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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOSEPH F. FREIMAN, SATISH B. CHIKKANNANAVAR, and
BHASKARA BODDAKAYALA

Appeal 2019-001818
Application 14/859,693
Technology Center 1700

Before CATHERINE Q. TIMM, MARK NAGUMO, and
BRIAN D. RANGE, *Administrative Patent Judges*.

RANGE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–3, 5–9, 12–16, 18, and 21–25. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

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

CLAIMED SUBJECT MATTER²

Appellant describes the invention as relating to venting of battery cells in an electrified vehicle battery pack. Spec. ¶ 1. Venting of vehicle batteries may be necessary to release gaseous byproducts released by the battery cells.

Id. ¶ 3. Claim 1 is illustrative:

1. A battery cell, comprising:
 - a can assembly;
 - an electrode assembly housed inside said can assembly;and
 - a venting system including a vent port, at least one of a vent tube extending completely inside said can assembly, and a spacer plate mounted between said vent port and said electrode assembly, wherein said spacer plate is spaced from and unconnected to said at least one vent tube.

REFERENCES

The Examiner relies upon the prior art below in rejecting the claims on appeal:

Name	Reference	Date
Broussely et al. ("Broussely")	US 6,033,795	Mar. 7, 2000
Iwamura et al. ("Iwamura")	US 2005/0130033 A1	June 16, 2005
Yebka et al. ("Yebka")	US 2011/0217572 A1	Sept. 8, 2011
Urano et al. ("Urano")	US 2014/0141293 A1	May 22, 2014

² In this Decision, we refer to the Final Office Action dated Feb. 22, 2018 ("Final Act."), the Appeal Brief filed Aug. 21, 2018 ("Appeal Br."), the Examiner's Answer dated Oct. 31, 2018 ("Ans."), and the Reply Brief filed Dec. 28, 2018 ("Reply Br.").

REJECTION(S)

The Examiner maintains (Ans. 3) the following rejections on appeal:

- A. Claims 1–3, 5–9, 12, 22, 23, and 25 under 35 U.S.C. § 102(a)(1) as anticipated by Broussely. Ans. 3
- B. Claims 13–16 and 18 under 35 U.S.C. § 103 as obvious over Broussely in view of Iwamura. *Id.* at 4.
- C. Claim 21 under 35 U.S.C. § 103 as obvious over Broussely in view of Urano. *Id.* at 5.
- D. Claim 24 under 35 U.S.C. § 103 as obvious over Broussely in view of Yebka. *Id.* at 6.

OPINION

We review the appealed rejections for error based upon the issues identified by Appellant and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential), *cited with approval in In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“[I]t has long been the Board’s practice to require an applicant to identify the alleged error in the examiner’s rejections.”). Where we sustain the Examiner’s rejections below, we are not persuaded that Appellant identifies reversible error after considering the evidence presented in this Appeal and each of Appellant’s arguments. Thus, to the extent we affirm, we do so for the reasons expressed in the Final Office Action and the Answer while providing additional analysis primarily for emphasis.

Appellant presents substantively distinct arguments for:

- (1) rejection A, claim 1 (Appeal Br. 3–5); (2) rejection A, claims 8 and 25 (*id.* at 5–6); (3) rejection A, claim 9 (*id.* at 6); (4) rejection B, claim 13 (*id.*

at 6–7); and (5) rejection D, claim 24 (*Id.* at 8). We address each of these arguments separately. Consistent with the provisions of 37 C.F.R. § 41.37(c)(1)(iv) (2013), claims 2, 3, 5–7, 12, and 21–23 stand or fall with claim 1. Similarly, claims 14–16 and 18 stand or fall with claim 13.

Rejections A and C, claim 1: Anticipation by Broussely.³ The Examiner finds that Broussely teaches each element of claim 1. In particular, the Examiner finds that Broussely discloses a cell 1 comprising a can assembly with, for example, container 2 (casing), cup 3 (top plate), safety vent 12 (vent port), and envelope⁴ 16 (vent tube). Ans. 3 (citing Broussely); *see also* Broussely Figs. 3, 8, 5:41–6:67.

Appellant argues that Broussely does not teach a vent tube. Appeal Br. 3–5. In particular, Appellant argues that Broussely envelope 16 is merely an open space between the electrode assembly and the outer housing of the container. *Id.* at 3–4. Appellant further argues that inner envelope 16 is part of electrochemical spool 4 and is, therefore, part of the Broussely “electrical assembly” rather than being a separate vent tube. *Id.* at 4–5; Reply Br. 2–3.

Appellant’s argument does not identify reversible error. Appellant’s Specification states that the vent tubes (as recited by claim 1) “may embody any size or shape.” Appeal Br. 7. In view of this explanation of a “vent tube,” the preponderance of the evidence supports the Examiner’s position

³ Rejection C addresses claim 21 which depends from claim 1. Ans. 5. Appellant does not raise any arguments as to this rejection aside from those raised with respect to claim 1. Appeal Br. 7–8.

⁴ Broussely refers to envelope 16 as “a cylindrical inner confinement envelope 16” and as “inner envelope 16.” *See, e.g.*, Broussely 5:64–20.

that Broussely inner envelope 16 is a vent tube within the meaning of claim 1. In particular, Broussely explains that “cylindrical inner confinement envelope 16” forms a distance between spool 4 and the inside wall of container 2 that allows gas to pass through it. Broussely 5:64–6:2. Broussely explains that “[t]he inner envelope 16 may be made of metal, as is the outer envelope 2” or “may also be made of plastic.” *Id.* at 6:3–5. Broussely thus indicates that the inner envelope (in conjunction with the inside wall of the container) forms a space for gas to travel that is separate from the spool 4 (with the spool, in turn, consisting of electrodes 5 (*id.* at 5:4–50)). Ans. 8 (finding that envelope 16 is separate from the electrode assembly); *see also* Broussely Fig. 3, 8, 6:12–16. In other words, Broussely’s vent tube is distinct from its electrical assembly. Also, although shape is not particularly relevant in view of Appellant’s Specification stating that vent tubes may be any size in shape, we note that the Broussely’s envelope space for gas is tube shaped (i.e., the gas may flow in within the outer portion of the cylindrical container 2 as defined by the inner envelope 16 and as illustrated by arrows 22 and 23 in Figure 3).

We, therefore, sustain the Examiner’s rejection of claims 1, 2, 3, 5–7, 12, 22, and 23.

Rejection A, claims 8 and 25: Anticipation by Broussely. Claims 8 and 25 each require a “plurality of vent tubes.” Appeal Br. 10, 12 (Claims App.). As explained above, Broussely’s envelope 16 defines one “vent tube.” For a second “vent tube” to reach a plurality of vent tubes, the Examiner identifies hollow mandrel 25 of Broussely. Ans. 7–8. Appellant argues that hollow mandrel 25 is not a vent tube and that Broussely does not disclose a plurality of vent tubes. Appeal Br. 4–6.

On the present record, Appellant’s argument identifies harmful error. In particular, the Examiner has not adequately established that Broussely hollow mandrel 25 is capable of functioning as a vent tube. Rather, as Appellant argues (Appeal Br. 4), electrode spool 4 is “wound around a hollow mandrel 25 defining a central well 6.” Broussely 6:53–55. Broussely explains that the mandrel and spool leave annular gas-flow gap 20 (*id.* at 6:55–63), but annular gas-flow gap 20 appears to correspond with the vent tube defined by envelope 16 (*id.* at Fig. 8). Broussely does not indicate that gas flows or is capable of flowing through, for example, “central well 6.” In view of Appellant’s Specification, the claims’ recited “vent tube” must be capable of venting, and the Examiner has not established that hollow mandrel 25 has such a capability.

Because Appellant’s argument persuasively identifies error in the Examiner’s finding that Broussely teaches a plurality of vent tubes, we do not sustain the Examiner’s rejection of claims 8 and 25.

Rejection A, claim 9: Anticipation by Broussely. Claim 9 recites, “[t]he battery cell as recited in claim 1, wherein said spacer plate is mounted to an underside of a top plate of said can assembly.” Appeal Br. 10 (Claims App.). The Examiner finds that Broussely’s washer 14 (which the Examiner equates to claim 1’s spacing plate) is attached to the underside of cup 3 (which the Examiner equates to claim 9’s “top plate”) by “annular base 26 and clamping washers 27. Ans. 9 (citing Broussely Fig. 8).⁵

Appellant argues that the Examiner’s finding regarding claim 9 is not supported by the evidence. Reply Br. 4. In particular, Appellant argues that

⁵ The Examiner first makes this finding in the Answer. *See* Final Act. 3.

Broussely discloses that annular base 26 is affixed to cup 3 via clamping washers 27 and that neither base 26 nor washers 27 appear to contact the alleged spacer plate 14, such that spacer plate 14 could be said to be mounted to the underside of a top plate (cup 3) of the can assembly. *Id.*

We agree with Appellant that the Examiner has not adequately explained how Broussely meets the recitations of claim 9. The Examiner does not provide citations or reasoning to support the Examiner's findings. Ans. 9. Broussely's Figures are ambiguous as to how spacer plate 14 connects to cup 3 (if at all). *See, e.g.*, Broussely Fig. 3, 8. Broussely's text does not particularly explain how washer 14 is attached to anything except to state that "[i]nsulating washers 14 and 15, automatically centered by the container 2 or the terminal 11 serve to insulate the various elements from one another." Broussely 5:61–63. Meanwhile, Broussely's text also appears to suggest that base 26 and washers 27 serve purposes other than affixing washer 14. *Id.* at 6:50–67. We, therefore, do not sustain the Examiner's rejection of claim 9.

Rejection B, claim 13, obviousness over Broussely and Iwamura. The Examiner finds that Broussely does not expressly teach a battery pack comprising a plurality of battery cells as recited by claim 13. Appeal Br. 5. The Examiner finds, however, that Iwamura teaches a battery pack with a plurality of batteries. Ans. 4–5. The Examiner determines that it would have been obvious to modify Broussely to include a battery pack comprising a battery assembly that includes a plurality of battery cells "in order to provide an energy storage system that provide[s] enough power for a particular application such as an electric vehicle." *Id.*

Appellant argues that Iwamura does not cure the error that we address above with regard to claim 1. Appeal Br. 6–7. Because, as explained above, the Examiner’s rejection of claim 1 is not in error, this argument is unpersuasive.

Appellant also argues that the Examiner’s rejection is conclusory and does not identify adequate reason to combine the teachings of Broussely and Iwamura. Appeal Br. 7; Reply Br. 4–5. Appellant further emphasizes that Broussely does not teach use of its cell as an electric vehicle battery pack.

Appellant’s argument is not persuasive of harmful error. The Examiner stated a reason why a person of skill in the art would have modified Broussely to include multiple battery cells (i.e., for more power), and Appellant does not provide technical reasoning or other persuasive argument as to why that reason is incorrect. We further note that Iwamura recognizes the problem of battery gas discharge (Iwamura ¶ 3) such that the Broussely and Iwamura references are closely related. Introduction of multiple battery cells as taught by Iwamura in order to increase the power of the Broussely device would be no more than the predictable use of a prior art element according to established function. *See KSR Int. Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

We sustain the Examiner’s rejection of claims 13–16 and 18.

Rejection D, claim 24: obviousness over Broussely and Yebka.

Claim 24 recites, “[t]he battery cell as recited in claim 1, wherein said spacer plate includes a width that is less than a width of the electrode assembly.” Appeal Br. 11 (Claims App.). The Examiner rejects claim 24 as obvious over Broussely in view of Yebka. The Examiner finds that Broussely does not expressly teach a spacer plate that includes a width that is less than a

width of the electrode assembly. Ans. 6. The Examiner finds, however, that “Yebka et al discloses a bursting disc/washer “105” (spacer plate) that includes a width that is less than a width of the electrode assembly (para. [0022] and Fig. 1(A)).” *Id.* The Examiner states a rationale for combining this teaching of Yebka with Broussely. *Id.*

Appellant argues that Yebka does not teach a spacer plate with width less than the width of the electrode assembly and provides reasons why this is the case. Appeal Br. 8. The Examiner does not respond to this argument in the Answer.

After reviewing Figure 1(A) and paragraph 22 of Yebka (the only basis the Examiner provides for the Examiner’s findings regarding Yebka), we cannot discern how these portions of Yebka provide a preponderance of the evidence in support of the Examiner’s finding regarding Yebka. We, therefore, do not sustain the Examiner’s rejection of claim 24.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3, 5–9, 12, 22, 23, 25	102(a)(1)	Broussely	1–3, 5–7, 12, 22, 23	8, 9, 25
13–16, 18	103	Broussely, Iwamura	13–16, 18	
21	103	Broussely, Urano	21	
24	103	Broussely, Yebka		24
Overall Outcome			1–3, 5–7, 12–16, 18, 21–23	8, 9, 24, 25

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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 IN PART