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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* CHARLES A. REISMAN

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Appeal 2019-006614
Application 14/090,382
Technology Center 3600

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Before ADAM J. PYONIN, MICHAEL M. BARRY, and DAVID J. CUTITTA II, *Administrative Patent Judges.*

PYONIN, *Administrative Patent Judge.*

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's rejection. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Kabushiki Kaisha Topcon. Appeal Br. 2.

## STATEMENT OF THE CASE

### *Introduction*

The Application relates to "a data visualization method and computer apparatus for graphically depicting a result of an optical or other type of scan of a biological tissue." Spec. ¶ 2. Claims 1–22 are pending; claims 1, 8, 14, and 18 are independent. Appeal Br. 17–22. Claim 8 is reproduced below for reference (emphasis added):

> 8. A method of presenting experimentally-determined data relating to a region of interest on a medical patient for predicting whether the medical patient has a medical condition, the method comprising:
>
> using a computer processor, accessing a receiver operating characteristic analysis of historical data for the region of interest on each of a plurality of different subjects from a nontransitory computer memory, wherein each of the plurality of different subjects is known as having the medical condition or not having the medical condition when the historical data was collected, and the region of interest on each of the plurality of different subjects corresponds to the region of interest on the medical patient;
>
> *identifying a subset of spatial locations in the region of interest where the experimentally determined data is an accurate predictor of the medical condition to be utilized to reach an at least preliminary conclusion regarding the medical patient based on the receiver operating characteristic analysis of the historical data*;
>
> comparing the experimentally-determined data at the subset of spatial locations of the medical patient to the receiver operating characteristic analysis of the historical data stored by the computer-readable medium; and
>
> generating a graphic display to be presented by a display device operatively connected to the computer processor to a user for graphically expressing a result of said comparing.

*References and Rejections*

The Examiner rejects claims 1–22 under 35 U.S.C. § 101 as being patent ineligible. Page 2 of Non-Final Action mailed November 7, 2018 ("Non-Final Act.").

The Examiner rejects claims 1, 2, 4–10, and 12–20 under 35 U.S.C. § 103(a) as being unpatentable over Knighton (US 8,801,187 B1; Aug. 12, 2014) and Applegate (US 2006/0187413 A1; Aug. 24, 2006). Non-Final Act. 12.

The Examiner rejects claims 3 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Knighton, Applegate, and Rao (US 2003/0125988 A1; July 3, 2003). Non-Final Act. 20.

The Examiner rejects claims 21 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Knighton, Applegate, and Huang (US 2008/0309881 A1; Dec. 18, 2008). Non-Final Act. 22.

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellant's arguments. Arguments Appellant could have made but chose not to make are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

*Patent Eligibility*

The Examiner determines the claims are patent ineligible under 35 U.S.C. § 101, because "the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more." Non-Final Act. 2; *see Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 217–218 (2014) (describing the two-step framework "for

distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts").

After the mailing of the Non-Final Action—but prior to the mailing of the Answer or the filing of the Briefs—the U.S. Patent and Trademark Office (USPTO) published revised guidance on the application of § 101 ("Guidance"). *See* 2019 Revised Patent Subject Matter Eligibility Guidance Notice, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Notice"); *see also* USPTO, October 2019 Update: Subject Matter Eligibility ("October Update") (available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf). "All USPTO personnel are, as a matter of internal agency management, expected to follow the guidance." Notice, 84 Fed. Reg. at 51; *see also* October Update at 1.

> Under the Guidance, we first look to whether the claim recites:
>
> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes) ("Step 2A, Prong One"); and
>
> (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h) (9th ed. Rev. 08.2017, Jan. 2018)) ("Step 2A, Prong Two").

Notice, 84 Fed. Reg. at 52–55. Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, does the Office then look, under Step 2B, to whether the claim:

> (3) adds a specific limitation beyond the judicial exception that is not "well-understood, routine, conventional" in the field (*see* MPEP § 2106.05(d)); or

> (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

Notice, 84 Fed. Reg. at 52–56.

*A. Step 2A, Prong One*

We agree with the Examiner that claim 8 recites "the abstract idea grouping of concepts performed in the human mind (including an observation, evaluation, judgement, opinion)." Ans. 5. Claim 8 recites steps of accessing, identifying, and comparing information. Such data review and analysis are examples of observation, evaluation, judgment, opinion, and thus recite an abstract concept under the Guidance. *See* Notice, 84 Fed. Reg. at 52; Non-Final Act. 6; Ans. 6.

Accordingly, we agree with the Examiner that the claim recites an abstract idea under Prong One of the Guidance. *See* Notice, 84 Fed. Reg. at 52, 54.

*B. Step 2A, Prong Two*

Appellant argues the claims are patent eligible, because "even if various portions of the claimed analysis are identified as abstract features, those features are practically applied in each of the claims by generating/displaying particular graphical representations of the results of that analysis." Appeal Br. 13. Appellant contends "the practical application is evident in the improvement provided to medical diagnostic technologies," as "the claims . . . improve[e] the manner of comparison of patient data to historical data indicative of conditions/symptoms to increase proper diagnosis." *Id*. at 14.

We are persuaded by Appellant's argument. The Examiner determines the claimed displaying step does not integrate the judicial exception into a practical application:

> These claim limitations appear to recite a merely generic display untethered from the rest of the claim language as they broadly describe an image/graphic display that presents a result of the comparison step where the display does not include alphanumeric characters, but instead includes colors, such as the well-known heat map represented in Figure 6 of the instant disclosure. "[M]erely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis."

Ans. 7 (quoting *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016)). We appreciate the Examiner's well-reasoned and thoughtful analysis in both the Non-Final Action and the Answer; however, we disagree with the Examiner on this point.

The displaying step recited in claim 8 is to express the comparing result; i.e., the claim displays a comparison of the patient data with particularly identified "experimentally determined data [that] is an accurate predictor of the medical condition to be utilized to reach an at least preliminary conclusion regarding the medical patient based on the receiver operating characteristic analysis of the historical data." Appeal Br. 18. This displaying step is not ancillary, as the display of the comparison information is a specific step that is needed to diagnose a patient's medical (e.g., eye) condition. *See* Reply Br. 6 ("Presenting the displays in a graphical form, however, constitutes a particular manner of presentation that allows the benefits of the processing to be realized."); Spec. ¶ 51 ("such a step limits the data that must be considered and analyzed by a clinician attempting to

make a diagnosis"). Thus, we find *Electric Power* to be inapposite, because Appellant's claim 8 does not merely use a computer as a tool to perform an abstract idea; rather, the claim (as discussed further below) provides a technological improvement by use of the recited display. *Cf. Elec. Power Grp.*, 830 F.3d at 1354 ("The present case is different: the focus of the claims is not on such an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools.").

We also determine the improved medical diagnostic display of Appellant's claim 8 provides a technological benefit. For example, as explained in the Specification, "even glaucoma specialists can disagree about whether a new patient with a certain cluster of symptoms has glaucoma," and the claimed technique "can improve the accuracy of a test for glaucoma based on the retinal thickness over that of a test based solely on a comparison of a measured retinal thickness to a threshold value alone." Spec. ¶¶ 7, 34; *see also* Spec. ¶¶ 33, 51. That is, claim 8 provides a more accurate diagnostic test, which "improves technology, [so] the claim imposes meaningful limits on any recited judicial exception, and the claim [is] eligible." October Update at 11; *cf. CardioNet, LLC v. InfoBionic, Inc*, 955 F.3d 1358, 1369–70 (Fed. Cir. 2020) ("When read as a whole, and in light of the written description, we conclude that claim 1 of the '207 patent is directed to an improved cardiac monitoring device," as "the device more accurately detects the occurrence of atrial fibrillation and atrial flutter . . . . We accept those statements as true and consider them important in our determination that the claims are drawn to a technological improvement."). Based on the record before us, we agree with Appellant that claim 8 "results in improvements to medical diagnostic technologies and is integrated into a

practical application via display of the identified spatial locations and resulting diagnostic comparisons." Reply Br. 7.

Accordingly, we determine that claim 8 recites additional elements that integrate the underlying abstract idea into a practical application. Notice, 84 Fed. Reg. at 54. Because "the exception is so integrated, . . . the claim is not directed to a judicial exception (Step 2A: NO) and is eligible." *Id*.

We do not sustain the Examiner's eligibility rejection of independent claim 8, independent claims 1, 14, and 18 which recite similar limitations, or the claims dependent thereon.

*Obviousness*

We disagree with Appellant that the Examiner erred and adopt as our own the findings and reasons set forth by the Examiner with respect to the obviousness rejection, to the extent consistent with our analysis below. We add the following primarily for emphasis.

Appellant argues the Examiner's obviousness rejection of independent claim 8 is in error, because "none of the cited references teach or suggest identifying spatial locations based on an ROC [(receiver-operating-characteristic)] analysis as claimed." Appeal Br. 9. Appellant contends "[t]he examiner acknowledged that Knighton does not teach these features as they relate to using an ROC analysis," and "[n]owhere does Applegate describe ROC values or characteristics that are capable of or determining physiological regions of subjects, as recited by the claims." *Id*. at 8, 9 (emphasis omitted). Appellant emphasizes that "[i]t is these deficiencies in each reference that are precisely why the combination fails—that is, none of

the references teach or suggest identifying the spatial locations to use for diagnosis based on the ROC analysis." Reply Br. 2 (emphasis omitted).

Appellant does not persuade us of reversible error in the Examiner's obviousness rejection. We note Appellant does not challenge the Examiner's findings that "Knighton identifies spatial locations (pixel/pixels/areas) and compares these spatial locations of a current patient to spatial locations of patients with or without glaucoma to determine whether the current patient has glaucoma," and "Applegate uses receiver operating characteristic analysis to obtain the diagnosis." Ans. 4, 5; Knighton 6:27–38; Applegate ¶¶ 12–20; *see also* Reply Br. 2.

Appellant does not persuasively show the Examiner errs in determining "it would have been obvious to one [of] ordinary skill in the art to expand Knighton's patient eye disease diagnosis system which particularly uses optical coherence tomography with the optical filter eye disease detection method of Applegate," based on the "motivation of the ease at which optical signatures for different diseases are defined and used regardless of the operating characteristics of the particular measurement system." Ans. 5; Non-Final Act. 28. We find the Examiner's explanation to constitute articulated reasoning with rational underpinnings sufficient to justify the legal conclusion of obviousness. Appellant fails to establish that combining Knighton's teachings of eye locations for comparisons in health screenings with Applegate's teachings of using receiver operating characteristic (ROC) analysis for historical eye data, was "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Leapfrog Enters., Inc. v. Fisher-Price, Inc*., 485 F.3d 1157, 1162 (Fed. Cir. 2007). *See* Non-Final Act. 16. Thus, we

are not persuaded the Examiner errs in finding the disputed limitations of claim 8 to be obvious in view of the combined teachings of Knighton and Applegate.

Appellant argues independent claims 1, 14, and 18 contain limitations commensurate in scope with claim 8, which are not taught or suggested by the cited references for the same reasons provided for claim 8. *See* Appeal Br. 10, 11; Reply Br. 3. For the reasons above, we are not persuaded of Examiner error. Appellant presents similar arguments that the combination does not teach the use of ROC analysis with thickness data (claim 14) or for generating an image (claim 18). Similar to the reasons discussed above for claim 8, we are not persuaded the Examiner errs in finding these limitations to be obvious in view of the combined teachings of Knighton and Applegate. *See* Ans. 4 ("Knighton teaches characterizing the thickness of layers," and "maps for the historic data and for the macula to be tested are formed and compared."); Ans. 5 ("Applegate uses receiver operating characteristic analysis to obtain the diagnosis," and "the combination of Applegate with Knighton . . . would have been obvious to one [of] ordinary skill in the art."); *see also* Non-Final Act. 12, 13, 17, 18–20. Thus, we are not persuaded the Examiner's obviousness rejection of these claims is in error.

Accordingly, we sustain the Examiner's obviousness rejection of the independent claims, and the rejections of the claims dependent thereon which are not separately argued. *See* Appeal Br. 12.

DECISION SUMMARY

In summary:

| Claims Rejected | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed |
|---|---|---|---|---|
| 1–22 | 101 | Eligibility | | 1–22 |
| 1, 2, 4–10, 12–20 | 103 | Knighton, Applegate | 1, 2, 4–10, 12–20 | |
| 3, 11 | 103 | Knighton, Applegate, Rao | 3, 11 | |
| 20, 21 | | Knighton, Applegate, Huang | 21, 22 | |
| **Overall Outcome** | | | 1–22 | |

The Examiner's decision is affirmed because we have affirmed at least one ground of rejection with respect to each claim on appeal. *See* 37 C.F.R. § 41.50(a)(1).

TIME PERIOD FOR RESPONSE

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