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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEVEN F. CHORIAN, GEORGE ALBERT GARFINKEL,
DHANUNJAY VEJALLA, SAI K. PERUMALLA, and
STEVEN DROSTE

Appeal 2019-000906
Application 14/476,045
Technology Center 1700

Before JEFFREY B. ROBERTSON, MONTÉ T. SQUIRE, and
MICHAEL G. McMANUS, *Administrative Patent Judges*.

SQUIRE, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner's decision finally rejecting claims 1–3, 5–15, 17, and 18, which are all of the

¹ In this Decision, we refer to the Specification filed Sept. 3, 2014 (“Spec.”); Final Office Action dated June 2, 2017 (“Final Act.”); Advisory Action dated Oct. 17, 2017 (“1st Adv. Act.”); Advisory Action dated Nov. 16, 2017 (“2nd Adv. Act.”); Supplemental Appeal Brief filed Apr. 26, 2018 (“Appeal Br.”); Examiner’s Answer dated Sept. 10, 2018 (“Ans.”); and Reply Brief filed Nov. 13, 2018 (“Reply Brief”).

² We use the word “Appellant” to refer to “Applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies Ford Global Technologies, LLC as the real party in interest. Appeal Br. 1.

claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The Claimed Subject Matter

Appellant's disclosure relates to thermal management of vehicle traction batteries used to operate hybrid and electric vehicles. Spec. ¶ 1. In one embodiment, the Specification describes a vehicle traction battery heat sink that includes a first fin having a cell contact portion in thermal contact with a plurality of battery cells. *Id.* ¶ 3; Abstract. According to the Specification, the heat sink allows heat to be exchanged between the plurality of battery cells and the thermal plate through the first fin. Spec. ¶ 3.

Claim 1 is illustrative of the claimed subject matter on appeal and is reproduced below from the Claims Appendix to the Appeal Brief:

1. A vehicle traction battery heat sink comprising:

a first fin having a cell portion with a series of curved portions, each curved portion in thermal contact with one of a plurality of battery cells and a connector portion being generally planar and extending transversely from the cell portion; and

a thermal plate in thermal contact with the connector portion and having a thermal agent circulated within the thermal plate but not within the fin.

Claims Appendix 1 (key disputed claim language italicized and bolded).

The References

The Examiner relies on the following prior art references as evidence in rejecting the claims on appeal:

Okada et al. ("Okada")	US 2008/0160395 A1	July 3, 2008
Houchin-Miller et al. ("Houchin-Miller")	US 2011/0269008 A1	Nov. 3, 2011
Yoon	US 2012/0009455 A1	Jan. 12, 2012
Fujii et al. ("Fujii")	US 2014/0220391 A1	Aug. 7, 2014

The Rejections

On appeal, the Examiner maintains (Ans. 3) the following rejections:

1. Claims 2, 6, and 15 are rejected under 35 U.S.C. § 112(b) or 35 U.S.C. § 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or joint inventor, or for pre-AIA, the applicant, regards as the invention ("Rejection 1"). Final Act. 3; Ans. 3.

2. Claims 1, 3, 5, and 6 are rejected under U.S.C. § 103(a) as being unpatentable over Yoon in view of Houchin-Miller ("Rejection 2"). Final Act. 6; Ans. 3.

3. Claim 2 is rejected under U.S.C. § 103(a) as being unpatentable over Yoon in view of Houchin-Miller as applied to claim 1 above, and further in view of Fujii ("Rejection 3"). Final Act. 8; Ans. 5–6.

4. Claim 7 is rejected under U.S.C. § 103(a) as being unpatentable over Yoon in view of Houchin-Miller as applied to claim 1 above, and further in view of Okada ("Rejection 4"). Final Act. 9; Ans. 6.

5. Claims 8 and 13 are rejected under U.S.C. § 103(a) as being unpatentable over Yoon in view of Okada (“Rejection 5”). Final Act. 10; Ans. 7.

6. Claim 9 is rejected under U.S.C. § 103(a) as being unpatentable over Yoon in view of Okada as applied to claim 8 above, and further in view of Fujii (“Rejection 6”). Final Act. 12; Ans. 9.

7. Claims 10–12 are rejected under U.S.C. § 103(a) as being unpatentable over Yoon in view of Okada as applied to claim 8 above, and further in view of Houchin-Miller (“Rejection 7”). Final Act. 13; Ans. 9–10.

8. Claims 14, 17, and 18 are rejected under U.S.C. § 103(a) as being unpatentable over Yoon as applied to claim 1 above, in further view of Houchin-Miller and Okada (“Rejection 8”). Final Act. 15; Ans. 11.

9. Claim 15 is rejected under U.S.C. § 103(a) as being unpatentable over Yoon, Houchin-Miller and Okada as applied to claim 14 above, and further in view of Fujii (“Rejection 9”). Final Act. 18–19; Ans. 14.

OPINION

Having considered the respective positions advanced by the Examiner and Appellant in light of this appeal record, we affirm the Examiner’s rejections based on the fact-finding and reasoning set forth in the Answer, Advisory Actions, and Final Office Action, which we adopt as our own. We add the following primarily for emphasis.

Rejection 1

Appellant does not dispute the Examiner's § 112 rejection of claims 2, 6, and 15 for indefiniteness (Rejection 1, stated above). *See* Appeal Br. 4–8; Reply Br. 1–3.

Accordingly, because the Examiner's Rejection 1 has not been withdrawn and is not disputed by Appellant, we summarily affirm this rejection. *Cf. Hyatt v. Dudas*, 551 F.3d 1307, 1314 (Fed. Cir. 2008); *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (“If an appellant fails to present arguments on a particular issue -- or, more broadly, on a particular rejection -- the Board will not, as a general matter, unilaterally review those uncontested aspects of the rejection”) (cited with approval in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011)).

Rejection 2

In response to Rejection 2, Appellant argues the patentability of independent claim 1, but does not separately argue the patentability of the remaining dependent claims 3, 5, and 6. *See* Appeal Br. 4–6. We select claim 1 as representative and claims 3, 5, and 6 will stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner determines that the combination of Yoon and Houchin-Miller suggests a battery structure satisfying all of the limitations of claim 1 and concludes the combination would have rendered the claim obvious. Ans. 3–4 (citing Yoon, Figs. 1–3A, ¶¶ 49, 50, 55–57, 69, 70, 92; Houchin-Miller, Figs. 6, 15A–E, ¶¶ 116, 117, 128).

Appellant argues the Examiner's rejection of claim 1 should be reversed because the Examiner does not provide a rationale for modifying the Yoon and Houchin-Miller references to arrive at the claimed invention.

Appeal Br. 4, 5–6; Reply Br. 1. Appellant further argues that, even if Yoon were modified by the Houchin-Miller reference as set forth in the Examiner’s rejection, the combination does not disclose all of the limitations of the claim. Appeal Br. 4. In particular, Appellant contends Yoon does not disclose “a first fin having a cell portion with a series of curved portions, each curved portion in thermal contact with one of a plurality of battery cells,” as recited in the claim. *Id.* at 5 (arguing “the heat conductive sheets in [Yoon] do not have a series of curved portions that each contact one battery cell, as . . . required by claim 1”).

Appellant further contends that

[e]ven if the battery cells in [Yoon] were modified to be cylindrical shaped, the sheets **123**, which are positioned between two adjacent cells, would only have a single curved portion, and would not have a series of curved portions, as required by claim 1.

Id. at 5.

Appellant argues also the Examiner’s rejection should be reversed because Yoon teaches away from the claimed invention. Reply Br. 2–3. In particular, Appellant contends Yoon “repeatedly discloses the benefits of positioning the conductive sheets *between* the cells and teaches away from positioning the conductive sheets along the perimeter of the cells,” as the Examiner finds. *Id.* at 3

We do not find Appellant’s arguments persuasive of reversible error in the Examiner’s rejection. On the record before us, we determine a preponderance of the evidence and sound technical reasoning support the Examiner’s analysis and determination that the combination of Yoon and Houchin-Miller suggests a battery structure satisfying all of the limitations of claim 1, and conclusion that the combination would have rendered the

claim obvious. Yoon, Figs. 1–3A, ¶¶ 49, 50, 55–57, 69, 70, 92; Houchin-Miller, Figs. 6, 15A–E, ¶¶ 116, 117, 128.

Contrary to what Appellant argues (Appeal Br. 4; Reply Br. 1), the Examiner provides a reasonable basis, which is supported by a preponderance of the evidence in the record, to evince why one of ordinary skill would have combined the teachings of Yoon and Houchin-Miller to arrive at Appellant’s claimed invention. Ans. 4 (explaining it would have been obvious to one of ordinary skill to modify Yoon’s battery cells to be cylindrical and to further modify Yoon’s heat conductive fins **123** in close and thermal contact with the cylindrical battery cells to take a corrugated shape as shown by Houchin-Miller in order to be closely disposed around the cells) (citing Yoon ¶ 50; Houchin-Miller, Figs. 6, 15A–E, ¶¶ 117, 128). *See also KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 420 (2007) (explaining that any need or problem known in the art can provide a reason for combining the elements in the manner claimed).

Appellant fails to direct us to persuasive evidence or provide an adequate technical explanation to establish why the Examiner’s articulated reasoning lacks a rational underpinning or is otherwise based on some other reversible error. Appellant’s assertions that “the Office does not provide a rationale for modifying the references” (Appeal Br. 4) and “there is no motivation to combine the flat sheets in ’455 with ’008” (Reply Br. 1) are not persuasive because they are conclusory. Attorney argument is not evidence. *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984).

Moreover, Appellant’s mere disagreement as to the Examiner’s factual findings and reasoning for combining the references, without more, is insufficient to establish reversible error. *Cf. SmithKline Beecham Corp. v.*

Apotex Corp., 439 F.3d 1312, 1320 (Fed. Cir. 2006) (“[M]ere statements of disagreement . . . as to the existence of factual disputes do not amount to a developed argument.”).

We do not find Appellant’s contentions that Yoon does not disclose a first fin having “a series of curved portions that each contact one battery cell” (Appeal Br. 5) and the modified structure “would only have a single curved portion” (*id.* at 5) persuasive of reversible error based on the fact-finding and reasoning provided by the Examiner at pages 3–4 and 15–16 of the Answer. In particular, as the Examiner finds (Ans. 3), Yoon discloses a battery system with a first heat-conductive sheet **123** (fin) in thermal contact with a plurality of battery cells **110**. Yoon, Figs. 2–3A, ¶¶ 55–57. As the Examiner further finds (Ans. 15), Yoon teaches the use of cylindrical batteries (Yoon ¶ 50) and Houchin-Miller teaches the use of the system with an array of battery shapes (Houchin-Miller ¶ 110).

As the Examiner also finds (Ans. 15–16), Houchin-Miller teaches the use of fins that mimic the shape of the battery cells by wrapping around the cells and the wrapping of the fins along the length of the cylindrical cells, as shown in Figure 5D of the reference, which, as the Examiner explains, would have reasonably suggested to one of ordinary skill in the art a fin having a cell portion with “a series of curved portions, each curved portion in thermal contact with one of a plurality of battery cells,” as recited in the claim.

Appellant’s arguments do not reveal reversible error in the Examiner’s factual findings and analysis in this regard.

We do not find Appellant’s teaching away argument (Reply Br. 2–3) persuasive of reversible error in the Examiner’s rejection because Appellant

does not identify sufficient evidence to support it, and we will not read into the references a teaching away where no such language exists. *Cf. DyStar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1364 (Fed. Cir. 2006). Rather, as Appellant acknowledges (Reply Br. 2), Yoon merely teaches that the “heat-conductive sheets **123 may** be between the battery cells **110**” (Yoon ¶ 53) (emphasis added), which, in contrast to Appellant’s argument, would reasonably suggest to one of ordinary skill that the sheets do not need to be necessarily placed between the battery cells. *See In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (explaining that a prior art reference’s disclosure must be considered for all that it teaches, including “the inferences which one skilled in the art would reasonably be expected to draw therefrom”).

Moreover, the fact that Yoon discloses the benefits of positioning the conductive sheets between the cells (Reply Br. 3), without more, does not constitute a teaching away. *See In re Susi*, 440 F.2d 442, 445-46 (CCPA 1971) (explaining that disclosure of a particular preferred embodiment does not teach away from a prior art reference’s broader disclosure).

Accordingly, we affirm the Examiner’s rejection of claims 1, 3, 5, and 6 under 35 U.S.C. § 103(a) as obvious over the combination of Yoon and Houchin-Miller.

Rejections 3, 4, 5, 6, 7, 8, and 9

Appellant does not present any new or additional substantive arguments in response to the Examiner’s Rejections 3, 4, 5, 6, 7, 8, and 9. *See* Appeal Br. 6–8; Reply Br. 1–3. *See also* Appeal Br. 7 (“For the same reasons as discussed above with regard to claim 1, the combination of ‘455

and ‘008 does not disclose all of the limitations of the claim[.]”); *id.* at 8 (same).

Accordingly, based on the findings and technical reasoning provided by the Examiner and for principally the same reasons discussed above for affirming the Examiner’s rejection of claims 1, 3, 5, and 6 based on the combination of Yoon and Houchin-Miller (Rejection 2), we affirm Rejections 3, 4, 5, 6, 7, 8, and 9.

CONCLUSION

In summary:

Claim(s) Rejected	Basis	Affirmed	Reversed
2, 6, 15	§ 112	2, 6, 15	
1, 3, 5, 6	§ 103(a) Yoon, Houchin-Miller	1, 3, 5, 6	
2	§ 103(a) Yoon, Houchin-Miller, Fuji	2	
7	§ 103(a) Yoon, Houchin-Miller, Okada	7	
8, 13	§ 103(a) Yoon, Okada	8, 13	
9	§ 103(a) Yoon, Okada, Fuji	9	
10–12	§ 103(a) Yoon, Okada, Houchin-Miller	10–12	
14, 17, 18	§ 103(a) Yoon, Houchin-Miller, Okada	14, 17, 18	
15	§ 103(a) Yoon, Houchin-Miller, Okada, Fuji	15	
Overall Outcome		1–3, 5–15, 17, 18	

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