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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ARNE K. LEWIS, JOSEPH FRANK FLOYD,
BRENT LOUIS HADLEY, STEPHEN PAUL MILLER, and
PHILLIP JON FISHER

Appeal 2018-002017
Application 13/472,121
Technology Center 2800

Before ROMULO H. DELMENDO, KAREN M. HASTINGS, and
JEFFREY R. SNAY, *Administrative Patent Judges*.

SNAY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1, 3, 4, 6, 8–13, and 15–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies The Boeing Company as the real party in interest. Appeal Br. 1.

BACKGROUND

The subject matter on appeal relates to methods and systems for assessing allowable damage limits for a structure. Spec. ¶ 1. According to the Specification, known damage assessment programs involve field personnel looking up data in structural repair manuals. *Id.* ¶ 4. The Specification describes a program to “systematically locate, identify, quantify and/or assess structure damage.” *Id.* Claim 1 is illustrative:

1. A computer-implemented method of assessing a damage of a composite structure by a user interface device, the method comprising:
 - retrieving, at the user interface device, a plurality of models of the composite structure from a compliance management system;
 - displaying a first model of the plurality of models on the user interface device;
 - receiving a selection of a location of damage on the first model of the composite structure from the user interface device;
 - displaying a second model of the plurality of models on the user interface device, wherein the second model depicts a portion of the first model including a more detailed view of the location of damage on the first model;
 - iteratively receiving selections of locations of damage on the plurality of models until a specific location of damage on the composite structure is determined;
 - receiving a user input that includes a value for at least one parameter of the damage, thereby defining quantifiable information for the at least one parameter;
 - generating at least one question based on the at least one parameter, wherein the at least one question further defines aspects of the damage relative to the composite structure;
 - receiving a response to the at least one question;
 - performing a structural analysis to determine a damage allowability, wherein the damage allowability is based on the value of the at least one parameter and the response to the at least one question; and

displaying an output result of the structural analysis from the user interface device.

Appeal Br. 14 (Claims Appendix). Independent claim 11 recites a system that includes a computer enabled to perform essentially the same method as is recited in claim 1. Independent claim 17 recites a method similar to claim 1. Each remaining claim on appeal depends from claim 1, 11, or 17.

REJECTIONS

- I. Claims 1, 3, 4, 6, 8–13, and 15–20 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter.
- II. Claims 1, 3, 4, 6, 8–13, 15, and 16 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wilke² and Kollgaard.³
- III. Claims 17–20 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wilke, Kollgaard, and Inoue.⁴

DISCUSSION

Rejection I: ineligibility under 35 U.S.C. § 101

The Examiner rejects claims 1, 3, 4, 6, 8–13, and 15–20 under 35 U.S.C. § 101 as being directed to a judicial exception—namely, an abstract idea without significantly more. Final Act. 2. Appellant argues the claims as a group. *See* Appeal Br. 5–9; Reply Br. 1–3. In accordance with 37 C.F.R. § 41.37(c)(1)(iv), we select independent claim 1 as representative, and decide the appeal based on the representative claim alone. Having

² US 2007/0061109 A1, published March 15, 2007.

³ US 2008/0195403 A1, published August 14, 2008.

⁴ US 2003/0225790 A1, published December 4, 2003.

considered the Examiner’s findings and Appellant’s arguments, we are not persuaded the Examiner reversibly erred in rejecting claim 1 under 35 U.S.C. § 101.

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 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).

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, 69 (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 (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 176; *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 (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.* (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. *See Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”), as updated in October 2019. Under Step 1 of the Guidance, we determine whether the claimed subject matter falls within the four statutory categories: process, machine, manufacture, or composition of matter. Step 2A of the Guidance is two-pronged, under which we look to whether the claim recites:

(1) any judicial exception, 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)).

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

adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. *See* Guidance.

We have considered the Examiner’s findings and the Appellant’s arguments in light of the controlling case-law and Guidance, and are not persuaded the Examiner erred in rejecting the claims under 35 U.S.C. § 101.

Guidance Step 1

There is no dispute that claim 1 is within a statutory category. Claim 1 recites a method.

Guidance Step 2A, Prong 1

Under Step 2A of the Guidance, we first consider whether the Examiner erred in determining that the claim recites a judicial exception. The Examiner determined that claim 1 recites an abstract idea. Final Act. 2–4. For the reasons explained below, we see no error in that determination.

The Guidance identifies mental processes as one of the enumerated groupings of abstract ideas. Guidance, 84 Fed. Reg. at 52. A claim recites a mental process when it encompasses acts people can perform using their minds or pen and paper. *See, e.g., CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–3 (Fed. Cir. 2011) (determining that a claim whose “steps can be performed in the human mind, or by a human using a pen and paper” is directed to an unpatentable mental process). This is true even if the claim recites use of a generic computer component to perform the process steps. *See, e.g., Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) (“Courts have examined claims that required the use of a computer and still found that the underlying, patent-ineligible invention could be performed via pen and paper or in a person’s mind.”); *see also* 2019 Eligibility Guidance, 84 Fed. Reg. at 52 n.14 (“If a claim, under its broadest reasonable interpretation, covers performance in the mind but for the recitation of generic computer components, then it is still in the mental process category unless the claim cannot practically be performed in the mind.”).

In this case, claim 1 recites “performing a structural analysis to determine a damage allowability.” The claim does not require any particular machine or device in connection with the above-quoted performing step. A person could perform the step entirely in the mind by mentally comparing measured damage parameters with allowable damage parameters and making a determination as to whether the measured damage is allowable. *See, e.g.*, Spec. ¶¶ 35, 38 (describing a process for performing structural analysis by comparing measured dimensions of a given damage with allowable damage limits obtained from a database). Thus, in the context of claim 1, the step of “performing” can reside solely within a human thought process. Accordingly, we conclude that claim 1 recites a mental process, which is identified in the Guidance as an abstract idea.

Guidance Step 2A, Prong 2

Having determined that the claims recite a judicial exception, our analysis under the Guidance turns to determining whether there are additional elements that integrate the exception into a practical application. *See* MPEP § 2106.05(a)–(c), (e)–(h). The additional elements in claim 1 are: (1) “retrieving . . . a plurality of models;” (2) “displaying a first model;” (3) “receiving a selection of a location of damage;” (4) “iteratively receiving selections of locations of damage;” (5) “receiving a user input that includes a value;” (6) “generating at least one question;” (7) “receiving a response;” and (8) “displaying an output result of the structural analysis.”

We determine that claim 1 does not recite additional elements that integrate the judicial exception into a practical application. The recited “retrieving,” “receiving,” and “displaying” steps involve data gathering

recited at a high level of generality. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016); *see also SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018) (“As many cases make clear, even if a process of collecting and analyzing information is ‘limited to particular content’ or a particular ‘source,’ that limitation does not make the collection and analysis other than abstract.” (quoting *Elec. Power Grp.*, 830 F.3d at 1353, 1355 (citing cases))). In this case, the foregoing steps, both individually and collectively, merely constitute identifying a particular location or part of a structure and collecting quantitative information relating to a given damage at that location, each of which is to be used in the recited structural analysis. “Generating” a question relating to the damage can be performed in a person’s mind or with pen and paper. As such, the generating step also does not “transform the nature of the claim into a patent-eligible application.” *See Alice*, 573 U.S. at 217; *see also* Guidance 84 Fed. Reg. at 55 n.24 (“USPTO guidance uses the term ‘additional elements’ to refer to claim features, limitations, and/or steps that are recited in the claim *beyond the identified judicial exception.*”).

Appellant argues that the claims are not directed to an abstract idea because the focus of the subject claims is on improving the technology of electronically quantifying and assessing structural damage. Appeal Br. 5–6 (citing *McRo, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1229 (Fed. Cir. 2016)). The claims at issue in *McRO* were “directed to the creation of something physical—namely, the display of lip synchronization and facial expressions of animated characters on screens.” *SAP Am., Inc. v. Investpic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) (citing *McRO*, 837 F.3d at 1313). Here, the focus of the claims is not an improvement in the creation of

something physical but purportedly an improvement in the abstract idea of comparing structural damage information to existing damage allowance information. *See* Spec. ¶ 55 (“The embodiments described herein systematically locate and identify damage areas and quantify and assess structural damage present in damage areas.”). Although claim 1 recites “performing a structural analysis,” Appellant does not explain how that recitation requires anything more than comparing an observed damage value with a reference value for compliance determination. Such a comparison of values can be performed in a person’s mind and, therefore, does not “transform the nature of the claim into a patent-eligible application.” *See Alice*, 573 U.S. at 217; *see also* Guidance 84 Fed. Reg. at 55 n.24.

Appellant also argues that the present claims recite a technology-based solution to assessing structural damage and, therefore, transform any abstract idea into a particular, practical application. Appeal Br. 8. Appellant further argues that “the pending claims are directed to a specific implementation of a solution to a problem in the software arts.” *Id.* at 9.

These arguments are not persuasive of reversible error in the Examiner’s rejection. Viewed as a whole, claim 1 applies mental processes to the environment of determining whether a given damage value is within a recorded damage allowance. “[M]erely limiting the field of use of the abstract idea to a particular existing technological environment does not render the claims any less abstract.” *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1259 (Fed. Cir. 2016). We are not persuaded that the claimed method effects an improvement in computer-technology or any other technology or technical field. *See* MPEP § 2106.05(a).

Nor does the claimed method apply the judicial exception using any particular machine. *See* MPEP § 2106.05(b). Claim 1 recites only a generic “user interface device” and “compliance management system,” which the Specification identifies as encompassing a generic central processing unit. Spec. ¶ 25. Appellant does not purport that the claim adds any other meaningful (technological) limitation, i.e., limitations beyond linking the use of the abstract idea to generic technology. *See* MPEP § 2106.05(c), (e); *see also id.* at (f)–(h) (mere instruction to apply a judicial exception (f), insignificant extra-solution activity (g), and generally indicating a field of use or technological environment in which to apply a judicial exception (h), are insufficient to integrate an abstract idea into a practical application).

For the foregoing reasons, we determine that claim 1 does not integrate the judicial exception into a practical application.

Guidance Step 2B

In *Alice* step two, we consider the elements of the claim, both individually and as an ordered combination, to assess whether the additional elements transform the nature of the claim into patent-eligible subject matter. *Content Extraction & Transmission LLC v. Wells Fargo Bank*, 776 F.3d 1343, 1347 (Fed. Cir. 2014). “To save a patent at step two, an inventive concept must be evident in the claims.” *RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017). “An inventive concept that transforms the abstract idea into a patent-eligible invention must be significantly more than the abstract idea itself, and cannot simply be an instruction to implement or apply the abstract idea on a computer.” *Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349

(Fed. Cir. 2016). According to the Guidance, “simply append[ing] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality,” is indicated that an inventive concept is absent. Guidance, 84 Fed. Reg. at 56.

In this context, we also look to see if the additional elements are more than “well-understood, routine, and conventional” so as to amount to an inventive concept. Conversely, we consider whether these additional elements simply append “well-understood, routine, and conventional” elements, particularly at a high level of generality, to the judicial exception.

Appellant does not point to evidence of record that would tend to show that the step of “performing a structural analysis” in claim 1 is more than well-understood, routine, and conventional. To the contrary, the Specification acknowledges conventional programs for performing structural analysis through use of personnel inspecting structural repair manuals. Wilke serves as further evidence that structural damage analysis was well-known. *See, e.g.*, Wilke ¶¶ 70–75; Fig. 10. The recited steps of receiving information to be used in the determination, as well as displaying output results, also are shown to have been known. *See id.* When considered as an ordered combination, the steps recited in claim 1 essentially automate a known manual process of identifying structural damage and assessing its compliance with existing allowances. *See Spec.* ¶ 4.

For the foregoing reasons, we determine that the additional elements recited in claim 1 do not amount to significantly more than the abstract idea itself.

For the reasons discussed above and by the Examiner, we are not persuaded of reversible error in the Examiner’s rejection of representative

claim 1. Accordingly, the rejection of claims 1, 3, 4, 6, 8–13, and 15–20 under 35 U.S.C. § 101 is sustained.

Rejections II and III: obviousness under 35 U.S.C. § 103

The Examiner also rejects claims 1, 3, 4, 6, 8–13, 15, and 16 under 35 U.S.C. § 103(a) as unpatentable over Wilke and Kollgaard (Rejection II), and claims 17–20 over Wilke, Kollgaard, and Inoue.

Appellant presents the same arguments in connection with both Rejection I and Rejection II. Appellant argues that the Examiner erred in finding that Wilke’s disclosure of different displays meets the “plurality of models” recitation in the claims. Appeal Br. 10–11. Appellant also argues that Wilke does not teach that the displayed models are “retrieved from a compliance management system, as claimed. *Id.*

Relevant to Appellant’s arguments on appeal, the Examiner finds that Wilke discloses presenting a first display representing a plurality of locations of a structure type, and in response to user input, presenting a second display representing a plurality of sub-locations. Final Act. 8. *See also* Ans. 11 (“[T]he second model depicts a portion of the first model including a more detailed view of the location of damage on the first model.”). Consistent with the Examiner’s findings, Wilke discloses a damage location module for a particular vehicle which, in use, presents sequentially more detailed views of a selected region of the vehicle. Wilke ¶ 48. Wilke explains, “[t]his process may continue until the damage location has been specified as precisely as needed”). *Id.*

Appellant’s argument that Wilke’s depiction of progressively more detailed views of a structure region does not constitute a plurality of models

is refuted by the language in the claims. For example, claim 1 specifies that the recited plurality of models includes a “second model [which] depicts a portion of the first model including a more detailed view of the location of damage on the first model.” Thus, the claims call for the same progressively detailed views as are discussed in Wilke.

Nor are we persuaded that Wilke does not meet the recited retrieval of models “from a compliance management system.” The Specification provides that a compliance management system encompasses a generic central processing unit storing the model information. Spec. ¶ 25. Wilke likewise implements the disclosed process steps, including retrieval and display of information, using computer processors. Wilke ¶ 76. Appellant does not present persuasive evidence or argument to explain why the recited compliance management system would not encompass a computer processor having stored model information.

The rejections under 35 U.S.C. § 103(a) are sustained.

CONCLUSION

The Examiner’s decision rejecting claims 1, 3, 4, 6, 8–13, and 15–20 is affirmed.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3, 4, 6, 8–13, 15–20	101		1, 3, 4, 6, 8–13, 15–20	
1, 3, 4, 6, 8–13, 15, 16	103(a)	Wilke, Kollgaard	1, 3, 4, 6, 8–13, 15, 16	

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17-20	103(a)	Wilke, Kollgaard, Inoue	17-20	
Overall Outcome			1, 3, 4, 6, 8- 13, 15-20	

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).

AFFIRMED