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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREW MAAG

Appeal 2017-009995¹
Application 14/252,180
Technology Center 2100

Before CARLA M. KRIVAK, IRVIN E. BRANCH, and
ADAM J. PYONIN, *Administrative Patent Judges*.

PYONIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) from a final rejection of claims 21–40, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ The real party in interest is identified as Versata Development Group, Inc. App. Br. 1.

STATEMENT OF THE CASE

Introduction

The Application is directed to applying data regression and pattern mining to predict future demand. Spec., Title. Claims 21, 30, and 37 are independent. Claim 21 is reproduced below for reference (formatting added):

21. A method of mining one or more patterns from a transaction database, comprising: performing by a computer system programmed with code stored in a memory and executing by a processor of the computer system to configure the computer system into a machine:

for each predetermined time interval of a plurality of predetermined time intervals, measuring a pattern frequency value for a first pattern in a transaction database based on how many times the first pattern occurs in said predetermined time interval; and

processing the pattern frequency values for the first pattern to calculate a predicted pattern frequency value for the first pattern.

References and Rejections

Claims 21–40 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 21.

Claims 21, 23, 24, 28–30, 32, 33, 37, 39, and 40 stand rejected under 35 U.S.C. §102(b) as unpatentable over Ando (US 6,032,125; Feb. 29, 2000). Final Act. 27.

Claims 22–24, 31–33, and 38–40 stand rejected under 35 U.S.C. § 103(a) as obvious over Ando and Eder (US 5,615,109; Mar. 25, 1997). Final Act. 34, 36.

Claims 25, 26, 35, and 36 stand rejected under 35 U.S.C. § 103(a) as obvious over Ando and Valentine (US 7,062,447 B1; June 13, 2006). Final Act. 36.²

Claims 27 and 36 stand rejected under 35 U.S.C. § 103 as obvious over Ando and Chakrabarti (US 6,189,005 B1; Feb. 13, 2001). Final Act. 37.³

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellant's arguments, considering only those arguments Appellant actually raised in the briefs. *See* 37 C.F.R. § 41.37(c)(1)(iv). We are not persuaded the Examiner errs. We adopt the Examiner's findings and conclusions in the Final Action and Examiner's Answer as our own, to the extent they are consistent with our analysis below.

A. Patent Eligible Subject Matter

An invention is patent-eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. The Supreme Court, however, has long interpreted section 101 to include an implicit exception: laws of nature, natural phenomena, and abstract ideas are not patentable. *See, e.g., Alice Corp. Pty Ltd. v. CLS Bank Int'l*, 134

² We note claim 34 is not subject to a prior art rejection.

³ We note claims 23, 24, 32, 33, 36, 39, and 40 each stand rejected under two separate prior art grounds. *See* MPEP § 904.03 ("[T]he [E]xaminer should . . . avoid an unnecessary number of rejections over similar references. . . . Multiplying references, any one of which is as good as, but no better than, the others, adds to the burden and cost of prosecution and should therefore be avoided.").

S.Ct. 2347, 2354 (2014). The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 134 S.Ct. at 2355. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts,” e.g., to an abstract idea. *Alice*, 134 S.Ct. at 2355. If the claims are directed to a patent-ineligible concept, the inquiry proceeds to the second step, where the elements of the claims are considered “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.” *Alice*, 134 S.Ct. at 2350 (quoting *Mayo*, 566 U.S. at 78, 79).

Noting that “the two stages involve overlapping scrutiny of the content of the claims,” the Federal Circuit has described “the first-stage inquiry as looking at the ‘focus’ of the claims, their ‘character as a whole,’ and the second-stage inquiry (where reached) as looking more precisely at what the claim elements add—specifically, whether, in the Supreme Court’s terms, they identify an ‘inventive concept’ in the application of the ineligible matter to which (by assumption at stage two) the claim is directed.” *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (citations omitted). The Supreme Court, furthermore, acknowledges that “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo*, 566 U.S. at 71. We, therefore, look to whether the claims focus on a specific means or method that improves the relevant technology, or instead are directed to a result or

effect that itself is the abstract idea and merely invoke generic processes and machinery. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016).

Prima Facie Case

Appellant states the Examiner's section 101 rejection is in error for "fail[ing] to make a *prima facie* case rejection," as "the actual claim requirements are simply not addressed at all, notwithstanding the fact that these claims add numerous, tangible limitations that remove the claimed invention from the 'abstract idea' domain." App. Br. 5.

We are not persuaded the Examiner's rejection is in error. Rather, we find Appellant has been notified of the reasons for the rejection with such information "as may be useful in judging of the propriety of continuing the prosecution of [the] application," as required. *In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011) (quoting 35 U.S.C. § 132); *see also* Final Act. 3–11, 21–26.

We agree with the Examiner that "the claims are directed to []an abstract idea" (quotations omitted) of "[f]orecasting/[p]redictions" which is the idea itself of "[o]rganizing [i]nformation through [m]athematical [c]orrelations." Ans. 4. The claims,⁴ consistent with the Specification, are drawn to "database mining . . . for processing frequent patterns from

⁴ Appellant describes claim 21 as reciting "the 'transaction database' which is mined with a method which includes 'performing' a sequence of steps," the steps "including 'measuring a pattern frequency value for a first pattern in a transaction database based on how many times the first pattern occurs' in each of a plurality of predetermined time intervals" and also "processing the pattern frequency values for the first pattern to calculate a predicted pattern frequency value for the first pattern." App. Br. 8.

transaction databases.” Spec. ¶ 12. That is, the claims analyze values stored in a database, and calculate a new value based on the stored values. Such process relates to a mathematical correlation or calculation. Further, the claims do not improve a computer related technology; rather, the claims are analogous to calculations that could be performed mentally or using pencil and paper. *See* Spec. ¶ 22 (“[D]ata processing may be performed on . . . other information handling systems which are designed to provide computing power to one or more users.”); *see also FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1096 (Fed. Cir. 2016) (“[T]he use of generic computer elements like a microprocessor or user interface do not alone transform an otherwise abstract idea into patent-eligible subject matter.”).

The Examiner’s determination that the claims are abstract is supported by case law, as our reviewing court has found similarly directed claims to be abstract. “Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible.” *Digitech Image Techs., LLC v. Electronics for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014); *see also In re Abele*, 684 F.2d 902, 907 (C.C.P.A. 1982) (“If the claimed invention is a mathematical algorithm, it is improper subject matter for patent protection.”); *In re Grams*, 888 F.2d 835, 840 (Fed. Cir. 1989) (“From the [S]pecification and the claim, it is clear to us that applicants are, in essence, claiming the mathematical algorithm, which they cannot do.”); *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (“In a similar vein, we have treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.”).

We also agree with the Examiner that the claims do not recite additional elements that transform the nature of the claim into a patent-eligible application. *See* Final Act. 22. As explained above with respect to the first step of the *Alice* analysis, we find the claims are directed to improvements in the forecasting arts, and there is insufficient evidence on the record before us to persuasively show the claims improve an existing technological process. *See* Spec. ¶¶ 21 (“The present invention discloses techniques for discovering more meaningful pattern frequency information . . . to make a prediction about future demand.”), 28 (“[T]he methods and systems for applying data regression and pattern mining to predict future demand as shown and described herein may be implemented in software stored on a computer-readable medium and executed as a computer program on a general purpose or special purpose computer to perform certain tasks.”). That the claimed process may be performed more efficiently by a computer does not “‘transform the nature of the claim’ into a patent-eligible application.” *Alice*, 134 S.Ct. at 2355 (quoting *Mayo*, 566 U.S. at 78).

Accordingly, we are not persuaded the Examiner erred in finding the claims are ineligible. *See* Final Act. 7.

Preemption

Appellant further argues “Appellant is not claiming a fundamental principle that would pre-empt substantially all uses of that fundamental principle if allowed,” as “the recited method or article of manufacture” is not “going to pre-empt substantially all uses to thereby monopolize the basic tools of scientific and technological work such as would impede innovation more than it would promote it.” App. Br. 7 (emphasis omitted).

We are not persuaded the claims do not preempt the claimed approach in all fields. *See* Final Act. 21; Spec. ¶ 27 (“The processing of the pattern frequency values to calculate[] predicted pattern frequency values can be done in any desired way.”). Additionally, characterizing preemption as a driving concern for patent eligibility is not the same as characterizing preemption as the sole test for patent eligibility. As our reviewing court has explained: “questions on preemption are inherent in and resolved by the § 101 analysis,” and, although “preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015); *cf. OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015) (“[T]hat the claims do not preempt all price optimization or may be limited to price optimization in the e-commerce setting do not make them any less abstract.”).

B. Prior Art

Anticipation Rejection

Appellant argues the Examiner’s prior art rejection of independent claim 21 is in error, because the Examiner incorrectly characterized the claim requirements. *See* App. Br. 12. Further, Appellant argues Ando “fails to disclose [the] claim requirement of a ‘pattern frequency value[,]’” which Appellant describes as “understood by persons having ordinary skill in the art to refer to a value which quantifies how frequently (e.g., the ‘frequency value’) a ‘pattern’ appears in the transaction database.” App. Br. 13.

We are not persuaded the Examiner errs in finding Ando discloses systems and methods for forecasting that are “non-distinguishable[] over the

claims as recited.” Ans. 12. Claim 1 recites a computer system that, “for each predetermined time interval of a plurality of predetermined time intervals, measuring a pattern frequency value for a first pattern in a transaction database based on how many times the first pattern occurs in said predetermined time interval.” Ando similarly discloses reviewing “sales records, and of the time series data of the week number indicating the week position (which week) on the calendar,” including performing a “comparison[] of the forecasting result and real sales results in the last 18 weeks.” Ando 3:49–50, 4:47–48; *see also* Ando 4:34–35, Figs. 1, 7, 8; *compare* Spec. ¶¶ 17–18. Ando further discloses the claimed computer programmed with code, that performs “processing the pattern frequency values for the first pattern to calculate a predicted pattern frequency value for the first pattern,” because Ando describes “[a]s a result of the comparison between the forecasting values for 18 weeks and the actual sales results values, []the most frequently appeared pattern in the forecasting in the past 18 weeks is picked up as the present using pattern of the future 18 weeks” so that “the user can obtain the forecasting value of high and stable precision.” Ando 5:48–55, 6:9–11; *see also* Ando Fig. 8.

Accordingly, we find Ando anticipates the limitations of independent claim 21. We sustain the Examiner’s anticipation rejection of claim 21, as well as independent claims 30 and 37 and dependent claims 24, 28, 29, 32, 33, 39, and 40, not separately argued. *See* Final Act. 27; *see also* App. Br. 11–12.

Appellant further argues “another error occurs with the rejection analysis of claim 23 which cites Ando . . . to meet the claim requirement of ‘computing a trend line based on the pattern frequency values and

extrapolating the trend line to calculate the predicted pattern frequency value for the first pattern,” because “there is no reference anywhere in Ando to any ‘trend line’ or any computation thereof.” App. Br. 14.

We are not persuaded the Examiner errs in finding Ando anticipates the limitations of dependent claim 23. *See* Final Act. 31. The Examiner finds “Ando considers trend of sales, or transactions per predetermined period including such as [w]eeks” when “[p]redict[ing] a future period (week), [which] allows for generating, forecast including [t]rending, based on the analysis of at least[] two predetermined time intervals.” Ans. 9–10; *see also* Final Act. 17; Ando Fig. 7, 2:53–55, 4:11–12 (“As a user interface, the GUI 13 presents the function of analysis of fluctuation trend of sales results.”). The Examiner’s determination is reasonable, as Appellant does not persuasively show Ando’s use of trend analysis is distinguishable from the claimed trend line calculation. Further, Appellant does not challenge the Examiner’s findings in the Answer. Accordingly, we sustain the Examiner’s anticipation rejection of dependent claim 23.

Obviousness Rejections

Appellant argues the Examiner’s obviousness rejections are in error, because “none of the cited art references, taken singly or in combination, disclose or suggest, *inter alia*, the dependent claim requirements,” and the Examiner has failed to provide a “teaching or suggestion to modify the reference and the reasonable expectation of success.” App. Br. 14–15; *see also* App. Br. 17.

Appellant’s arguments are unpersuasive because they attack the references individually, and thus fail to address the Examiner’s findings.

See In re Merck & Co., Inc., 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.”). Appellant’s arguments focus on the recitation of “pattern frequency values;” however, as discussed above, the Examiner correctly finds Ando teaches the recited “pattern frequency values.” App. Br. 15–17; Final Act. 34–38. Appellant has not shown the Examiner erred in relying on the combination of Ando and the other cited references (Eder, Valentine, Chakrabarti) for the additional limitations recited by the dependent claims. *Id.*

Particularly, we are not persuaded the Examiner erred in finding one of ordinary skill would combine the references in the manner claimed. Ando, as correctly found by the Examiner, teaches trend forecasting using pattern frequency values. *See* Final Act. 27–28; *see also* Ans. 14. The Examiner relies on the other cited references for additional limitations recited by the dependent claims: (1) Eder’s teachings of determining a trend using least squares regression analysis; (2) Valentine’s teachings of capping unusual values when analyzing data; and (3) Chakrabarti’s teachings of using recommendation rules when forecasting values, such as for inventory management. *See* Final Act. 34–39; *see also* Eder 23:40–45, 25:1–20; Valentine Fig. 6B, 6:1–23, 17:54–60; and Chakrabarti 1:5–45. We agree with the Examiner that it would be obvious to one of ordinary skill to combine Ando with these additional teachings, providing the advantages and benefits of superior forecasting and creating more effective advertising or inventory control. *See* Ans. 20–22; Eder 7:1–8:65, 26:55–68; Valentine Figs. 5B, 6B; Chakrabarti 1:19–35. The Examiner’s findings are reasonable

because this is a case in which the skilled artisan would “be able to fit the teachings of multiple patents together like pieces of a puzzle.” *KSR*, 550 U.S. 398 at 420. Therefore, the Examiner has articulated how the claimed features are suggested by the proposed combination of the reference teachings with a rational underpinning sufficient to support the finding of obviousness. *See KSR*, 550 U.S. at 418.

Accordingly, we are not persuaded the Examiner erred in finding dependent claims 22–27, 31–33, 35, 36 and 38–40 obvious in view of the cited references.

DECISION

The Examiner’s decision rejecting claims 21–40 is affirmed.

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