patients;
 - simulating the proposed surgery schedule to determine expected operational metrics associated with the proposed surgery schedule;
 - in response to feedback from a user, adding inequality constraints to the optimization model to exclude the proposed surgery schedule; and
 - reapplying the optimization model to the resource constraints and the optimization generate a new proposed surgery schedule that accounts for the inequality constraints;

scheduling the surgical procedures to be performed on the patients at the surgical having the operating rooms according to the new proposed surgery schedule,

wherein applying the optimization model to the resource constraints and the optimization goal to generate the proposed surgery schedule comprises:

defining a plurality of decision variables associated with the resource constraints;

defining an objective function for the optimization model, the objective associated with the optimization goal and being a function of the decision variables; and

using the objective function to generate the proposed surgery schedule,

wherein the proposed surgery schedule is optimized based on estimates of surgery durations for the surgical procedures to be performed on the plurality of patients.

REJECTION

The Examiner rejects claims 1–4, 6, 7, 10–14, and 17–21 under 35 U.S.C. § 101 as non-statutory subject matter.

ANALYSIS

Appellants argue claims 1–4, 6, 7, 10–14, and 17–21 as a group. Appeal Br. 5–11; Reply Br. 1–4. We select independent claim 1 as representative. The remaining claims of the group stand or fall with independent claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court, however, has long interpreted § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *See, e.g., Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct.

2347, 2354 (2014) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013)). To “distinguish[] patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts,” the Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289 (2012), which, in the first step, considers whether a claim is directed to a patent-ineligible concept, e.g., an abstract idea, and, if so, considers, in the second step, whether the claim recites an inventive concept—an element or combination of elements sufficient to ensure the claim amounts to significantly more than the abstract idea and transform the nature of the claim into a patent-eligible application. *Alice*, 134 S. Ct. at 2355 (citing *Mayo*, 132 S. Ct. at 1294, 1296–98).

In rejecting independent claim 1 under 35 U.S.C. § 101 as non-statutory subject matter, i.e., subject matter judicially excepted from statutory subject matter, the Examiner analyzes the claim using this two-step framework. Final Act. 2–3. Pursuant to the first step, the Examiner determines the claim is directed to the abstract idea of “optimizing an operating room schedule based on a number of routine factors to create a mathematical model.” *Id.* at 3. According to the Examiner, “optimizing an operating room schedule based on a number of routine factors to create a mathematical model” is an abstract idea because it is method of organizing human activity and similar to other concepts the courts have held to be abstract ideas, such as using categories to organize, store, and transmit information and comparing new and stored information using rules to identify options. *Id.* Under the second step, the Examiner determines the

claim does not recite significantly more than the abstract idea because receiving and outputting data would be routine in any computer implementation and constitute extra-solution activity. *Id.*

At the outset, we are unpersuaded of error by Appellants' argument that independent claim 1 does not preempt others from using the abstract idea of operating room schedule optimization. Appeal Br. 9; Reply Br. 4. Although preemption may be the basis for excluding abstract ideas from eligible subject matter, preemption is not the test for patent eligibility. *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) ("The Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability. For this reason, questions on preemption are inherent in and resolved by the § 101 analysis." (citation omitted)).

Appellants also contend the Examiner erred in concluding that independent claim 1 does not recite significantly more than the abstract idea under the second step of the analysis. Appeal Br. 6; Reply Br. 3. More specifically, Appellants assert that, as a prima facie matter, the Examiner has failed to explain how defining decision variables associated with resource constraints, defining an objective function for an optimization model that is associated with an optimization goal and that is a function of the decision variables, and using the objective function to generate a proposed surgery schedule constitute well-understood, routine, and conventional activities. Appeal Br. 6–8; Reply Br. 3–4. Appellants further assert the Examiner makes an untenable contradiction in that the Examiner admits the claimed invention is novel and nonobvious, but determines the claim amounts to

nothing more than that which is well-understood, routine, and conventional. Appeal Br. 8. Appellants, however, do not apprise us of Examiner error.

“It is true that ‘the § 101 patent-eligibility inquiry and, say, the § 102 novelty inquiry might sometimes overlap.’ But a claim for a *new* abstract idea is still an abstract idea.” *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) (citation omitted) (quoting *Mayo*, 132 S. Ct. at 1304). The question in the second step of the patent-eligibility analysis is not whether a claim limitation is novel, but rather whether the implementation of the abstract idea involves “more than performance of ‘well-understood, routine, [and] conventional activities previously known to the industry.’” *Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014) (quoting *Alice*, 134 S. Ct. at 2359).

Here, the claim limitations describing the decision variables associated with resource constraints, the objective function for an optimization model being associated with an optimization goal and a function of the decision variables, and the use of the objective function to generate a proposed surgery schedule go to the abstract idea of optimizing an operating room schedule. Given that these limitations describe the abstract idea, the Examiner need not explain how the limitations constitute well-understood, routine, and conventional activities. Rather, the Examiner determines that the computer implementation of these steps requires nothing more than computer functions that are well-understood, routine, and conventional, such as receiving and processing data. Ans. 5.

Even if the claim recites novel and nonobvious steps to optimize an operating room schedule, the computer implementation of the claimed steps

requires only computer functions that are well-understood, routine, and conventional. As such, the implementation is insufficient to transform the claim into a patent-eligible application.

Appellants additionally argue that independent claim 1 recites significantly more than the abstract idea because it effects a transformation, namely the transformation of a patient to a different state by virtue of their surgeries being scheduled according to the claimed invention.

Appeal Br. 10–11; Reply Br. 1–3. According to Appellants:

The present claims are no different than those in [*Diamond v. Diehr*, 101 S. Ct. 1048 (1981)]. The recitation of various collection, manipulation, and organization of data to generate a surgical schedule of surgical procedures results in the physical transformation of human patients, no different than the recitation of various collection, manipulation, and organization of data in *Diehr* results in the physical transformation of rubber.

Reply Br. 2.

Appellants' argument is not persuasive because it is not commensurate with the scope of the claim. Independent claim 1 is not directed to a surgery including the scheduling method. Rather, the claim recites simply the method for scheduling.

Consequently, we see no parallel between independent claim 1 and the claims in *Diehr*. In *Diehr*, each claim recites a technological process effecting a transformation. Namely, the claims in *Diehr* recite a “method of operating a rubber-molding press for precision molded compounds” and a “method of manufacturing precision molded articles from selected synthetic rubber compounds in an openable rubber molding press having at least one heated precision mold.” *Diehr*, 101 S. Ct. at 1053 n.5. In contrast, as set forth above, independent claim 1 of the present appeal recites a scheduling

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method, not a surgery on a patient, and, thus, does not claim the alleged technological process effecting a transformation.

In view of the foregoing, Appellants do not apprise us of error in the Examiner's determination that the subject matter of independent claim 1 is patent ineligible, i.e., judicially excepted from statutory subject matter. Accordingly, we sustain the rejection of independent claim 1, with claims 2–4, 6, 7, 10–14, and 17–21 falling therewith.

DECISION

The Examiner's decision to reject claims 1–4, 6, 7, 10–14, and 17–21 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). 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED