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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAVID JOHN ROSSI, RICHARD TORRENS, and ZAKI ALI

Appeal 2019-003996
Application 14/016,420
Technology Center 2100

Before MARC S. HOFF, JASON J. CHUNG, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CHUNG, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals the Final Rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

INVENTION

The invention relates to performing diagnostic of hydrocarbon production in a field. Abstract. Claim 1 is illustrative of the invention and is reproduced below:

1. A method to perform diagnostic of hydrocarbon production in a field, comprising:

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. According to Appellant, Schlumberger Technology Solutions is the real party in interest. Appeal Br. 4.

generating a thermal-hydraulic production system model of a wellsite and a surface facility in the field;

simulating, by a computer processor, using the thermal-hydraulic production system model, and based on a plurality of root causes, a hydrocarbon production problem to generate a plurality of feature vectors corresponding to the plurality of root causes, wherein each of the plurality of feature vectors comprises a plurality of parameter values corresponding to a plurality of physical parameters associated with the hydrocarbon production;

configuring, using the plurality of feature vectors, a classifier of the hydrocarbon production problem, wherein the classifier is configured to classify the hydrocarbon production problem according to the plurality of root causes;

detecting the hydrocarbon production problem in the field;

obtaining surveillance data, wherein the surveillance data is from the wellsite and the surface facility, and wherein the surveillance data comprises a plurality of measurements corresponding to the plurality of physical parameters;

obtaining a plurality of probability density functions, wherein each of the plurality of probability density functions represents a probability distribution of measurement noise associated with one of the plurality of measurements;

generating, by the computer processor, using the classifier, and in response to detecting the hydrocarbon production problem, a posterior probability of at least one of the plurality of root causes by modeling each of the plurality measurements as a sum of an actual measurement and a measurement noise represented by a corresponding one of the plurality of probability density functions;

identifying a root cause of the plurality of root causes based on the posterior probability of at least one of the plurality of root causes; and

presenting the root cause to a user.

Appeal Br. 26–27 (Claims Appendix).

REJECTION²

The Examiner rejects claims 1–20 under 35 U.S.C. § 103 as being unpatentable over the combination of Sequeira (US 2010/0206559 A1; published Aug. 19, 2010), Lafferty (US 2008/0270328 A1; published Oct. 30, 2008), Lee (US 2010/0023307 A1; published Jan. 28, 2010), and Rossi (US 2011/0144965 A1; published June 16, 2011). Final Act. 9–15.

ANALYSIS

I. Does the Examiner Properly Assess the Differences Among the Cited Art Considered as a Whole and the Claimed Invention Considered as a Whole?

The Examiner finds that Lafferty teaches a well's down hole pressure, well head temperature, gas injection rate, or any other available data channel, which the Examiner maps to the limitation “feature vectors” recited in claims 1, 8, and 15. Final Act. 11 (citing Lafferty ¶ 64); Ans. 5 (citing Spec. ¶¶ 30–32). The Examiner concludes that a person having ordinary skill in the art (“PHOSITA”) would have combined Sequeira and Lafferty to integrate all the data from various sources and provide a pattern recognition engine to identify various problems. Final Act. 12 (citing Lafferty ¶¶ 61–62; Sequeira ¶¶ 38–60).

Appellant argues the Examiner does not properly assess the differences among the cited art and the claims because the Examiner relies on Sequeira and Lafferty to teach “feature vectors” and fails to provide a rational basis for why having a model driven feature vector would be

² The rejection of claims 1–20 under 35 U.S.C. § 101 is withdrawn. Ans. 3.

obvious to a PHOSITA. Appeal Br. 20–22; Reply Br. 2–4. We disagree with Appellant.

As an initial matter, the Examiner relies on paragraph 64 of Lafferty. Appellant does not rebut Lafferty’s paragraph 64; instead, Appellant rebuts Lafferty’s paragraph 105 only. Appeal Br. 21. Even if Appellant rebutted Lafferty’s paragraph 64, Lafferty teaches a well’s down hole pressure, well head temperature, gas injection rate, or any other available data channel, which is consistent with Appellant’s Specification and, therefore, teaches the limitation “feature vectors” recited in claims 1, 8, and 15. Final Act. 11 (citing Lafferty ¶ 64); Ans. 5 (citing Spec. ¶¶ 30–32). Moreover, the Examiner relies on Sequeira and Lafferty as overlapping teachings of the limitation “feature vectors”³ and introduced Lafferty because Sequeira does not teach the configuring step. Final Act. 11.

Furthermore, the Examiner provides a rational basis in concluding that a PHOSITA would have combined Sequeira and Lafferty to integrate all the data from various sources and provide a pattern recognition engine to identify various problems. Final Act. 12 (citing Lafferty ¶¶ 61–62; Sequeira ¶¶ 38–60). We, therefore, conclude the Examiner has set forth sufficient “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Accordingly, Appellant does not persuade us of error in the Examiner’s findings and conclusions.

³ We need not address whether Sequeira teaches “feature vectors” for the reasons addressed above in this paragraph.

II. Does the Examiner Rely on Impermissible Hindsight?

The Examiner concludes a PHOSITA would have combined Sequeira and Lafferty to integrate all the data from various sources and provide a pattern recognition engine to identify various problems. Final Act. 12 (citing Lafferty ¶¶ 61–62; Sequeira ¶¶ 38–60).

Appellant argues that the Examiner relies on impermissible hindsight because the Examiner simply substitutes words from one reference into another reference. Appeal Br. 22–24. We disagree with Appellant.

Appellant has not provided persuasive evidence that combining the respective teachings of the references (as concluded by the Examiner — Final Act. 12 (citing Lafferty ¶¶ 61–62; Sequeira ¶¶ 38–60)) would have been “uniquely challenging or difficult for one of ordinary skill in the art,” or that such a combination would have “represented an unobvious step over the prior art.” *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007). Nor has Appellant provided any objective evidence of secondary considerations, which, as our reviewing court explains, “operate[] as a beneficial check on hindsight.” *Cheese Sys., Inc. v. Tetra Pak Cheese & Powder Sys., Inc.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013). In this case, the Examiner concludes a PHOSITA would have combined Sequeira and Lafferty to integrate all the data from various sources and provide a pattern recognition engine to identify various problems. Final Act. 12 (citing Lafferty ¶¶ 61–62; Sequeira ¶¶ 38–60). We, therefore, find the Examiner has set forth sufficient “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d at 988).

Accordingly, Appellant does not persuade us of error in the

Examiner's findings and conclusions.

II. Does the Examiner Ignore Claim Limitations?

The Examiner finds Lafferty teaches sand failure in an oil well and operators are responsible for monitoring these high-value assets, which the Examiner maps to the limitation “detecting the hydrocarbon production problem” recited in claims 1 and 15 (and similarly recited in claim 8). Final Act. 11 (citing Lafferty ¶ 56); Ans. 9 (citing Lafferty ¶ 56).

Appellant argues neither Lafferty nor Lee teach the limitation “detecting the hydrocarbon production problem.” Appeal Br. 24. We disagree with Appellant.

In order to rebut a prima facie case of unpatentability, Appellant must point out the supposed Examiner errors distinctly and specifically, and the specific distinctions believed to render the claims patentable over the applied references. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2018) (“A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.”); *see also In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (“[W]e hold that the Board reasonably interpreted Rule 41.37 to require more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art.”); *cf. In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991) (“It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for [patentable] distinctions over the prior art.”).

In this case, Appellant fails to rebut this finding distinctly and specifically. Even if Appellant rebutted the Examiner's findings distinctly and specifically, we find the Examiner's findings reasonable. In particular,

the Examiner finds Lafferty teaches sand failure in an oil well and operators are responsible for monitoring these high-value assets, which teaches the limitation “detecting the hydrocarbon production problem” recited in claims 1 and 15 (and similarly recited in claim 8). Final Act. 11 (citing Lafferty ¶ 56); Ans. 9 (citing Lafferty ¶ 56).

Accordingly, Appellant does not persuade us of error in the Examiner’s findings and conclusions. Appellant does not argue claims 1–20 separately with particularity. Appeal Br. 18–24. We, therefore, sustain the Examiner’s rejection of: (1) independent claims 1, 8, and 15; and (2) dependent claims 2–7, 9–14, and 16–20 under 35 U.S.C. § 103.

We have only considered those arguments that Appellant actually raised in the Briefs. Arguments Appellant could have made, but chose not to make, in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

CONCLUSION

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–20	103	Sequeira, Lafferty, Lee, Rossi	1–20	

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). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED