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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
14/195.900 03/04/2014 Suman Kashyap CRNI.224531 4214

46169 7590 06/10/2019
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EXAMINER

NGUYEN, TRAN N

ART UNIT PAPER NUMBER

3686

NOTIFICATION DATE DELIVERY MODE

06/10/2019

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SUMAN KASHYAP

Appeal 2018-005410
Application 14/195,900¹
Technology Center 3600

Before JOHN A. JEFFERY, CATHERINE SHIANG, and
NORMAN H. BEAMER, *Administrative Patent Judges*.

SHIANG, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–20, which are all the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ Appellant identifies Cerner Innovation, Inc. as the real party in interest. App. Br. 3.

STATEMENT OF THE CASE

Introduction

The present invention relates to “systems and methods for guiding a user through workflows.” Spec. ¶ 2.

The present disclosure relates to a framework for providing workflow guidance. In accordance with one aspect, a workflow graph is retrieved from a pre-built knowledge base. An end node of the workflow graph may represent a user's desired workflow point-state associated with a workflow system. The workflow graph may be used to determine the most efficient path from a current workflow point-state to the desired workflow point-state. A suggestion of the next task to be performed by the user may then be provided in accordance with the most efficient path.

Spec. ¶ 7. Claim 1 is exemplary:

1. Non-transitory computer-readable media having computer-executable instructions stored thereon, that when executed, cause a processor to execute steps comprising:
 - building a workflow graph including nodes, each node representative of different workflow point-states, and including links representative of user tasks performed via a workflow system, the links connecting the nodes;
 - updating the workflow graph based on use of the workflow system by one or more expert users, the updating increasing efficiency of the workflow graph, wherein updating includes:
 - each time the one or more expert users performs a user task:
 - (i) increasing a preference level of a link corresponding to the user task performed, wherein the preference level of the link is increased each time the user task is performed by the one or more expert users,

(ii) transitioning from one node representing one point-state to a next node representing another point-state, the one node connected to the next node by the link corresponding to the user task performed, and

(iii) having transitioned to the next node, determining a most efficient path among one or more links within the workflow graph for transitioning from said node to another node representing a respective point-state, wherein the most efficient path includes at least one link of the one or more links, the at least one link having a highest preference level among the one or more links within the workflow graph for transitioning from said node to another node; and

providing user guidance including user tasks to perform, based on the workflow graph as updated and the most efficient path, to perform a desired workflow via the workflow system.

Rejection²

Claims 1–20 are rejected under 35 U.S.C. § 101 because they are directed to patent-ineligible subject matter. Final Act. 2–13.

ANALYSIS³

We disagree with Appellant’s arguments. To the extent consistent with our analysis below, we adopt the Examiner’s findings and conclusions in (i) the action from which this appeal is taken (Final Act. 2–13) and (ii) the Answer (Ans. 3–9).

² Throughout this opinion, we refer to the (1) Final Office Action dated June 2, 2017 (“Final Act.”); (2) Appeal Brief dated Sept. 13, 2017 (“App. Br.”); (3) Examiner’s Answer dated March 8, 2018 (“Ans.”); and (4) Reply Brief dated May 2, 2018 (“Reply Br.”).

³ To the extent Appellant advance new arguments in the Reply Brief without showing good cause, Appellant has waived such arguments. *See* 37 C.F.R. § 41.41(b)(2).

The Examiner rejects the claims under 35 U.S.C. § 101 because they are directed to patent-ineligible subject matter. *See* Final Act. 2–13; Ans. 3–9. In particular, the Examiner concludes the claimed processes and functions are directed to “automating the use of a workflow graph to track tasks that the user prefers by performing those tasks most often, and provide suggestions regarding the most efficient workflow with regards to those tasks that the user prefers without any particular inventive technology.” Ans. 4. The Examiner determines the claims do not identify an inventive concept to transform the nature of the claims into a patent-eligible application. *See* Ans. 4–9. Appellant argues the Examiner erred. *See* App. Br. 7–15; Reply Br. 2–6.

Appellant has not persuaded us of error. Section 101 of the Patent Act provides “[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, subject to the conditions and requirements of this title.” 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. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (internal quotation marks and citation omitted).

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, 67 (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. 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 191 (“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 (citation 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, 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”). Under the guidance set forth in the 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) (Step 2A, Prong 1); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* MANUAL OF PATENT EXAMINING PROCEDURE (“MPEP”) § 2106.05(a)–(c), (e)–(h)) (9th ed., Rev. 08.2017, 2018) (Step 2A, Prong 2).

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 is 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. (Step 2B.)

See Guidance, 84 Fed. Reg. at 54–56.

Turning to Step 2A, Prong 1 of the Guidance, claim 1 (with emphases) recites:

1. Non-transitory computer-readable media having computer-executable instructions stored thereon, that when executed, cause a processor to execute steps comprising:
 - building a workflow graph including nodes, each node representative of different workflow point-states, and including links representative of user tasks performed via a workflow system, the links connecting the nodes;*
 - updating the workflow graph based on use of the workflow system by one or more expert users, the updating increasing efficiency of the workflow graph, wherein updating includes:*
 - each time the one or more expert users performs a user task:*
 - (i) increasing a preference level of a link corresponding to the user task performed, wherein the preference level of the link is increased each time the user task is performed by the one or more expert users,*
 - (ii) transitioning from one node representing one point-state to a next node representing another point-state, the one node connected to the next node by the link corresponding to the user task performed, and*
 - (iii) having transitioned to the next node, determining a most efficient path among one or more links within the workflow graph for transitioning from said node to another node representing a respective point-state, wherein the most efficient path includes at least one link of the one or more links, the at least one link having a highest preference level among*

the one or more links within the workflow graph for transitioning from said node to another node; and providing user guidance including user tasks to perform, based on the workflow graph as updated and the most efficient path, to perform a desired workflow via the workflow system.

All of the italicized limitations are associated with following instructions. Specifically, “building a workflow graph including nodes, each node representative of different workflow point-states, and including links representative of user tasks performed via a workflow system, the links connecting the nodes” and “updating the workflow graph based on use of the workflow system by one or more expert users, the updating increasing efficiency of the workflow graph” follow instructions for building a workflow graph and updating that workflow graph. Likewise, the below limitations follow instructions for updating the workflow graph:

wherein updating includes:

each time the one or more expert users performs a user task:

(i) increasing a preference level of a link corresponding to the user task performed, wherein the preference level of the link is increased each time the user task is performed by the one or more expert users,

(ii) transitioning from one node representing one point-state to a next node representing another point-state, the one node connected to the next node by the link corresponding to the user task performed, and

(iii) having transitioned to the next node, determining a most efficient path among one or more links within the workflow graph for transitioning from said node to another node representing a respective point-state, wherein the most efficient path includes at least one link of the one or more links, the at least one link having a highest preference level among the one or more links within the workflow graph for transitioning from said node to another node[.]

Finally, “providing user guidance including user tasks to perform, based on the workflow graph as updated and the most efficient path, to perform a desired workflow via the workflow system” follows instructions for providing user guidance to perform a desired workflow.

Our determination is supported by the Specification, which describes following instructions for building a workflow graph, updating that workflow graph, and providing user guidance to perform a desired workflow:

The present disclosure relates to a framework for providing workflow guidance. In accordance with one aspect, a workflow graph is retrieved from a pre-built knowledge base. An end node of the workflow graph may represent a user's desired workflow point-state associated with a workflow system. The workflow graph may be used to determine the most efficient path from a current workflow point-state to the desired workflow point-state. A suggestion of the next task to be performed by the user may then be provided in accordance with the most efficient path.

In accordance with another aspect, a workflow graph is built. The workflow graph may include nodes representative of workflow point-states and links connecting the nodes and representative of user tasks performed via a workflow system. The workflow graph may be updated as one or more expert users use the workflow system. Based on the workflow graph, user guidance may be provided to perform a desired workflow via the workflow system.

Spec. ¶¶ 7–8.

Because following instructions is managing interactions between people (Guidance, Step 2A, Prong 1 (Groupings of Abstract Ideas)), we conclude claim 1 recites managing interactions between people, which is one

of certain methods of organizing human activity identified in the Guidance, and thus an abstract idea.⁴

Appellant’s following arguments about “a Computerized Physician Order Entry (CPOE) system” are not commensurate with the scope of claim 1, which does not require a CPOE system.

claim 1 . . . recites computer readable media that specifically involves a Computerized Physician Order Entry (CPOE) system. The computer-readable media builds task-based workflow graphs comprising nodes (work states) and links (user tasks) for the CPOE system. The task-based workflow graphs are employed with the CPOE system to represent and document performance of real-world tasks, and to recommend real-world tasks to users of the CPOE system.

. . .

Accordingly, the claimed embodiment of independent claim 1 dynamically updates preference levels for links between nodes in a workflow graphs in order to reflect whether a user performed or did not perform a task, as documents in the CPOE system.

⁴ As a result, we agree with the Examiner that claim 1 recites an abstract idea (Ans. 4). Further, it is well established that during examination, claims are given their broadest reasonable interpretation consistent with the specification and should be read in light of the specification as it would be interpreted by one of ordinary skill in the art, *but without importing limitations from the specification*. See *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (citations omitted); *SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004). We decline to import descriptions of *exemplary embodiments* from the Specification into claim 1, and disagree with Appellant’s assertions that “the claims have been overgeneralized” and “the examiner’s interpretation of the claims is unreasonably broad” (App. Br. 11, Reply Br. 4; *see also* Reply Br. 2–3). We further note contrary to Appellant’s assertion (Reply Br. 3), paragraphs 25–30 of the Specification merely describe non-limiting, exemplary embodiments, and do not specifically define “preference levels” or “links.”

App. Br. 9, 10; *see also* App. Br. 10–11; Reply Br. 4–5.

Appellant’s assertion that “claim 1 is . . . highly specific” (App. Br. 11) is unpersuasive, as Appellant does not persuasively explain why being “highly specific” renders claim 1 patent eligible. To the extent Appellant’s assertion that the “features place reasonable limits on the scope of the claim” (Reply Br. 6) is about pre-emption, that argument is unpersuasive, because

[w]hile preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility. . . . Where a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot.

Ariosa Diagnostics, Inc. v. Sequenom, Inc., 788 F.3d 1371, 1379 (Fed. Cir. 2015); *see also OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015) (“that the claims do not preempt all price optimization or may be limited to price optimization in the e-commerce setting do not make them any less abstract”).

Turning to Step 2A, Prong 2 of the Guidance, contrary to Appellant’s arguments (App. Br. 7–15; Reply Br. 2–6), Appellant has not shown claim 1 recites additional elements that integrate the judicial exception into a practical application. In particular, Appellant has not shown the additional element “[n]on-transitory computer-readable media having computer-executable instructions stored thereon, that when executed, cause a processor to execute steps comprising . . .” integrates the abstract idea into a practical application.

Appellant’s argument about a new “feedback mechanism” (App. Br.

14) is unpersuasive because “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). “[U]nder the *Mayo/Alice* framework, a claim directed to a newly discovered law of nature (or natural phenomenon or abstract idea) cannot rely on the novelty of that discovery for the inventive concept necessary for patent eligibility” *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016) (citations omitted).

Appellant’s arguments that “[t]he features of claim 1 provide a technological improvement to a computerized workflow graph with nodes and links in a CPOE system,” “[claim 1] is a technological improvement that improves the efficiency of workflows deployed in CPOE systems,” and “the features recited in . . . claim 1 . . . provide an inventive concept” because “a . . . technological improvement . . . dynamically updates link preferences in a workflow graph using CPOE task performance documentation to improve the efficiency of workflow performance in CPOE systems” (App. Br. 13–15; *see also* Reply Br. 4–5) are not commensurate with the scope of claim 1, which does not require a CPOE system. In any event, claim 1 merely recites “[n]on-transitory computer-readable media having computer-executable instructions stored thereon, that when executed, cause a processor to execute steps comprising” the abstract idea of following instructions. Appellant does not persuasively explain why using a computer processor to implement an abstract idea is a technological improvement or renders the claim patent eligible.⁵

To the extent Appellant is arguing the claimed processor “improves

⁵ Similarly, Appellant’s assertion that “claim 1 is technologically driven” (App. Br. 11) is unpersuasive.

the efficiency of workflows” (App. Br. 14), our reviewing court has declared:

While the claimed system and method certainly *purport to accelerate the process of analyzing audit log data, the speed increase comes from the capabilities of a general-purpose computer, rather than the patented method itself. See Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can. (U.S.), 687 F.3d 1266, 1278 (Fed. Cir. 2012) (“[T]he fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter.”).*

FairWarning IP, LLC v. Iatric Sys., Inc., 839 F.3d 1089, 1095 (Fed. Cir. 2016) (emphases added).

Applying this reasoning to claim 1, we similarly find any purported efficiency comes from the capabilities of a general-purpose computer (the recited “processor”)—not a technological improvement. Similar to the claims of *FairWarning*, the rejected claims “are not directed to an improvement in the way computers operate” and “the focus of the claims is not on . . . an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools.” *FairWarning*, 839 F.3d at 1095.

As a result, we conclude claim 1 does not recite additional elements that integrate the judicial exception into a practical application. *See* Guidance, Step 2A, Prong 2.

Turning to Step 2B of the Guidance, Appellant does not persuasively argue any specific limitation is not well-understood, routine, or conventional in the field. Nor does Appellant persuasively argue the Examiner erred in that aspect. In particular, Appellant’s argument that under *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1367 (Fed. Cir. 2018), “the Office bears the burden of

providing factual support or evidence for its determination that features are well-understood, routine, or conventional. Currently the record does not include support or evidence” (Reply Br. 6) is unpersuasive. According to the Memorandum of Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*) (“*Berkheimer* Memorandum”), whether “an additional element (or combination of elements) is . . . well-understood, routine or conventional” is a factual inquiry. *Berkheimer* Memorandum at 3. As pointed out by the Examiner, the Final Action “makes a finding that the computer invoked by the claims is a generic computer at best (page 4 of the Final Action mailed on 2 June 2017, discussing page 14 of parent application 61773260’s Specification).” Ans. 9. Appellant does not critique that factual finding. That factual finding is additionally supported by the Specification, which states:

It is to be understood that the system and methods described herein may be implemented in various forms of hardware, software, firmware, special purpose processors, or a combination thereof. Preferably, the present invention is implemented in software as an application (e.g., n-tier application) comprising program instructions that are tangibly embodied on one or more program storage devices (e.g., magnetic floppy disk, RAM, CD ROM, ROM, etc.), and executable by any device or machine comprising suitable architecture. If written in a programming language conforming to a recognized standard, sequences of instructions designed to implement the methods can be compiled for execution on a variety of hardware platforms and for interface to a variety of operating systems. In addition, embodiments of the present framework are not described with reference to any particular programming language. It will be appreciated that a variety of

programming languages may be used to implement embodiments of the present invention.

The present technology may be implemented in various forms of hardware, software, firmware, special purpose processors, or a combination thereof, either as part of the microinstruction code or as part of an application program or software product, or a combination thereof, which is executed via the operating system. In one implementation, the techniques described herein may be implemented as computer-readable program code tangibly embodied in non-transitory computer-readable media 104. Non-transitory computer-readable media 104 may include one or more memory storage devices such as random access memory (RAM), read only memory (ROM), magnetic floppy disk, flash memory, and other types of memories, or a combination thereof.

Spec. ¶¶ 18, 21.

Therefore, Appellant has not persuaded us that the Examiner erred in finding the additional element “[n]on-transitory computer-readable media having computer-executable instructions stored thereon, that when executed, cause a processor to execute steps comprising” is well-understood, routine, and conventional in the field. *See Berkheimer* Memorandum at 3–4. As a result, Appellant has not persuaded us the Examiner erred with respect to the Guidance’s Step 2B analysis. *See* Guidance, Step 2B.

Because Appellant has not persuaded us the Examiner erred, we sustain the Examiner’s rejection of independent claim 1 under 35 U.S.C. § 101.

Appellant contends claims 2–20 are patent eligible for the same or similar reasons associated with claim 1. *See* App. Br. 12–13, 15.

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Therefore, for similar reasons discussed above, we sustain the Examiner's rejection of claims 2–20 under 35 U.S.C. § 101.

DECISION

We affirm the Examiner's decision rejecting claims 1–20.

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED