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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHOUDUR LAKSHMINARAYAN,
KRISHNAMURTHY VISWANATHAN,
CHENGWEI WANG, and VANISH TALWAR

Appeal 2015-005275
Application 13/194,798
Technology Center 2100

Before: JOSEPH L. DIXON, LARRY J. HUME, and
NATHAN A. ENGELS, *Administrative Patent Judges*.

DIXON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from a rejection of claims 1–17. Claims 18–20 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

The claims are directed to a statistically-based anomaly detection in utility clouds. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method, comprising:

collecting sample data from a cloud computing node within a look-back window;

normalizing the sample data to generate normalized data;

binning the normalized data into a plurality of bins defined by bin indices;

calculating a Gini coefficient for the look-back window;

calculating a Gini standard deviation dependent threshold;

comparing the Gini coefficient to the Gini standard deviation dependent threshold to detect an anomaly in the sample data; and

generating an alarm upon detection the anomaly.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Varun Chandola, Arindam Banerjee, and Vipin Kumar, “Anomaly Detection: A Survey” ACM Computing Surveys, Vol. 41, No. 3, Article 15, pp. 1–58, July 2009.

C. Whitrow, D. J. Hand, P. Juszczak, D. Weston, N. M. Adams, “Transaction aggregation as a strategy for credit card fraud detection,” *Data Min. Knowl. Disc.* Vol. 18, pp 30–55 (2009).

REJECTIONS

The Examiner made the following rejections:

Claims 1–17 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1–17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Whitrow and Chandola.

ANALYSIS

Claim Grouping

Based on Appellants' arguments (App. Br. 4–9), we decide the appeal of the obviousness rejection of claims 1–17 on the basis of representative claim 1. Dependent claims not argued separately fall with the respective independent claim from which they depend. *See* 37 C.F.R. § 41.37(c)(1)(iv). Appellants have not set forth separate arguments for patentability for dependent claims 2–10 and 12–17 and these claims will fall with their respective parent claims. Arguments not made are waived.

Claim interpretation

“An intended use or purpose usually will not limit the scope of the claim because such statements usually do no more than define a context in which the invention operates.” *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003). Although “[s]uch statements often . . . appear in the claim’s preamble,” *In re Stencel*,

828 F.2d 751, 754 (Fed. Cir. 1987), a statement of intended use or purpose can appear elsewhere in a claim. *Id.*

We note claim terms are to be given their broadest reasonable interpretation, as understood by those of ordinary skill in the art and taking into account whatever enlightenment may be had from the Specification. *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

As purported support for the claimed “generating an alarm upon detection the anomaly” step, Appellants identify paragraph 28 of the Specification (App. Br. 2–3) and quote language of the Specification that mirrors the claim language regarding generating an alarm by “anomaly alarm module 545” in Figure 5. (App. Br. 9).

We find paragraph 28 of the Specification merely identifies that data may be indicated to a user in any dashboard module 415, but neither the claim language nor Appellants’ Specification does more than provide general context in which Appellants’ invention operates. Consequently, the broadest reasonable interpretation of the comparing step and generating steps is no more than the active mathematical step of comparing the Gini coefficient to the Gini standard deviation dependent threshold to detect an anomaly in the sample data and generating an alarm upon detection the anomaly.

Appellants provide no additional clarification on the claim interpretation or the specific context from the Specification or the Summary of the Claimed Subject Matter in the Appeal Brief. Consequently, the detection of anomalies is an intended use statement which is the result of mathematical computations and display thereof to the user.

35 U.S.C. § 101

In the event of further prosecution of this application, we direct the Examiner's attention to the question of whether the claims are patent-eligible under 35 U.S.C. § 101 in light of the preliminary examination instructions on patent eligible subject matter. *See 2014 Interim Guidance on Patent Subject Matter Eligibility*, USPTO (Dec. 16, 2014) and the *Interim Guidance on Subject Matter Eligibility – May 2016 updates*. <https://www.uspto.gov/sites/default/files/documents/ieg-may-2016-memo.pdf>.

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. “[N]o patent is available for a discovery, however useful, novel, and nonobvious, unless it falls within one of the express categories of patentable subject matter of 35 U.S.C. § 101.” *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483 (1974).

Claims 1–10 are drafted in the form of a process. We take base claim 1 as representative of these claims. Claim 1, if directed to statutory subject matter, falls within the statutory class of “process.”

“A process is . . . an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.” *Cochrane v. Deener*, 94 U.S. 780, 788 (1876). “Transformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.” *Diamond v. Diehr*, 450 U.S. 175, 184 (1981) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972)).

Appellants repeat the language of independent claim 1 and generally contend “[a]s in *Diehr*, generating an alarm indicating detection of an anomaly transforms ‘the process into an inventive application’ Accordingly, claim 1 is, therefore, now directed to statutory subject matter.” (App. Br. 3).

Our reviewing court has recently discussed software related patents regarding the tests in *Alice*:

In *Mayo* [*Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012)], the Supreme Court set forth a two-step analytical framework to identify patents that, in essence, claim nothing more than abstract ideas. The court must first "determine whether the claims at issue are directed to a patent-ineligible concept." *Alice*, 134 S. Ct. at 2355. If so, the court must then "consider the elements of each 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." *Id.* (quoting *Mayo*, 132 S. Ct. at 1298, 1297).

We have found software-related patents eligible under both steps of the test *Alice* sets out. We found a patent to a particular improvement to a database system patent-eligible under step one in *Enfish LLC v. Microsoft Corp.*, 2016 WL 2756255, at *8 (Fed. Cir. May 12, 2016). There, we found claim language reciting the invention's specific improvements to help our determination in step one of the *Alice* framework that the invention was directed to those specific improvements in computer technology. But we also recognized that, "in other cases involving computer-related claims, there may be close calls about how to characterize what the claims are directed to." *Id.* "In such cases," we noted, "an analysis of whether there are arguably concrete improvements in the recited computer technology could take place under step two." *Id.* That is, some inventions' basic thrust might more easily be understood as directed to an abstract idea, but under step two of the *Alice* analysis, it might become clear that the specific improvements in the recited computer technology go beyond "well-understood, routine, conventional activit[ies]" and

render the invention patent-eligible. *See Alice*, 134 S. Ct. at 2359. We took this step-two path in *DDR*. 773 F.3d at 1259 ("When the limitations of the . . . claims are taken together as an ordered combination, the claims recite an invention that is not merely the routine or conventional use of the Internet.").

Bascom Global Internet Services v. AT&T Mobility LLC 827 F.3d 1341, 1347–1348 (Fed. Cir. 2016).

Appellants do not address the two-step analysis of *Alice* in the Appeal Brief or Reply Brief. Appellants merely cite *Diamond v. Diehr*, 450 U.S. 175 (1981) and contend “the Examiner's reliance on the Guidelines [2014 Interim Guidance on Patent Subject Matter Eligibility] is inappropriate” because the eligibility guidance does not have the force and effect of law. (Reply Br. 2). We agree with Appellants that the guidelines are not controlling authority, but the underlying two-step method as recited by the Supreme Court *is* controlling authority. Appellants neglect to address the two-step analysis. We find a distinction between the process found to be statutory subject matter in *Diehr* and the general disclosed and claimed mathematical process in representative independent claim 1.

Appellants generally contend the invention recited in independent claim 1 is similar to the claims recited in *Diamond v. Diehr*, 450 U.S. 175 (1981). (App. Br. 4–6). Appellants further contend “[a]s in *Diehr*, generating an alarm indicating detection of an anomaly transforms ‘the process into an inventive application’” (App. Br. 5). We disagree with Appellants and agree with the Examiner’s finding “the abstract idea-identifying anomalies in data-is not applied to any particular problem or even limited to any particular field of use,” and “the claims amount to nothing significantly more than the abstract idea of detecting anomalies in

data.” (Ans. 9–10). As a result, we sustain the rejection of representative independent claim 1 as directed to non-statutory subject matter.

Additionally, abstract ideas have been identified by the courts by way of example, including fundamental economic practices, certain methods of organizing human activities, an idea “of itself,” and *mathematical relationships/formulas*. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355–56 (2014). Although “a computer-implemented method” is nominally recited in claim 1, a question arises as to whether a person would also be capable of performing the acts of the claimed method as mental steps, or with the aid of pen and paper. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) (“That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*.”). Our reviewing Court further guides that “a method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101.” *CyberSource*, 654 F.3d at 1373.

We further find the broadest reasonable interpretation of representative independent claim 1 is directed to an abstract idea regarding non-functional descriptive material which may be carried out by a human user of the data using paper and pencil with an alarm which is intended for human perception. (*See Spec.* ¶¶ 3, 16, 21, 24, 28, 37, 38, 41, 44).

Consequently, for this additional reason, we sustain the rejection of representative independent claim 1 as directed to non-statutory subject matter under 35 U.S.C. § 101.

With respect to independent claim 11, Appellants repeat the language of the claim and maintain similar arguments advanced with respect to

representative independent claim 1. (App. Br. 5–6; Reply Br. 2).¹ Because Appellants have not set forth separate arguments for patentability of independent claim 11 and dependent claims 2 – 10 and 12 – 17, we group these claims as falling with representative independent claim 1.

35 U.S.C. § 103(a)

Appellants have the opportunity on appeal to the Board of Patent Appeals and Interferences (BPAI), now Patent Trials and Appeals Board (PTAB) to demonstrate error in the Examiner’s position. *See In re Kahn*, 441 F.3d 977, 985–86 (Fed. Cir. 2006) (citing *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)). The Examiner sets forth a detailed explanation of a reasoned conclusion of obviousness in the Examiner’s Answer with respect to representative claims. (Ans. 3–8). Therefore, we look to the Appellants’ Briefs to show error in the proffered reasoned conclusions. *See Kahn*, 441 F.3d at 985–86.

Appellants again present arguments to independent claims 1 and 11 together. (App. Br. 7). We select independent claim 1 as the representative claim for the group and address Appellants’ arguments thereto.

With respect to representative independent claim 1, Appellants provide citations to the Specification regarding various examples of the claimed invention, and Appellants generally contend the teaching in the Whitrow reference regarding “the use of the Gini coefficients for fraud detection” is a “teach[ing] away from the use of the Gini coefficients.”

¹ Additionally, the Examiner should consider whether independent claim 11 is directed to a claimed invention under 35 U.S.C. § 112, 6th paragraph which requires corresponding disclosure of an algorithm under 35 U.S.C. § 112, 2nd para.

(App. Br. 7–8). The Examiner disagrees with Appellants and finds that it is the specific teaching away with regard to fraud detection does not generally teach away from the use of Gini coefficients for anomaly detection, as Appellants allege. (Ans. 11). Appellants further contend “[i]t necessarily follows that Whitrow teaches away from the use of the Gini coefficients for anomaly detection.” (App. Br. 9). We agree with the Examiner that the extension of the statement in the Whitrow reference is “an impermissible inference; Whitrow only teaches away from the use of Gini coefficient in detecting anomalous behavior *for fraud detection*. The present claim set is not directed only to fraud detection, but rather to the more general problem of anomaly detection.” (Ans. 11).

Appellants set forth similar arguments in the Reply Brief (Reply Br. 2–3) which do not show error in the Examiner’s underlying factual findings or conclusion of obviousness of representative independent claim 1. Because Appellants have not set forth separate arguments for patentability of independent claim 11 and dependent claims 2 – 10 and 12 – 17, we group these claims as falling with representative independent claim 1.

CONCLUSIONS

The Examiner did not err in rejecting claims 1–17 as directed to non-statutory subject matter under 35 U.S.C. § 101, and the Examiner did not err in rejecting claims 1–17 under 35 U.S.C. § 103.

DECISION

For the above reasons, we sustain the Examiner’s rejection of claims 1–17 based upon 35 U.S.C. § 101, and we sustain the Examiner’s rejection of claims 1–17 based upon 35 U.S.C. § 103.

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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