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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEPHEN RESTIVO and EMMANUEL YASHCHIN

Appeal 2014-008058
Application 11/519,787¹
Technology Center 3600

Before JOSEPH A. FISCHETTI, NINA L. MEDLOCK, and
BRUCE T. WIEDER, *Administrative Patent Judges*.

WIEDER, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1, 5, 6, 9, and 13–21. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART and enter a NEW GROUND OF REJECTION pursuant to our authority under 37 C.F.R. § 41.50(b).

CLAIMED SUBJECT MATTER

Appellants' claimed "invention generally relates to a method for monitoring data, and more particularly to a method and apparatus for

¹ According to Appellants, the real party in interest is International Business Machines Corporation. (Appeal Br. 1.)

simultaneously monitoring collections of time-managed lifetime data streams for detecting a hazard rate increase.” (Spec. 1.)

Claims 1, 5, and 6 are the independent claims on appeal. Claim 1 is representative. It recites:

1. A computer-implemented method for detecting a hazard rate increase in time-managed lifetime data, the computer being programmed to perform:

receiving the time-managed lifetime data, the time-managed lifetime data comprising a data stream indexed by rows in a data table;

specifying acceptable and unacceptable levels of a shape parameter;

summarizing the rows of the data table by pre-specified criterion, and consolidating the data table into a less refined block representation;

computing bias-adjusted estimators \hat{c}_i of the shape parameter for every block in said data table;

computing weights w_i , $i=1, 2, \dots, N$, corresponding to the bias-adjusted estimators \hat{c}_i , said weights w_i decreasing as a variance of \hat{c}_i increases;

computing a threshold h to be applied to a set s_1, s_2, \dots, s_N defined by

$$s_0 = 0, s_i = \max[0, s_{i-1} + w_i (\hat{c}_i - k)], I = 1, 2, \dots, N;$$

applying the threshold to the set s_1, s_2, \dots, s_N that was observed and establishing whether $s_{\max} > h$, where

$$s_{\max} = \max [s_1, s_2, \dots, s_N]; \text{ and}$$

computing a probability of the set s_1, s_2, \dots, s_N to exceed an observed value of s_{\max} under an assumption that the shape parameter is acceptable,

wherein, when $s_{\max} > h$, an alarm is triggered, and

wherein, when s_{\max} is not greater than the threshold, the data table is recomputed at a next pre-scheduled time of analysis, or upon an arrival of new data and the method is repeated.

REJECTIONS

Claims 1, 5, and 17–21² are rejected under 35 U.S.C. § 103(a) as unpatentable over Tsuyama (US 5,596,712, iss. Jan. 21, 1997) and Dubois (US 2006/0265625 A1, pub. Nov. 23, 2006).

Claims 6, 9, 15, and 16 are rejected under 35 U.S.C. § 103(a) as unpatentable over Tsuyama and Patrick (US 6,043,757, iss. Mar. 28, 2000).

Claims 13 and 14 are rejected under 35 U.S.C. § 103(a) as unpatentable over Tsuyama, Patrick, and Dubois.

ANALYSIS

Claims 1, 5, and 17–21

Appellants argue “that the Examiner erroneously alleges that the ‘disclosure of Tsuyama defines summarizing the rows of the data table by pre-specified criterion.’” (Appeal Br. 8.) Specifically, Appellants argue that “comparing Figure 48 [of Tsuyama] to figure 2 of the present application, it is clear that the mapping of the faults is different.” (*Id.*)

Regardless of how the data is mapped, i.e., regardless of the differences between Figure 48 of Tsuyama and figure 2 of the pending

² The Final Action does not specifically address claim 21, e.g., the Final Action states that “[c]laim(s) 1, 5, 6, 9, and 13–20 is/are pending in the application” and that “[c]laim(s) 1, 5, 6, 9, and 13–20 is/are rejected.” (Final Action 1.) However, the Answer addresses claim 21 and states that “[a]s per New Claim 21, . . . this claim limitation was previously recited in claim 1 and was addressed in the advisory action (7/16/13).” (Answer 7, emphasis omitted.) Appellants do not address the omission of specific reference to claim 21 in the Final Action and appear to consider it a typographical error. (*See* Appeal Br. 2, stating “[t]he rejection for claims 1, 5, 6, 9, and 13–21 is being appealed.”) Therefore, we treat the omission of specific reference to claim 21 in the Final Action as a typographical error.

application, Appellants do not persuasively argue or explain why the Examiner erred in finding that Tsuyama discloses summarizing rows of a data table by a pre-specified criteria. (*See* Final Action 3–4.)

Appellants next argue that “the Examiner also engages in a faulty legal analysis by relying on *In re Fine* and *KSR* to support the allegation that there is a rationale that would support the alleged combination of Tsuyama and Dubois.” (Appeal Br. 9.) Specifically, Appellants argue that “after listing the deficiencies of Tsuyama, the Examiner then switches to ‘an obvious to try’ analysis. That is, the Examiner conflates several legal rules for obviousness rejections.” (*Id.*)

We disagree with Appellants. The Examiner finds that “Tsuyama discloses a Weibull distribution for determining the failure rate over a period of time (equation $f(t)$ in fig. 48, col. 20, lines 35–40).” (Final Action 4.) The Examiner also finds that “Dubois, in a similar area of detecting the failure rate of a system component us[es] statistical analysis based on the lifetime of a product.” (*Id.*, citing Dubois ¶2.) The Examiner determines that

it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Tsuyama by incorporating the steps of computing the coefficients w_i and \hat{c}_i and function S_i , for the purpose of using a well established probability distribution function for calculating the failure rate over a time interval, wherein the result of the data analysis is able to identify and prevent the cause of failure of a given device.

(*Id.* at 5.) We are not persuaded that the Examiner relies on an “obvious to try” analysis or improperly “conflates several legal rules for obviousness rejections.”

Appellants next argue that “Tsuyama is inapplicable to the claimed invention.” (Appeal Br. 11.) Specifically, Appellants argue that “the method of the claimed invention exemplarily assumes that every vintage of a produced product has its own hazard curve.” (*Id.* at 10.) “On the other hand, Tsuyama builds (as time progresses) a cumulative hazard curve for every product as shown in Fig. 48.” (*Id.* at 11.) In particular, “[t]hroughout Tsuyama’s analysis, Tsuyama assumes that a single Weibull distribution is describing the lifetime of a product, and the alarm is triggered when a feature of this distribution (fault ratio for some month) exceeds a threshold.” (*Id.*, emphasis omitted.)

We do not find Appellants’ argument persuasive of reversible error. First, claim 1 does not require that every vintage of a produced product have its own hazard curve. Nor have Appellants persuaded us that the Examiner’s finding that “Tsuyama discloses a Weibull distribution for determining the failure rate over a period of time” is in error (Final Action 4) or that Tsuyama’s methodology for determining the failure rate over time is “inapplicable to the claimed invention” (*see* Appeal Br. 11) for detecting a hazard rate increase in a “time-managed lifetime data stream[]” (*see* Spec. 1.).” (*See* Answer 15–16.)

Appellants further argue that “the inventor realized a deficiency in the conventional art” and that the Examiner relies on the “flaws in the prior art, as recognized by the patentee,” for the modification of Tsuyama. (Appeal Br. 12.) In particular, Appellants argue that “the Examiner has failed to articulate a reason for adding additional steps to Tsuyama, which is in itself, already a complete device.” (*Id.*) However, as the Examiner explains, it would have been obvious to modify Tsuyama “for the purpose of using a

well established probability distribution function for calculating the failure rate over a time interval.” (Final Action 5.) *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

Therefore, we are not persuaded that the Examiner erred in rejecting claim 1 under § 103. Appellants argue claims 1 and 5 together. (*See Appeal Br. 7–14.*) Therefore, claim 5 falls with claim 1. *See 37 C.F.R. § 41.37(c)(1)(iv)* (2013). Additionally, Appellants do not separately argue dependent claims 17–21. (*See Appeal Br. 15.*³) Therefore, for the same reasons, we are not persuaded that the Examiner erred in rejecting claims 17–21 under § 103.

Claims 6, 9, and 13–16

Claim 6 recites:

6. A computer-implemented detection method comprising, programming a computer to perform:
 - searching a database, the database comprising time-managed lifetime data streams indexed by rows of a data table;
 - specifying acceptable and unacceptable levels of a shape parameter;
 - summarizing the rows of the data table by a pre-specified criterion and consolidating the data table into a less refined block representation;
 - computing bias-adjusted estimators of a shape parameter for every block in said data table, resulting in a set of bias-

³ Appellants state that dependent claims 15–21 depend from claim 1. (*Appeal Br. 15.*) Because claims 15 and 16 depend from independent claim 6, we treat Appellants’ inclusion of claims 15 and 16 as a typographical error.

adjusted estimators of the shape parameter based on successive blocks; and
identifying elements that exhibit a change in a hazard rate.

Appellants argue that “in the context of the claimed invention, the word ‘hazard’ relates to the hazard curve $h(t)$ as a function of product age t whereas in Patrick, the term hazard corresponds to dangers currently facing an aircraft. (Appeal Br. 15, emphasis omitted.)

The Examiner, however, determines that

Patrick teaches the process of storing hazard information which contains computed hazard severity levels (col. 4, lines 37–45). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify computer-implemented method and system for diagnosing and system for diagnosing and analyzing fault information of Tsuyama to include the process for continuously assessing the real time threat values that exhibit a *change in hazards* as taught by Patrick in order to track and monitoring hazardous elements so that to detect and transmit an alert when a potential hazard threshold level is attained.

(Final Action 9, emphasis added.)

Patrick discloses a “dynamic, multi-attribute hazard prioritization system for aircraft.” (Patrick, Title.) Patrick further discloses that “while the hazards which give rise to the alerts can occur simultaneously, it is necessary to prioritize the hazards so that the more important alert is presented.” (*Id.* at col. 1, ll. 25–27.) Additionally, as used in Patrick, “the term ‘hazard’ refers to any element of an aircraft’s environment which could possibly constitute a threat to that aircraft, its occupants, or its intended mission.” (*Id.* at col. 1, ll. 9–11.)

In short, Patrick discloses the prioritization of hazards facing an aircraft. Claim 6, however, recites “identifying elements that exhibit a

change in a hazard rate.” The Examiner does not indicate where Patrick discloses or teaches a change in a hazard *rate*, as recited in claim 6.

Therefore, we are persuaded that the Examiner erred in rejecting independent claim 6. For the same reason, we are persuaded that the Examiner erred in rejecting claims 9, 15, and 16, which depend from claim 6.

The Examiner does not indicate how Dubois would cure the above-noted deficiency in Patrick. Therefore, for the same reason, we are persuaded that the Examiner erred in rejecting claims 13 and 14, which also depend from claim 6.

New Ground of Rejection

Pursuant to our authority under 37 C.F.R. § 41.50(b), we enter a NEW GROUND OF REJECTION against claims 1, 5, 6, 9, and 13–21 under 35 U.S.C § 101.

Subsequent to the filing of briefs in this appeal, except for Appellants’ Reply Brief, the Supreme Court decided *Alice Corp. Pty Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014). *Alice* applies a two-part framework, earlier set out in *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (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 Corp.*, 134 S. Ct. at 2355.

Under the two-part framework, it must first be determined if “the claims at issue are directed to a patent-ineligible concept.” *Id.* If the claims are determined to be directed to a patent-ineligible concept, then the second part of the framework is applied to determine if “the elements of the

claim . . . contain[] an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Id.* at 2357 (citing *Mayo*, 132 S. Ct. at 1294, 1298).

Therefore, we must first determine whether the claims at issue are directed to a patent-ineligible concept.

Although the Court in *Alice* did not elaborate on how it made its finding as to what the claims were directed, we find that this case’s claims themselves and the Specification provide enough information to inform one as to what they are directed.

The claimed invention relates to computing various variables, e.g., estimator, weight, threshold, probability, in order to detect a hazard rate increase. The claim also focuses on “monitoring data” and, more particularly, to “monitoring collections of time-managed lifetime data streams.” (Spec. 1.) Independent claims 1 and 5 (and their dependent claims) are thus directed to a method for detecting a hazard rate increase in certain data.” Claim 6 (and its dependent claims) are directed to searching a database, specifying parameters, and identifying elements that exhibit a change in a hazard rate. In short, the claims are directed to intangible information. We treat collecting information as within the realm of abstract ideas. *See Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016). Moreover, we treat “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.” *Id.* at 1354; *see also Digitech Image Techs. v. Electronics for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014). Therefore, we conclude that the claims at issue are directed to a patent-ineligible concept.

We now apply the second part of the framework to determine if “the elements of the claim . . . contain[] an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice Corp.*, 134 S. Ct. at 2357 (citing *Mayo*, 132 S. Ct. at 1294, 1298).

The claims do not provide anything significant to differentiate the claimed process from ordinary mental steps. *See Electric Power Group*, 830 F.3d at 1355. The claims “do not require an arguably inventive set of components or methods, such as measurement devices or techniques.” *Id.* The introduction of a computer into the claims does not alter the analysis at step two.

[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea “while adding the words ‘apply it’” is not enough for patent eligibility. Nor is limiting the use of an abstract idea “to a particular technological environment.” Stating an abstract idea while adding the words “apply it with a computer” simply combines those two steps, with the same deficient result. Thus, if a patent’s recitation of a computer amounts to a mere instruction to “implemen[t]” an abstract idea “on . . . a computer,” that addition cannot impart patent eligibility. This conclusion accords with the preemption concern that undergirds our §101 jurisprudence. Given the ubiquity of computers, wholly 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.”

Alice Corp., 134 S. Ct. at 2358 (citations omitted).

“[T]he relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea . . . on a generic computer.” *Id.* at 2359. They do not. Taking the claim elements separately, the function performed by the computer at each step of the

process is purely conventional and adds no inventive concept. Nor do the claims offer detail about the computer system. In short, the claim steps/limitations do no more than require a generic computer to perform generic computer functions.

Considered as an ordered combination, the computer components of Appellants' method add nothing that is not already present when the steps are considered separately. Viewed as a whole, Appellants' claims simply recite the concept of detecting a hazard rate increase or, more generally, a change in a hazard rate, as performed by a generic computer. The method claims do not, for example, purport to improve the functioning of the computer itself. Nor do they effect an improvement in any other technology or technical field. Instead, the claims at issue amount to nothing significantly more than an instruction to apply the abstract idea of detecting a hazard rate increase/change using some unspecified, generic computer. That is not enough to transform an abstract idea into a patent-eligible invention. *See id.* at 2360; *see also Electric Power Group*, 830 F.3d at 1353–56.

DECISION

The Examiner's rejection of claims 1, 5, and 17–21 under 35 U.S.C. § 103(a) is affirmed.

The Examiner's rejections of claims 6, 9, and 13–16 under 35 U.S.C. § 103(a) are reversed.

We enter a NEW GROUND OF REJECTION of claims 1, 5, 6, 9, and 13–21 under 35 U.S.C. § 101.

This decision contains a NEW GROUND OF REJECTION pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides that, “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” Section 41.50(b) further provides that Appellant, WITHIN TWO MONTHS FROM THE DATE OF THIS DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the Examiner, in which event the proceeding will be remanded to the Examiner.

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record.

No time 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-IN-PART; 37 C.F.R. § 41.50(b)