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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHANDRAN KYMAL and GREGORY FRANCIS GRUSKA

Appeal 2019-000980
Application 14/042,851
Technology Center 3600

Before LINZY T. McCARTNEY, BETH Z. SHAW, and ALEX S. YAP,
Administrative Patent Judges.

McCARTNEY, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellant¹ seeks review under 35 U.S.C. § 134(a) of the Examiner's final rejection of claims 1–29. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ Appellant identifies the real party in interest as Omnex Systems LLC. Appeal Brief 2, filed May 7, 2018 (“Appeal Br.”).

BACKGROUND

This patent application concerns “methods and systems for knowledge management throughout the entire life cycle of a product for use in product and process optimization, problem solving, and the development of other products and services.” Specification ¶ 1, filed October 1, 2013 (“Spec.”).

Claim 1 illustrates the claimed subject matter:

1. A non-transitory machine readable storage medium storing instructions that, when executed, cause a processor to perform a method comprising:

receive input defining one or more requirements for a product;

generate one or more cross-reference matrices from the one or more requirements based on an hazard analysis risk assessment;

generate a parent-child structure for the one or more cross-reference matrices;

populate a requirement file based on the cross-reference matrices;

generate a risk prevention analysis file based on input from the requirement file and one or more linkages between the one or more requirements and the parent-child structure; and

output the risk prevention analysis file, including a tree structure and a tool to enable a user to scroll through the tree structure.

Appeal Br. 13.

REJECTIONS

Claims	35 U.S.C. §	References
1–29	101	
1–29	103	Minotto, ² Harsh ³

DISCUSSION

We have reviewed the Examiner’s rejections and Appellant’s arguments. We disagree with Appellant that the Examiner erred in rejecting claims 1–29 under § 101. For this rejection, as consistent with the discussion below, we adopt the Examiner’s reasoning, findings, and conclusions on pages 2–4 and 7–10 of the Final Office Action mailed September 8, 2017 (“Final Act.”) and pages 3–6 of the Examiner’s Answer mailed September 20, 2018 (“Ans.”). But we agree with Appellant that the Examiner erred in rejecting claims 1–29 under § 103. We address these rejections in turn.

Section 101 Rejection

Section 101 of the Patent Act provides that “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof” is patent eligible. 35 U.S.C. § 101. But the Supreme Court has long recognized an implicit exception to this section: “Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)). To determine whether a claim falls within one of these excluded categories,

² Minotto (US 2006/0122873 A1; June 8, 2006).

³ Harsh et al. (US 2012/0253875 A1; October 4, 2012).

the Court has set out a two-part framework. The framework requires us first to consider whether the claim is “directed to one of those patent-ineligible concepts.” *Alice*, 573 U.S. at 217. If so, we then examine “the elements of [the] claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent-eligible application.” *Alice*, 573 U.S. at 217 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 78, 79 (2012)). That is, we examine the claim for an “inventive concept,” “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.’” *Alice*, 573 U.S. at 217–18 (alteration in original) (quoting *Mayo*, 566 U.S. at 72–73).

The Patent Office has revised its guidance about this framework. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Revised Guidance”). Under the Revised Guidance, to decide whether a claim is directed to an abstract idea, we evaluate whether the claim (1) recites subject matter that falls within one of the abstract idea groupings listed in the Revised Guidance and (2) fails to integrate the recited abstract idea into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 51, 54. If the claim is directed to an abstract idea, as noted above, we then determine whether the claim has an inventive concept. The Revised Guidance explains that when making this determination, we should consider whether the additional claim elements add “a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field” or “simply append[] well-understood,

routine, conventional activities previously known to the industry, specified at a high level of generality.” Revised Guidance, 84 Fed. Reg. at 56.

With these principles in mind, we turn to the § 101 rejection. Appellant argues claims 1–29 together, so as permitted by 37 C.F.R. § 41.37(c)(1)(iv), we decide the appeal for this ground of rejection based on claim 1.

Abstract Idea

The Revised Guidance explains that the abstract idea exception includes “mental processes,” that is, acts that people can perform in their minds or using pen and paper. *See* Revised Guidance, 84 Fed. Reg. at 52 & nn. 14–15; *see also* USPTO, October 2019 Update: Subject Matter Eligibility at 9, https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf (“October SME Update”) (explaining that mental processes encompass acts that people can perform in their minds or using pen and paper). The Examiner determined that claim 1 recites subject matter that falls within this category of abstract ideas. *See, e.g.*, Final Act. 8 (determining that claim 1 includes limitations that “are directed to an idea of itself since they can be performed by a human using pen and paper”).

Appellant does not explicitly dispute that claim 1 recites an abstract idea, and we agree with the Examiner that it does so. Claim 1 recites (1) receiving input defining requirements for a product, (2) generating cross-reference matrices from the requirements based on a hazard analysis risk assessment, and (3) generating a parent-child structure for the cross-reference matrices. Appeal Br. 13. Claim 1 also recites (4) populating a requirement file based on the cross-reference matrices; (5) generating a risk prevention analysis file based on input from the requirement file and

linkages between the requirements and the parent-child structure; and (6) outputting the risk prevention analysis file, including a tree structure. Appeal Br. 13.

These limitations are functional and result-oriented in nature, a common feature of claims that recite abstract ideas. *See, e.g., Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016) (“Indeed, the essentially result-focused, functional character of claim language has been a frequent feature of claims held ineligible under § 101, especially in the area of using generic computer and network technology to carry out economic transactions.”). These limitations recite *what* the claimed method does—receive input; generate cross-reference matrices, parent-child structures, and risk prevention analysis files; populate requirement files; and output risk prevention analysis files with a tree structure—but do not meaningfully limit *how* the claimed method does it. Other than specifying what certain results are “from” or “based on,” these limitations place almost no restrictions on how the claimed method produces the recited results. *See* Appeal Br. 13.

These limitations are so broadly written that they encompass acts that people can perform in their minds or using pen and paper. *See, e.g., CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1373 (Fed. Cir. 2011) (determining that a claim limitation “is so broadly worded that it encompasses literally *any* method” for performing the limitation including “even logical reasoning that can be performed entirely in the human mind”). For example, people can receive the recited input by reading the input from

a database⁴ and can generate the recited cross-reference matrices and parent-child structure by mentally considering the underlying information and writing the matrices and structure on a piece of paper. *See, e.g., CyberSource*, 654 F.3d at 1372 (determining that a step that “requires ‘obtaining information about other transactions that have utilized an Internet address that is identified with the [] credit card transaction’—can be performed by a human who simply reads records of Internet credit card transactions from a preexisting database” and a step that requires “construct[ing] a map of credit card numbers” can be performed “by writing down a list of credit card transactions made from a particular IP address” (first alteration in original)). Similarly, people can populate the recited requirement file, generate the recited risk prevention analysis file, and output the risk analysis file along with a tree structure⁵ by writing down the necessary information. *See, e.g., CyberSource*, 654 F.3d at 1372. Because these limitations encompass acts that people can perform in their minds or using pen and paper, claim 1 recites mental processes. *See CyberSource*, 654

⁴ Even if this limitation did not encompass mental processes, the limitation would not make claim 1 patent eligible because it simply gathers data. *See, e.g., CyberSource*, 654 F.3d at 1372 (“[E]ven if some physical steps are required to obtain information from the database (e.g., entering a query via a keyboard, clicking a mouse), such data-gathering steps cannot alone confer patentability.”).

⁵ Like the step of receiving input defining product requirements, even if the step of outputting the risk prevention analysis file (including a tree structure) did not encompass mental processes, this step would not make claim 1 patent eligible because the step involves insignificant post-solution activity. *Cf. Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1242 (Fed. Cir. 2016) (agreeing with the Board that downloading and printing menus “are insignificant post-solution activities”).

F.3d at 1372 (determining “that unpatentable mental processes are the subject matter of” a claim when the claim’s “method steps can be performed in the human mind, or by a human using a pen and paper”); October SME Update 9 (explaining that mental processes encompass acts that people can perform in their minds or using pen and paper). Claim 1 thus recites an abstract idea. *See* Revised Guidance, 84 Fed. Reg. at 52 (explaining that the abstract idea exception includes mental processes).

Because we determine that claim 1 recites an abstract idea, we next consider whether claim 1 integrates the abstract idea into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 51. In doing so, we evaluate the claim as a whole to determine whether the claim “integrate[s] the [abstract idea] into a practical application, using one or more of the considerations laid out by the Supreme Court and the Federal Circuit.” Revised Guidance, 84 Fed. Reg. at 55; *see also* October SME Update 12 (discussing the practical application analysis). That is, we consider any additional elements recited in the claim along with the limitations that recite an abstract idea to determine whether the claim integrates the abstract idea into a practical application. *See* October SME Update 12.

The additional elements recited in claim 1 include “a processor,” “a tree structure,” “a tool to enable a user to scroll through the tree structure,” and the step of “output[ting] . . . a tool to enable a user to scroll through the tree structure.” Appeal Br. 13. The written description describes the recited processor, tree structure, and tool, as well as the operations they perform, in largely functional terms with few implementation details. *See, e.g.*, Spec. ¶¶ 23 (disclosing that “system architecture 100 network diagrams may include, but is not limited to, a server 102, one or more processors, one or

more client systems 104, and software that may be designed to be a standalone system”), 27 (disclosing that “[t]he risk management process may receive the requirements from one or more users at a client computer” and “[t]he risk management process may generate one or more cross-reference matrices based on the information received by the requirement manager”), 28 (disclosing that “the requirements manager may present the cross-reference matrices based on the analysis and requirements information to a user using several formats including, but not limited to, a parent-child structure, a fault tree analysis, and/or a dashboard display”), 29 (“At step 206, the requirements manager is able to replicate the product requirements into one or more FMEAs.”), 52 (disclosing that “the system may generate a fault tree analysis based on a feature or function of the product”), 86 (“The computer system generation of a fault tree analysis may allow one or more user to visual[ly] scroll through the analysis of a system, subsystem, and/or component on a display.”).

The lack of implementation details shows that these elements and their associated operations are generic. *See, e.g., Intellectual Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1331 (Fed. Cir. 2017) (“The claimed mobile interface is so lacking in implementation details that it amounts to merely a generic component (software, hardware, or firmware) that permits the performance of the abstract idea, i.e., to retrieve the user-specific resources.”); *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384 (Fed. Cir. 1986) (“[A] patent need not teach, and preferably omits, what is well known in the art.”). As for the outputting step, like the other additional elements, the written description describes this step in a generally functional manner and provides few implementation details about the step.

See, e.g., Spec. ¶ 86 (“The computer system generation of a fault tree analysis may allow one or more user to visual[ly] scroll through the analysis of a system, subsystem, and/or component on a display.”). This indicates that this step is generic. *See, e.g., Intellectual Ventures I*, 850 F.3d at 1331; *Hybritech*, 802 F.2d at 1384. In any case, this limitation simply outputs a generic tool that enables users to scroll through a tree structure. *See* Appeal Br. 13. This limitation therefore does not impose meaningful limits on the claimed method and thus amounts to insignificant extra-solution activity. *Cf. Apple*, 842 F.3d at 1242.

Considering these additional elements along with the limitations that recite an abstract idea, both individually and as an ordered combination, we determine that the claimed method does not integrate the abstract idea into a practical application. The claimed method uses generic computer components performing generic computer operations to implement the abstract idea. *See* Appeal Br. 13. Using a generic computer component in this way does not integrate an abstract idea into a practical application. *See, e.g., Alice*, 573 U.S. at 223–24 (“[W]holly generic computer implementation is not generally the sort of ‘additional featur[e]’ that provides any ‘practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.’” (quoting *Mayo*, 566 U.S. at 77) (second and third alterations in original)). The claimed method also adds to the abstract idea the generic insignificant extra-solution activity of outputting a generic tool to enable a user to scroll through the tree structure. *See* Appeal Br. 13. Adding this activity to the abstract idea does not integrate the abstract idea into a practical application. *See Bilski v. Kappos*, 561 U.S. 593, 612 (2010) (“*Flook* established that limiting an abstract idea to one

field of use or adding token postsolution components did not make the concept patentable.”). And, in the context of the claim as a whole, combining generic computer components that perform generic computer operations to implement the abstract idea with generic insignificant extra-solution activity fails to integrate the abstract idea into a practical application. *See, e.g., Intellectual Ventures I*, 850 F.3d at 1328–29; *Apple*, 842 F.3d at 1242–43.

Appellant has not persuaded us otherwise. Appellant contends that the Examiner erroneously assumed “that any element so-analyzed for ‘something more’ be apart from the elements included in the so-called abstract idea.” Appeal Br. 6; Reply Brief 2–4, November 19, 2018 (“Reply Br.”) (making related arguments). Even if the Examiner made this assumption, for the reasons discussed above, considering the additional elements together with the limitations that recite an abstract idea does not show that claim 1 amounts to significantly more than the recited abstract idea. Appellant also asserts that “[t]he interoperable elements of the claim function to improve the creation and processing of fault tree analysis in an uncommon and atypical manner.” Appeal Br. 9; *see also* Reply Br. 4 (arguing that “[a]s a *whole concept, in ordered combination*, the claims present an atypical and uncommon approach to solving the problem”). But Appellant has provided no persuasive evidence or reasoning to support this assertion. *See* Appeal Br. 9; Reply Br. 4. In any event, although claim 1 recites “including a tree structure and a tool to enable a user to scroll through the tree structure,” the claim does not require creating and processing a “fault tree analysis.” Appeal Br. 13. Nor does the written description limit the recited tree structure to a fault tree analysis. *See, e.g., Spec.* ¶ 6 (“The

system may output the risk prevention analysis as a tree structure including, but not limited to, a fault tree analysis.”). We thus find this argument unpersuasive. *See, e.g., Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016) (“While Synopsys may be correct that the inventions of the Gregory Patents were intended to be used in conjunction with computer-based design tools, the Asserted Claims are not confined to that conception. The § 101 inquiry must focus on the language of the Asserted Claims themselves.”).

Inventive Concept

Finally, we consider whether claim 1 has an inventive concept, that is, whether the claim has additional elements that “transform the nature of the claim’ into a patent-eligible application.” *Alice*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 78, 79). As discussed above, this requires us to evaluate whether the additional claim elements add “a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field” or “simply append[] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality.” Revised Guidance, 84 Fed. Reg. at 56.

The Examiner found that the additional elements recited in claim 1 add well-understood, routine, and conventional activities. *See, e.g.,* Ans. 4–5. Appellant has not explicitly challenged this finding, and we agree with the Examiner that the additional elements perform well-understood, routine, and conventional activities. As discussed above, the additional elements include the recited processor, tree structure, tool, and the step of outputting a tool that enables users to scroll through a tree structure. *See* Appeal Br. 13. As also discussed above, the written description describes these elements (and

when applicable, their associated functions) in largely functional terms with few implementation details. *See, e.g.*, Spec. ¶¶ 23, 27–29, 52, 86. This shows that these elements and their functions are conventional. *See, e.g., Hybritech*, 802 F.2d at 1384 (“[A] patent need not teach, and preferably omits, what is well known in the art.”); USPTO, Memorandum on Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*) at 3 (Apr. 19, 2018), available at <https://www.uspto.gov/sites/default/files/documents/memo-berkheimer-20180419.PDF> (“Berkheimer Memo”) (explaining that a specification that describes additional elements “in a manner that indicates that the additional elements are sufficiently well-known that the specification does not need to describe the particulars of such additional elements to satisfy 35 U.S.C. § 112(a)” can show that the elements are well understood, routine, and conventional).

Whether we consider these additional elements individually or as an ordered combination, these elements do not transform the nature of claim 1 into a patent-eligible application. These elements are largely recited at a high level of generality, and there is no indication that these elements override the conventional use of known features or involve an unconventional arrangement or combination of elements. At bottom, claim 1 recites conventional computer components employed in a customary manner, which is not enough to provide an inventive concept. *Alice*, 573 U.S. at 223 (“[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.”).

Appellant contends that the Examiner was required to consider whether claim 1, “*as a whole concept*, represent[s] routine and common

practices.” Appeal Br. 6. Appellant asserts that on this issue the Examiner offered only a “conclusory statement” and argues that this statement is insufficient under the Berkheimer Memo, other Patent Office guidance, and Federal Circuit precedent to show that an element (or a combination of elements) is routine and commonplace. *See* Appeal Br. 6–9.

We find these arguments unpersuasive. The Federal Circuit has made clear that “the relevant inquiry is *not* whether the claimed invention *as a whole* is unconventional or non-routine.” *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) (emphases added). *See also Bridge & Post, Inc. v. Verizon Commc’ns, Inc.*, 778 F. App’x 882, 892 (Fed. Cir. 2019) (“At *Alice* step two we assess ‘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.” (quoting *BSG Tech*, 899 F.3d at 1290)). The Federal Circuit has explained that “[i]t has been clear since *Alice* that a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.” *BSG Tech*, 899 F.3d at 1290. *See also Trading Techs. Int’l, Inc. v. IBG LLC*, 921 F.3d 1378, 1385 (Fed. Cir. 2019) (“The abstract idea itself cannot supply the inventive concept, ‘no matter how groundbreaking the advance.’” (quoting *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1170 (Fed. Cir. 2018))). Accordingly, these arguments have not persuaded us that the Examiner erred.

Summary

For at least the reasons discussed above, we determine that claim 1 is directed to an abstract idea and lacks an inventive concept. We therefore sustain the Examiner’s rejection of claim 1 under § 101.

Section 103 Rejection

Claim 1 recites “generate one or more cross-reference matrices from the one or more requirements based on an hazard analysis risk assessment.” Appeal Br. 13. Independent claims 12 and 19 recite generating one or more cross-reference matrices from “the one or more requirements” and “the one or requirements based on at least one design specification,” respectively. Appeal Br. 15, 16.

The Examiner found that Minotto teaches these limitations because Minotto discloses a “risk matrix” that allegedly includes a value related to the hazards, requirements, requests, and features of a defined product. *See* Ans. 7 (citing Minotto ¶¶ 39–42); Final Act. 11, 17. Appellant argues that the cited portions of Minotto discuss *using* a risk matrix but not *generating* the risk matrix in the manner recited in independent claims 1, 12, and 19. *See* Appeal Br. 9–11.

We agree with Appellant. The cited portions of Minotto disclose accessing a risk matrix that “indicates, for a given pairing of hazard severity and probability, a resultant value of risk tolerance,” Minotto ¶ 42, but does not explicitly disclose that these values are related to the hazards, requirements, requests, and features of a defined product as found by the Examiner. Thus, even assuming that Minotto teaches generating this risk matrix, the Examiner has not shown that Minotto generates the risk matrix from the elements recited in independent claims 1, 12, and 19. We thus do not sustain the Examiner’s rejection of independent claims 1, 12, and 19 and their respective dependent claims.

Claim 24 recites “generate a parent-child structure for the one or more requirements.” Appeal Br. 17. The Examiner found that Minotto teaches this

limitation for the same reason that Minotto teaches generating a parent-child structure for the one or more cross-reference matrices in claim 1. *See* Final Act. 18. Appellant argues that the Examiner erred “because the ‘parent-child’ relationship in [claim 24] . . . is generated . . . [for] *product requirements*, whereas in claim 1 the relationship was generated for the *cross-reference matrix*.” Appeal Br. 11 (emphases added).

We agree with Appellant. As argued by Appellant, showing that Minotto teaches generating parent-child relationship for a cross-reference matrix does not, without more, show that Minotto teaches generating this relationship for product requirements as required by claim 24. We thus do not sustain the Examiner’s rejection of claim 24 and its dependent claims.

CONCLUSION

Claims Rejected	35 U.S.C. §	References	Affirmed	Reversed
1–29	101		1–29	
1–29	103	Minotto, Harsh		1–29
Overall Outcome			1–29	

Because we affirm at least one ground of rejection for each claim on appeal, we affirm the Examiner’s decision. *See* 37 C.F.R. § 41.50(a)(1). No period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED