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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BENJAMIN A. TABATOWSKI-BUSH and
GEORGE ALBERT GARFINKEL

Appeal 2017-009443
Application 14/694,175
Technology Center 2600

Before MAHSHID D. SAADAT, ALLEN R. MacDONALD, and
JOHN P. PINKERTON, *Administrative Patent Judges*.

MacDONALD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–9 and 11–21, which constitute all the claims pending in this application. Claim 10 was cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

Exemplary Claims

Exemplary claims 1, 8, and 9 under appeal read as follows (emphasis added);

1. A method, comprising:

providing an alert in response to an analysis of an array that includes at least a first recorded value and a second recorded value, the first recorded value corresponding to an electrical parameter of a battery joint under a first set of operating conditions and *positioned within the array according to the first set of operating conditions*, the second recorded value corresponding to the electrical parameter of the battery joint under a second set of operating conditions and *positioned within the array according to the second set of operating conditions*; and

updating the array by *replacing the first recorded value with a new recorded value corresponding to the electrical parameter of the battery joint under the first set of operating conditions*.

8. The method of claim 1, wherein the array is a *three dimensional array*.

9. The method of claim 8, wherein *a first dimension of the array is representative of a location of the battery joint*, a second dimension of the array is representative of current at the

battery joint, and a third dimension of the array is representative of temperature at the battery joint.

App. Br. 11–12 (Claims Appendix).

Rejections on Appeal

1. The Examiner rejected claims 1–7, 11–18, and 21 under 35 U.S.C. § 103(a) as being unpatentable over Lev et al. (US 2012/0286945 A1; published Nov. 15, 2012) (“Lev”) and McBride (US 2015/0143627 A1; published May 28, 2015) (“McBride”).¹

2. The Examiner rejected claims 8, 9, 19, and 20 under 35 U.S.C. § 103(a) being unpatentable over Lev, McBride and Cai et al. (US 2014/0203066 A1; published July 24, 2014) (“Cai”).

Issue on Appeal

Did the Examiner err in rejecting claims 1, 4, 6, 8, 9, 13, and 19–21 as being obvious?

PRINCIPLES OF LAW

The mere existence of differences between the prior art and the claim does not establish non-obviousness. *See Dann v. Johnston*, 425 U.S. 219, 230 (1976). Instead, the relevant question is “whether the difference between the prior art and the subject matter in question is a [difference] sufficient to render the claimed subject matter unobvious to one skilled in the applicable art.” *Dann*, 425 U.S. at 228 (internal quotations and citations

¹ The patentability of claims 2, 3, 5, 7, 11, 12, and 14–18 is not separately argued from that of claims 1 and 13. *See* App. Br. 8. Thus, except for our ultimate decision, claims 2, 3, 5, 7, 11, 12, and 14–18 are not discussed further herein.

omitted). Indeed, the Supreme Court made clear that when considering obviousness, “the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

ANALYSIS

A. *Independent Claims 1 and 13*

Appellants contend the Examiner erred in rejecting claim 1 under 35 U.S.C. § 103(a) because:

Claim 1 recites, among other things, providing an alert in “response to an analysis of an array.” The rejection relies on Lev as teaching the array feature of the claims, which is misplaced.

Lev’s paragraph [0048] allegedly teaches storing a first joint resistance and a second joint resistance, but there is no teaching in Lev that these alleged first and second joint resistances ***are stored in an array***. Further, the alleged first and second joint resistances ***are also not analyzed as an array***.

...

In the Advisory Action, the Examiner lists two dictionary definitions of an “array” and takes the position that Lev’s mentions of measuring and calculating resistance values at two different time periods is Lev “inherently having the property of an array.” ***The claim, however, does not recite an inherent “property of an array.” The claims recites an “array.” There are many properties to an array, but finding one of these properties in a reference does not mean that the reference teaches an array.***

App. Br. 3 (Appellants’ emphasis omitted; panel’s emphasis added); *see also* Reply Br. 1–2.

This argument is not persuasive. As the Examiner correctly found, Lev teaches storing first and second recorded joint resistance values as part of an overall algorithm or method for monitoring a health of a joint. *See* Final Act. 3 (citing Lev ¶¶ 46–48); *see also* Lev ¶ 72. Lev further teaches a control system that includes a storage medium and programmable memory which store and execute algorithms to effect the overall algorithm for monitoring the health of the joint. *See* Lev ¶ 23. Although Lev does not explicitly use the term “array,” a person of ordinary skill in the relevant art would understand that the storage medium disclosed in Lev would require an appropriate data structure to store the two joint resistance values, and that an array data structure would be a suitable data structure for storage of the values. As courts have held, the obviousness inquiry “may include recourse to logic, judgment, and common sense available to the person of ordinary skill that do not necessarily require explication in any reference or expert opinion.” *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009).

Appellants further contend the Examiner erred in rejecting claim 1 because:

Claim 1 recites, among other things, the first recorded value is “positioned within the array according to the first set of operating conditions,” and that the second recorded value is “positioned within the array according to the second set of operating conditions.” Lev, as modified by McBride, fails to teach or suggest at least these features and the rejection should be reversed.

Lev, as modified, fails to teach any positioning a value according to a set of operating conditions, and certainly not positioning according to operating conditions. ***The rejection admits that Lev fails to disclose this feature, yet points to no teaching in***

McBride, or elsewhere, addressing this admitted deficiency in Lev.

...

That McBride allegedly stores a measures or calculated resistance ***is not a teaching of positioning a recorded value within an array according to operating conditions.***

App. Br. 4 (Appellants' citations and emphasis omitted; panel's emphasis added); *see also* Reply Br. 2.

We are not persuaded by this argument. As previously described, Lev teaches storing first and second recorded joint resistance values. *See* Final Act. 3 (citing Lev ¶¶ 46–48). As also correctly found by the Examiner, the first joint resistance value corresponds to a joint resistance recorded at a first instance (i.e., the claimed “first set of operating conditions”), and the second joint resistance value corresponds to a joint resistance recorded at a second instance (i.e., the claimed “second set of operating conditions”). *See id.* (citing Lev ¶¶ 46–48). Once again, although Lev does not explicitly describe positioning the recorded first and second joint resistance values within a data structure utilized by the storage medium, it would be logical for the storage medium to respectively position the first and second joint resistance values within an array according to the first and second recorded instances. This would allow the storage medium to access the appropriate recorded joint resistance value that corresponds to the appropriate recorded instance (i.e., claimed “set of operating conditions”).

Appellants also contend the Examiner erred in rejecting claim 1 because:

Claim 1 recites, among other things, “updating the array by replacing the first recorded value with a new recorded value corresponding to the electrical parameter of the battery joint

under the first set of operating conditions.” The Examiner alleges McBride, and specifically paragraph [200] of McBride, teaches this feature. This reliance is misplaced and the rejection should be reversed as the modified version of Lev fails to teach or suggest the “updating” feature of claim 1.

McBride’s paragraph 200 refers to updating an operating condition of a drive mechanism based on a change in a characteristic of the drive mechanism relative to a previously defined operating condition. This is strikingly different from the “updating” feature of claim 1, *where an array, not a drive mechanism, is updated by “replacing the first recorded value with a new recorded value corresponding to the electrical parameter of the battery joint under the first set of operating conditions.”*

The referenced portion of McBride specifically requires a change in a characteristic of a drive mechanism relative to a previously defined operating condition to prompt an update to an operating condition. In the claimed “updating,” the first recorded value and the new recorded value *both correspond to the first set of operating conditions (i.e., the same operating conditions)*. In McBride, however, *the operating conditions are updated (i.e., changed), not a recorded value*.

App. Br. 5 (Appellants’ citations and emphasis omitted; panel’s emphasis added); *see also* Reply Br. 2.

This argument is also not persuasive. As the Examiner correctly found, Lev teaches replacing the first recorded joint resistance value with the second recorded joint resistance value. *See* Final Act. 3 (citing Lev ¶ 91). While this feature of Lev teaches or suggests replacing a first recorded value with a second recorded value under different sets of operating conditions, this feature does not teach or suggest replacing the recorded values under a single set of operating conditions. *See id.* However, as the Examiner also correctly found, McBride teaches replacing a first recorded value with a second recorded value under a single set of operating conditions in response

to a change in one or more characteristics of a drive mechanism. *See id.* (citing McBride ¶ 200); *see also* Ans. 6. Thus, we agree that the combination of Lev and McBride teaches or suggests the aforementioned claim limitation. One cannot show non-obviousness by attacking references individually when the rejection is based on a combination of references. *See In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *see also In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

Appellants further contend the Examiner erred in rejecting claim 1 because:

The rejection of claim 1 should also be reversed as the rejection fails to provide ***a legally sufficient reason that would lead the skilled person to make the proposed modification.***

In the instant case, the Examiner reasons that the skilled person would modify Lev such that the first joint resistance is replaced with a new joint resistance to providing meaningful readings while saving memory space. This reasoning ***lacks a rational basis*** at least because ***Lev requires the first joint resistance in order to determine cycle lapse, fatigue lapse, remaining fatigue life, etc.***

App. Br. 6 (Appellants' citations and emphasis omitted; panel's emphasis added).

We are not persuaded by this argument either. As previously described, Lev teaches replacing a first recorded joint resistance value with a second recorded joint resistance value. Thus, Appellants' argument that Lev requires the first joint resistance for operation of the overall method for monitoring a health of a joint is incorrect, and thus, does not persuade us that the Examiner's rationale for combining the cited references is insufficient.

Accordingly, Appellants have not shown the Examiner erred in rejecting claim 1.

B. Claims 4 and 21

Appellants contend the Examiner erred in rejecting claims 4 and 21 under 35 U.S.C. § 103(a) because:

Regarding claim 4, the claim recites that the first recorded value and the new recorded value are both “corresponding to the first operating conditions.” As discussed above in response to the rejection of claim 1, the updating in McBride relies on *an operating condition changing*. The updating in McBride would not occur *if the operating conditions remained the same*.

App. Br. 7 (Appellants’ emphasis omitted; panel’s emphasis added); *see also* Reply Br. 2–3.

This argument is substantially similar to Appellants argument regarding the claimed “replacing the first recorded value with a new recorded value . . . under the first set of operating conditions,” and, thus, is not persuasive for the reasons previously discussed. Accordingly, Appellants have not shown the Examiner erred in rejecting claims 4 and 21.

C. Claim 6

Appellants contend the Examiner erred in rejecting claim 6 under 35 U.S.C. § 103(a) because:

Regarding claim 6, the rejection admits that Lev fails to teach the claimed analysis that “includes an average of at least the first recorded value and the second recorded value”. To account for this deficiency in Lev, the rejection alleges that Lev’s measurements of battery joint resistances are [used to calculate an average].

...

Lev fails to teach any “taking of averages” as is alleged. Measuring the battery joint resistance at two times *is not a teaching of averaging resistances*. The Examiner’s position that the “average of a normal reading to that of a catastrophic battery joint resistance results in the average of a reading of a catastrophic battery resistance” *is also unsupported*.

App. Br. 7 (Appellants’ citations and emphasis omitted; panel’s emphasis added); *see also* Reply Br. 3.

This argument is not persuasive. As the Examiner correctly found, Lev teaches comparing first and second recorded joint resistance values to determine a difference between the two joint resistance values. *See* Final Act. 5–6 (citing Lev ¶ 49). Although Lev does not explicitly disclose determining an average of the two joint resistance values, it would have been within the technical proficiency of a person of ordinary skill, relying on the aforementioned person’s common knowledge and sense, to determine an average of the two joint resistance values as part of the comparison of the two joint resistance values. Accordingly, Appellants have not shown the Examiner erred in rejecting claim 6.

D. *Claims 8 and 19*

Appellants contend the Examiner erred in rejecting claims 8 and 19 under 35 U.S.C. § 103(a) because:

Additionally, regarding claims 8 and 19, the claims recite the “array is a three dimensional array.” The rejection alleges that Cai teaches “using temperature sensors to determine the fitness of a welded joint” and, based on this teaching, it would be obvious to modify Lev and McBride to include a three dimensionally array.

Initially, the rejection [fails] to show a teaching or suggestion of the three dimensional array recited in the claims. Cai alleged

teaching of using temperature sensors to determine a fitness of a welded joint is not a teaching of an array's dimension. That the cited art allegedly shows *three different parameters of a welded joint* does not demonstrate that the cited art teaches *a three dimensional array*.

...

Also, as explained in response to the rejection of claim 1, *Lev does not disclose any array, so there is no array to be modified with features of Cai*. That is, even if Cai taught a dimension of an array, there is no array in Lev or McBride that could be modified to include that dimension.

...

The rejection additionally fails to articulate a reason having rational basis that would lead the skilled person to modify Lev to include a three dimensional array. That a joint's measured temperature is allegedly an indication of a joint's condition does not mean that it would be obvious to modify Lev to include a three dimensional array. Although temperature may allegedly contribute to a joint's condition, *this does [not] mean that the skilled person would modify Lev to include a three dimensional array.* The rejection points to *no connection between temperature and a dimensional modification to an array.* The reasoning offered in support of the proposed modification *does not support the full scope of the modification and thus lacks a rational basis.*

App. Br. 8–9 (Appellants' citations and emphasis omitted; panel's emphasis added); *see also* Reply Br. 3.

This argument is not persuasive. As previously discussed, Lev teaches or suggests the claimed "array," as recited in claim 1, that includes first and second recorded resistance values. As the Examiner correctly found, the array taught or suggested by Lev can be considered a two-dimensional array in light of the two resistance values recorded at different instances. *See* Final Act. 10. As the Examiner also correctly found, Cai

discloses recording measured temperature values of a welding interface. *See id.* (citing Cai ¶ 7). Although none of the cited references explicitly recite a “three-dimensional array,” a person of ordinary skill would readily understand that a three-dimensional array is a known data structure that could be substituted for the two-dimensional array taught or suggested by Lev in order to store data associated with an additional dimension (i.e., the recorded temperature values taught by Cai). “[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR*, 550 U.S. at 416, citing *United States v. Adams*, 383 U.S. 39, 50–51 (1966). Accordingly, Appellants have not shown the Examiner erred in rejecting claims 8 and 19.

E. *Claims 9 and 20*

Appellants contend the Examiner erred in rejecting claims 9 and 20 under 35 U.S.C. § 103(a) because:

Regarding claims 9 and 20, the rejection alleges that “at least one parameter for determining joint resistance reading would inherently include its location.” This position is misplaced. ***Location is not required to determine a resistance of a joint.***

...

Lev currently calculates joint resistance without requiring a location of the joint. Thus, ***concluding that calculating a first resistance of a joint would inherently require a location of the joint is misplaced.***

App. Br. 9 (Appellants’ citations and emphasis omitted; panel’s emphasis added); *see also* Reply Br. 3.

We are persuaded the Examiner erred. We agree with Appellants that the Examiner has not sufficiently shown that the calculation of a first resistance of a joint would necessarily require a location of the joint. Accordingly, Appellants have shown the Examiner erred in rejecting claims 9 and 20.

CONCLUSIONS

(1) The Examiner has not erred in rejecting claims 1–8, 11–19, and 21 as being unpatentable under 35 U.S.C. § 103(a).

(2) Appellants have established that the Examiner erred in rejecting claims 9 and 20 as being unpatentable under 35 U.S.C. § 103(a).

(3) Claims 1–8, 11–19, and 21 are not patentable.

(4) On this record, claims 9 and 20 have not been shown to be unpatentable.

DECISION

We affirm the Examiner’s rejection of claims 1–8, 11–19, and 21 as being unpatentable under 35 U.S.C. § 103(a).

We reverse the Examiner’s rejection of claims 9 and 20 as being unpatentable under 35 U.S.C. § 103(a).

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-IN-PART