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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte YU ZHENG, NICHOLAS JING YUAN, and XING XIE

Appeal 2019-002773
Application 14/835,676
Technology Center 2100

Before ELENI MANTIS MERCADER, MICHAEL R. ZECHER, and
JASON J. CHUNG, *Administrative Patent Judges*.

CHUNG, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals the Final Action rejecting claims 21–40.² We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

INVENTION

The invention relates to discovering functional groups within an area using both mobility patterns among the districts or sections and points of interest located in the districts or sections. Spec. ¶ 5. Claim 21 is illustrative of the invention and is reproduced below:

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. According to Appellant, Microsoft Technology Licensing, LLC is the real party in interest. Appeal Br. 2.

² Claims 1–20 are cancelled. Appeal Br. 13.

21. A system comprising
one or more processors;
memory storing instructions executable on the one or more
processors to perform acts comprising:
*receiving a selection of a set of annotations corresponding
to one or more functional groups of an area of a visual
representation of a map;*
segmenting the map of the area into a set of sections;
*inferring a distribution of functions for each section in the
set of sections according to a topic model framework which uses
mobility patterns of users leaving from and arriving at each
section and uses points of interest (POIs) in each section;*
*determining available functional groups of the area based
at least in part on the distribution of functions; and*
*rendering one or more annotations included in the set of
annotations on the visual representation of the map using the
available functional groups of the area.*

Appeal Br. 13 (Claims Appendix) (emphases added).

REJECTION

The Examiner rejects claims 21–40 under 35 U.S.C. § 101 as being directed to patent ineligible subject matter. Final Act. 3–6.

ANALYSIS

A. Principles of Law

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 U.S. Supreme Court has long interpreted § 101 to include implicit exceptions: “[I]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-part 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 waterproof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); 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.* (citation omitted) (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.* (alterations in original) (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.*

B. USPTO Section 101 Guidance

In January 2019, the U.S. Patent and Trademark Office (USPTO) published revised guidance on the application of § 101. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (“2019 Revised Guidance”).³ “All USPTO personnel are, as a matter of

³ In response to received public comments, the USPTO issued further guidance on October 17, 2019, clarifying the 2019 Revised Guidance.

internal agency management, expected to follow the guidance.” *Id.* at 51; *see also* Update at 1.

Under the 2019 Revised Guidance and the Update, 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 One”); 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, Jan. 2018)) (“Step 2A, Prong Two”).⁴

2019 Revised Guidance, 84 Fed. Reg. at 52–55.

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look, under Step 2B, to whether the claim:

USPTO, *October 2019 Update: Subject Matter Eligibility* (the “Update”) (*available at* https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf).

⁴ This evaluation is performed by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception, and (b) evaluating those additional elements individually and in combination to determine whether the claim as a whole integrates the exception into a practical application. *See* 2019 Revised Guidance - Section III(A)(2), 84 Fed. Reg. 54–55.

- (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.

2019 Revised Guidance, 84 Fed. Reg. at 52–56.

C. The Examiner’s Rejection and Appellant’s Arguments

The Examiner concludes the present claims are analogous to the claims in *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016), which held that claims drawn to “collecting information, analyzing it, and displaying certain results of the collection and analysis” (i.e., a mental process) were ineligible under §101. Final Act. 4–6; Ans. 5–6.

Appellant argues that the Examiner’s analysis does not consider all claim limitations, which describes various technological improvements to the user interface. Appeal Br. 9–10 (citing *Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356 (Fed. Cir. 2018)). Appellant argues that the Examiner did not apply prior art against the present claims and, thus, they are patent eligible. *Id.* at 11. Appellant argues that the Examiner fails to provide sufficient evidence to support the finding that the additional elements implementing the abstract idea, whether considered individually or as an ordered combination, are well-understood, routine, and conventional. *Id.* at 10–11 (citing *Berkheimer v. HP Inc.*, 881 F.3d 1360 (Fed. Cir. 2018)). Appellant argues the present claims recite a non-conventional and non-generic arrangement of known, conventional elements, which results in an

inventive concept. *Id.* at 11 (citing *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016)). We disagree with Appellant.

D. Step 2A, Prong 1

Patent eligibility under § 101 is a question that we resolve pursuant to the 2019 Revised Guidance. The emphasized portions of claim 21,⁵ reproduced above (*see supra* at 2), recite concepts performed in the human mind (including an observation, evaluation, judgment, opinion) with the use of pen and paper because they require “receiving a selection of a set of annotations corresponding to one or more functional groups of an area of a visual representation of a map,” “segmenting the map of the area into a set of sections,” “inferring a distribution of functions for each section in the set of sections according to a topic model framework which uses mobility patterns of users leaving from and arriving at each section and uses (POIs) in each section,” “determining available functional groups of the area based at least in part on the distribution of functions,” and “rendering one or more annotations included in the set of annotations on the visual representation of the map using the available functional groups of the area.” Concepts performed in the human mind (including an observation, evaluation, judgment, opinion) fall within the category of mental processes (i.e., an abstract idea). *See* 2019 Revised Guidance, 84 Fed. Reg. at 52 n.14.

We must still determine whether the abstract idea is integrated into a practical application, namely whether the claim applies, relies on, or uses the

⁵ Appellant does not argue claims 21–40 separately with particularity. Appeal Br. 7–11. We, therefore, group these claims together and refer to them as the “present claims.”

abstract idea in a manner that imposes a meaningful limit on the abstract idea, such that the claim is more than a drafting effort designed to monopolize the abstract idea. *See* 2019 Revised Guidance, 84 Fed. Reg. at 54–55. We therefore (1) identify whether there are any additional recited elements beyond the abstract idea, and (2) evaluate those elements both individually and collectively to determine whether they integrate the exception into a practical application. *See id.*

Accordingly, we proceed to Prong 2.

E. Step 2A, Prong 2

Here, the only elements in the present claims used to implement the abstract idea are “processor” and “memory.”⁶ *See* 2019 Revised Guidance, 84 Fed. Reg. at 52. The additional elements of the present claims do not integrate the abstract idea into a practical application because they do not impose any meaningful limits on practicing the abstract idea for the following reasons.

Appellant does not identify persuasively how the Specification sets forth an improvement in technology. Appeal Br. 9–10 (citing *Core Wireless*, 880 F.3d 1356). The Update addresses how we consider evidence of improvement that is presented to us. The Update states:

[T]he evaluation of Prong Two requires the use of the considerations (e.g. improving technology, effecting a particular treatment or prophylaxis, implementing with a particular machine, etc.) identified by the Supreme Court and the Federal Circuit, to ensure that the claim as a whole “integrates [the] judicial exception into a practical application [that] will apply, rely on, or use the judicial exception in a manner that imposes a

⁶ These additional elements are recited in claim 21 (and its dependent claims) only. *See* Claims App.

meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.

Update 11 (emphases added). The Update further states:

During examination, the examiner should analyze the “improvements” consideration by evaluating the specification and the claims to ensure that a technical explanation of the asserted improvement is present in the specification, and that the claim reflects the asserted improvement. Generally, examiners are not expected to make a qualitative judgment on the merits of the asserted improvement. *If the examiner concludes the disclosed invention does not improve technology, the burden shifts to applicant to provide persuasive arguments supported by any necessary evidence to demonstrate that one of ordinary skill in the art would understand that the disclosed invention improves technology.* Any such evidence submitted under 37 C.F.R. § 1.132 must establish what the specification would convey to one of ordinary skill in the art and cannot be used to supplement the specification. For example, in response to a rejection under 35 U.S.C. § 101, an applicant could submit a declaration under § 1.132 providing testimony on how one of ordinary skill in the art would interpret the disclosed invention as improving technology and the underlying factual basis for that conclusion.

Id. at 13 (emphasis added).

We, therefore, focus on any evidence Appellant cites in its briefs, as discussed in the Update. Appellant does not refer us to any paragraphs of the Specification or other evidence of an improvement to a technology or technological field. Appeal Br. 9–10. Appellant’s citation to *Core Wireless* is unavailing. *Id.* In *Core Wireless*, the U.S. Court of Appeals for the Federal Circuit noted that the invention improved the efficiency of using an electronic device by consolidating “‘a limited list of common functions and commonly accessed stored data,’ which can be accessed directly from the main menu.” *Core Wireless*, 880 F.3d at 1363 (citation omitted). Moreover,

displaying selected data or functions of interest in the summary window allowed the user to view the most pertinent data or functions “without actually opening the application [window] up.” *Id.* at 1367 (emphasis omitted). Stated differently, the application window is in an un-launched state. *Id.* In addition, the user’s navigation speed through various views and windows is improved because it saves the user from having to navigate to the required application, open the application, and then navigate within that application to enable the data of interest to be seen or a function of interest to be activated. *Id.* Unlike the claims of *Core Wireless*, the present claims do not recite displaying an application summary window that was not only reachable directly from the main menu, but could also display a limited list of selectable functions while the application was in an *un-launched state* or an improvement in the functioning of computers. Nor are we persuaded that the Specification discloses technological advances over what is conventional known in the prior art. Appeal Br. 10–12. As discussed above, the claims are directed to an abstract idea, rather than an improvement to the underlying computer technology or to any of the additional elements.

Furthermore, the additional elements in the present claims, namely “processor” and “memory,” do not, either individually or in combination, integrate the abstract idea into a practical application. Appellant’s Specification discloses that these elements encompass generic computer components, such as processor (Spec. ¶¶ 29, 32, 74, 75) and memory (*id.* ¶ 75). Merely adding generic computer components to perform abstract ideas does not integrate those ideas into a practical application. *See* 2019 Revised Guidance, 84 Fed. Reg. at 55 (identifying “merely includ[ing] instructions to implement an abstract idea on a computer” as an example of

when an abstract idea has not been integrated into a practical application).

We, therefore, conclude that the additional elements, whether considered individually or as an ordered combination, do not integrate the abstract idea into a practical application because the additional elements are generic computer components that do not impose meaningful limits on practicing the abstract idea. Furthermore, we conclude that the present claims are directed to improvements to an abstract idea (i.e., mental processes), rather than to improvements to a technology or technological field. *See, e.g., Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) (“[A] claim for a *new* abstract idea is still an abstract idea.”). “[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).

Furthermore, Appellant’s argument that the Examiner has not applied prior art to anticipate or render obvious the present claims (Appeal Br. 11) improperly conflates the requirements for eligible subject matter (§ 101) with the independent requirements of novelty (§ 102) and non-obviousness (§ 103). “The ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.” *Diehr*, 450 U.S. at 188–89; *see also Genetic*, 818 F.3d at 1376 (stating that, “under 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”).

Appellant does not make any other arguments pertaining to Step 2A, Prong 2. Because the present claims recite an abstract idea that is not integrated into a practical application, we proceed to Step 2B.

F. Step 2B

We disagree with Appellant’s argument that the Examiner fails to provide sufficient evidence to support the finding that the additional elements implementing the abstract idea, whether considered individually or as an ordered combination, are well-understood, routine, and conventional. Appeal Br. 10–11 (citing *Berkheimer*, 881 F.3d 1360). The Examiner does not make a specific finding that the additional elements implementing the abstract idea are well-understood, routine, and conventional. Ans. 8. To the extent that Appellant is arguing that the Specification does not support a finding that the additional elements implementing the abstract idea are well-understood, routine, and conventional, we disagree because the Specification indicates that the additional elements (i.e., “processor” and “memory”) are nothing more than generic computer components. Spec. ¶¶ 29, 32, 74, 75. Appellant’s Specification indicates these additional elements were well-understood, routine, and conventional components because it describes them at a high level of generality and in a manner that indicates that they are sufficiently well-known.

We agree with the Examiner that the additional elements, either individually or in combination, do not amount to an inventive concept. Ans. 9. An inventive concept “cannot be furnished by the unpatentable law of nature (or natural phenomenon or abstract idea) itself.” *Genetic*, 818 F.3d at

1376; *see also* 2019 Revised Guidance; *Alice*, 573 U.S. at 217 (explaining that, after determining a claim is directed to a judicial exception, “we then ask, ‘[w]hat else is there in the claims before us?’” (alteration in original) (quoting *Mayo*, 566 U.S. at 78)). Instead, an “inventive concept” is furnished by an element or combination of elements that is recited in the claim in addition to the judicial exception and sufficient to ensure the claim, as a whole, amounts to significantly more than the judicial exception itself. *Alice*, 573 U.S. at 218–19 (citing *Mayo*, 566 U.S. at 72–73); *see BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) (explaining that the Supreme Court in *Alice* “only assessed whether the claim limitations other than the invention’s use of the ineligible concept to which it was directed were well-understood, routine and conventional” (emphasis added)).

Appellant’s citation to *BASCOM* is unavailing. Appeal Br. 11. As an initial matter, Appellant’s argument appears misplaced because all of the features recited, with the exception of the additional elements identified above, are directed to the abstract idea, as discussed *supra*.

Moreover, in *BASCOM*, the claims were directed to “a filter implementation versatile enough that it could be adapted to many different users’ preferences while also installed remotely in a single location.” *BASCOM*, 827 F.3d at 1348–51. The inventive concept was “the installation of a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user” that “gives the filtering tool both the benefits of a filter on a local computer and the benefits of a filter on the [Internet Service Provider] server.” *Id.* at 1350. Thus, when considered as an ordered combination, the Federal Circuit concluded

the claims provided “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *Id.* Here, the present claims recite an abstract idea using additional elements that are generic computer components as discussed *supra*, or at best, improving an abstract idea—not an inventive concept. Accordingly, Appellant’s assertion fails to identify error in the Examiner’s analysis.

Appellant does not argue, nor do we determine, that the dependent claims recite any additional features that would transform the abstract idea embodied in independent claims 21, 30, and 34 into an inventive concept.⁷ For at least the above reasons, we conclude, under the 2019 Revised Guidance, that each of the present claims, considered as a whole, is directed to a patent-ineligible abstract idea that is not integrated into a practical application, and does not include an inventive concept. We, therefore, sustain the Examiner’s rejection of: (1) independent claims 21, 30, and 34; and (2) dependent claims 22–29, 31–33, and 35–40 under § 101.

We have only considered those arguments that Appellant actually raised in the Briefs. Arguments Appellant 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).

⁷ Some of the arguments presented in Appellant’s Briefs center on the Examiner’s purported statement that the independent claims encompass the dependent claims. Appeal Br. 7–8; Reply Br. 3–4. Although we agree with the general premise of Appellant’s, even if the Examiner made such an erroneous statement it would amount to harmless error and does not change our analysis of the Examiner’s § 101 rejection for all the reasons stated *supra*.

CONCLUSION

In summary:

| Claims Rejected | 35 U.S.C. § | Basis | Affirmed | Reversed |
|------------------------|--------------------|--------------|-----------------|-----------------|
| 21-40 | 101 | Eligibility | 21-40 | |

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. § 1.136(a)(1)(iv).

AFFIRMED