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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MAXIME COHEN, KIRAN VENKATA PANCHAMGAM,
NGAI-HANG ZACHARY LEUNG, and GEORGIA PERAKIS¹

Appeal 2017-004783
Application 14/030,287
Technology Center 3600

Before CAROLYN D. THOMAS, BRADLEY W. BAUMEISTER, and
MICHAEL J. ENGLE, *Administrative Patent Judges*.

THOMAS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner's Final Rejection of claims 1–5, 7–12, 14–17, 19, 20, and 24–26, all the pending claims in the present application. Claims 6, 13, 18, and 21–23 are canceled. *See* Claims Appendix. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

¹ The Appellants name Oracle International Corporation as the real party in interest (App. Br. 2).

The present invention relates generally to determining promotional pricing for a product. *See* Abstract.

Claim 8 is illustrative:

8. A method of determining promotional pricing for a product and for an objective function, the method comprising:
receiving a non-linear time-dependent optimization problem for the product, wherein the non-linear problem comprises a demand model and a plurality of constraints, wherein the constraints comprise a price ladder that comprises a plurality of time periods and a non-promotional price for the product at each time period;
for each of the time periods, determining a change in the objective function, wherein for each time period the price comprises a promotional price and all other prices on the price ladder are set to the non-promotional price to generate coefficients, wherein the objective function is approximated by summing the products of each of the coefficients with decision variables α^k_t , wherein t is time and k is an element on the price ladder;
determining a maximum value of the coefficients at each time period;
generating an approximate Mixed Integer Programming (MIP) problem based on the coefficients;
determining a Linear Programming (LP) relaxation of the MIP problem comprising modifying the constraints; and
solving the LP relaxation to generate a vector of promotional prices for the product at each time period along the price ladder;
wherein modifying the constraints comprises modifying $\alpha^k_t \in \{0,1\}$ to $0 \leq \alpha^k_t \leq 1$ ($\forall t \in T; \forall k \in \{0,1, \dots K\}$).

Appellants appeal the following rejection:²

Claims 1–5, 7–12, 14–17, 19, 20, and 24–26 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory

² The Examiner withdraws the rejections under 35 U.S.C. § 112(a) and § 103 (*see* Advisory Action dated Aug. 5, 2016, page 2).

subject matter (Final Act. 16–18).³

We review the appealed rejections for error based upon the issues identified by Appellants, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

ANALYSIS

Rejection under § 101

Issue: Did the Examiner err in determining that the claims are directed to non-statutory subject matter?

In this regard, with respect to independent method claim 8, and similarly, non-transitory computer-readable medium claim 1 and system claim 15, the Examiner determines that the claims are directed to (1) “An [Abstract] Idea of Itself . . . Certain Methods of Organizing Human Activity . . . and Mathematical Relationships/Formulas” (Final Act. 16–17). The Examiner adds that “the limitations of these claims do not do significantly more than recite the abstract idea implemented using generic computer technology” (*id.* at 18). We agree with the Examiner for at least the reasons *infra*.

³ The Examiner also objected to claims 1, 7, 8, 14, 15, and 17 (*see* Final Act. 15). However, the propriety of the Examiner’s objection relates to a petitionable matter and not to an appealable matter. Objections to the claims are petitionable matters under 37 C.F.R. § 181 to the Director of the USPTO. *See* MPEP § 706.01. “[T]he Board will not hear or decide issues pertaining to objections and formal matters which are not properly before the Board.” *Id.* Accordingly, we will not decide the objection.

A patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable. *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (“Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”). Notwithstanding that a law of nature or an abstract idea, by itself, is not patentable, the application of these concepts may be deserving of patent protection. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70–73 (2012). In *Mayo*, the Court stated that “to transform an unpatentable law of nature into a patent eligible *application* of such a law, one must do more than simply state the law of nature while adding the words ‘apply it.’” *Id.* at 72 (citation omitted).

In *Alice*, the Court reaffirmed the framework set forth previously in *Mayo* “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of these concepts.” *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Id.* If the claims are directed to a patent-ineligible concept, then the second step in the analysis is to consider the elements of the claims “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 566 U.S. at 79, 78).

In other words, the second step is to “search for an ‘inventive concept’ - *i.e.*, 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.’” *Id.* (brackets in original) (quoting *Mayo*, 566 U.S. at 73). The prohibition against patenting an abstract idea “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment or adding insignificant post-solution activity.” *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (citation and internal quotation marks omitted). The Court in *Alice* noted that “[s]imply appending conventional steps, specified at a high level of generality,’ was not ‘enough’ [in *Mayo*] to supply an ‘inventive concept.’” *Alice*, 134 S. Ct. at 2357 (quoting *Mayo*, 566 U.S. at 82, 77, 72).

Step one: Are the claims at issue directed to a patent-ineligible concept?

Appellants contend that “the Examiner fails to cite to **ANY** cases that considered a similar concept to be abstract” (App. Br. 4), the Examiner is “generalizing the alleged abstract idea at such a high level . . . that it no longer has **ANY** relationship to the recited limitations” (*id.* at 5); and “**ANY** reasonable summary of the claims would not be considered an abstract idea . . . in view of the allowance over the prior art” (*id.* at 5–6).

In response, the Examiner notes, and we agree, that “[t]he courts consider the determination of whether a claim is eligible . . . to be a question of law . . . and in most cases resolve the ultimate legal conclusion on eligibility without making any factual findings” (Ans. 3). *See, e.g.*, para. IV “July 2015 Update: Subject Matter Eligibility” to 2014 Interim Guidance on Subject Matter Eligibility (2014 IEG), 79 Fed. Reg. 74618 (Dec. 16, 2014)

“The courts consider the determination of whether a claim is eligible (which involves identifying whether an exception such as an abstract idea is being claimed) to be a *question of law*. Accordingly, courts do not rely on evidence that a claimed concept is a judicial exception, and in most cases resolve the ultimate legal conclusion on eligibility without making any factual findings” (emphasis added) (footnote omitted)). Evidence may be helpful in certain situations where, for instance, facts are in genuine dispute. But it is not always necessary.

In any case, the Examiner highlighted some of the abstract concepts, i.e., “collecting and comparing known information and [o]rganizing information through mathematical correlations” and “Organizing Human Activity” (*see* Final Act. 4 and 16–17). We determine that the Examiner’s cogent analysis relying on judicial examples (*id.*), albeit not always expressly citing the specific cases, shows the Examiner provided adequate basis for making the rejection.

Information collection and analysis, including when limited to particular content, is within the realm of abstract ideas. *See, e.g., Elec. Power Grp. LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (holding that “collecting information, analyzing it, and displaying certain results of the collection and analysis” are “a familiar class of claims ‘directed to’ a patent-ineligible concept”); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093–94 (Fed. Cir. 2016); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1349 (Fed. Cir. 2015); *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011).

Courts have similarly determined that various methods of organizing human activity fall “squarely within the realm of ‘abstract ideas.’” *Alice*, 134 S. Ct. at 2357 (discussing methods for risk hedging and intermediated settlement as non-limiting examples of organizing human activity). Among others, recent cases from the Federal Circuit also have “applied the ‘abstract idea’ exception to encompass inventions pertaining to methods of organizing human activity.” *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016).

We determine the Examiner properly and reasonably found that representative claim 8 is directed to an abstract idea, albeit at a higher level of abstraction.

“An abstract idea can generally be described at different levels of abstraction. As the Board has done, the claimed abstract idea could be described as generating menus on a computer, or generating a second menu from a first menu and sending the second menu to another location. It could be described in other ways, including, as indicated in the specification, taking orders from restaurant customers on a computer.”

Apple, Inc. v. Ameranth, Inc., 842 F.3d 1229, 1240 (Fed. Cir. 2016).

Regarding Appellants’ argument about the Examiner’s allowance of the claims over prior art, we shall address this argument *infra* under the second step of *Alice*.

Thus, we agree with the Examiner that representative claim 8 is directed to an abstract idea.

Step two: Is there something else in the claims that ensures that they are directed to significantly more than a patent-ineligible concept?

The Examiner should next identify all of the additional elements in each claim and explain why these elements, individually or collectively, do

not add significantly more than the abstract idea. Here, the Examiner determines that “the limitations of these claims do not do significantly more than recite the abstract idea implemented using generic computer technology” (Final Act. 18). Again, we agree with the Examiner.

Appellants contend that “the present claims recite functionality that goes well beyond the mere concepts of simply retrieving, comparing and combining data using a computer” and “labeling the claim elements as ‘well-understood, routine and conventional activities’ is in complete contrast to the indication by the Examiner that the elements, in combination, are allowable over the prior art” (App. Br. 7). In essence, Appellants are highlighting the Examiner’s lack of any pending prior art rejection as evidence of significantly more in the claims. The Examiner determines, and we agree, that “nonobviousness or novelty is not an indicia of eligibility – it is not an indicia that limitations provide ‘something more’” (Ans. 4). *See Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1315 (Fed. Cir. 2016).

Indeed, “[t]he ‘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.” *Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981); *see also Mayo*, 566 U.S. at 91 (rejecting “the Government’s invitation to substitute §§ 102, 103, and 112 inquiries for the better established inquiry under § 101”). Here, the general finding that the particular prior art references do not disclose all the limitations of or render obvious the asserted claims does not resolve the question of whether the claims embody an inventive concept at the second step of *Mayo/Alice*.

The Examiner’s determination here of “well-understood, routine[,] and conventional” is directed to the technological environment of the claims (Final Act. 7), which determination we find proper. That is, the Examiner provides a rational basis for that conclusion stating:

The additional elements or combination of elements in the claims other than the abstract idea per se amount to no more than mere instructions to implement the idea on a computer and/or a recitation of generic computer structure that serves to perform generic computer functions that are well-understood, routine[,] and conventional activities previously known to the pertinent industry.

Id.; see also Ans. 5 (citing Spec. ¶ 10 as evidence that the claimed mathematical calculations are carried out on a generic computer); Ans. 7 (citing Spec. ¶¶ 1, 2, 15, 17, 21, 26, 28, FIGs 2, 3a, 3b, 4a, 4b as evidence that the invention is directed to the abstract idea of employing business rules to optimize prices on a generic computer structure performing generic functions that are well-understood, routine and conventional activities). Such an analysis is a factual determination. See *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018) (“Whether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination.”). We find the Examiner’s noting the generic nature of the component parts recited in the claims, supported by recent case law, provides sufficient evidence of a generic computer system used to implement the abstraction. See *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1057 (Fed. Cir. 2017) (“Significantly, the claims do not provide details as to any non-conventional software for enhancing the financing process.”); *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1342 (Fed. Cir. 2017) (explaining that “[o]ur law demands more” than claim language that “provides only a result-oriented solution,

with insufficient detail for how a computer accomplishes it”). Appellants fail to persuasively demonstrate otherwise.

Appellants further contend that “[t]he present claims do not preempt all systems and methods for performing the alleged abstract idea” (App. Br. 8). Although pre-emption “‘might tend to impede innovation more than it would tend to promote it,’ thereby thwarting the primary object of the patent laws” (*Alice*, 134 S. Ct. at 2354 (citing *Mayo*, 566 U.S. at 71)), “the absence of complete preemption does not demonstrate patent eligibility” (*Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015)). Moreover, because we determine the claimed subject matter covers patent-ineligible subject matter, the pre-emption concern is necessarily addressed. “Where a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, [] preemption concerns are fully addressed and made moot.” *Ariosa Diagnostics*, 788 F.3d at 1379.

Appellants also contend that the claims “do improve the functioning of the computer” because “a better result and improved computer performance is achieved” (App. Br. 8–9). The Examiner determines, and we agree, that “improving the efficiency . . . does not improve the functioning of the computer” (Ans. 9).

Appellants are reminded that “relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.” *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (citing *Alice*, 134 S. Ct. at 2359 (“use of a computer to create electronic records, track multiple transactions, and issue simultaneous instructions” is not an inventive concept)).

Furthermore, as recognized by the Supreme Court, “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Alice*, 134 S. Ct. at 2358 (concluding claims “simply instruct[ing] the practitioner to implement the abstract idea of intermediated settlement on a generic computer” not patent eligible); *see also Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715–16 (Fed. Cir. 2014) (claims merely reciting abstract idea of using advertising as currency as applied to particular technological environment of the Internet not patent eligible); *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1344–45 (Fed. Cir. 2013) (claims reciting “generalized software components arranged to implement an abstract concept [of generating insurance-policy-related tasks based on rules to be completed upon the occurrence of an event] on a computer” not patent eligible); and *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333–34 (Fed. Cir. 2012) (“[s]imply adding a ‘computer aided’ limitation to a claim covering an abstract concept, without more, is insufficient to render [a] claim patent eligible” (internal citation omitted)).

Because Appellants’ independent claims 1, 8, and 15⁴ are directed to a patent-ineligible abstract concept and do not recite something “significantly more” under the second prong of the *Alice* analysis, we sustain the Examiner’s rejection of these claims as well as the respective dependent claims under 35 U.S.C. § 101 as being directed to non-statutory subject matter in light of *Alice* and its progeny.

⁴ *Alice* also confirmed that if a patent’s systems claims are no different in substance from its method claims, they will rise and fall together. 134 S. Ct. at 2360. The same was true of the *Alice* patent’s media claims. *Id.*

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For the foregoing reasons, Appellants' contentions are unpersuasive as to error in the rejection under 35 U.S.C. § 101.

DECISION

We affirm the Examiner's § 101 rejection.

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