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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HOLGER FINK

Appeal 2019-004212
Application 14/420,827
Technology Center 1700

Before JEFFREY T. SMITH, LINDA M. GAUDETTE, and
DONNA M. PRAISS, *Administrative Patent Judges*.

PRAISS, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the Examiner's decision to reject claims 6–9.³ We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ In this Decision, we refer to the Specification filed Feb. 10, 2015 (“Spec.”), the Final Office Action dated Mar. 19, 2018 (“Final Act.”), the Appeal Brief filed Sept. 21, 2018 (“Appeal Br.”), the Examiner’s Answer dated Mar. 7, 2019 (“Ans.”), and the Reply Brief filed May 7, 2019.

² We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Robert Bosch GmbH and Samsung SDI Co., Ltd. are identified as the real parties in interest. Appeal Br. 2.

³ The rejection of claims 1, 3–5, and 10–12 have been withdrawn. Ans. 9.

STATEMENT OF THE CASE

The invention relates to a housing for a battery cell. Spec. 1:8–9. The Specification describes lithium ion batteries are preferred for electric and hybrid vehicle applications, but are very susceptible to moisture penetration and, due to the long serviceable life in vehicle applications, a solid housing is preferred, generally based on metal material. *Id.* at 1:15–38. The Specification further describes electronic modules are used for monitoring the battery cells to prevent the cells from being overcharged or greatly discharged. *Id.* at 2:5–19. According to the Specification, Appellant’s invention is a housing for a battery cell having a metal housing cover “wherein an electronic component is arranged on a metal core circuit board on the housing cover.” *Id.* at 2:31–35.

Claims 6 and 9, reproduced below, are illustrative of the subject matter on appeal (disputed limitations italicized).

6. A battery cell comprising:

a housing that includes:

a housing cover having an external surface configured such that when the battery cell is housed, a first and second terminal extend partially outwardly from the external surface at a first and second location, respectively;

a metal core circuit board positioned on the housing cover between the first and second terminals at a third location between the first and second locations; and

an electronic component arranged on the metal core circuit board on the housing cover,

wherein the circuit board is directly adhered to the housing cover.

9. A motor vehicle comprising:
an electric drive motor; and
a battery module that is connected or is configured to be connected to the electric drive motor, and that includes:
a battery cell having:
a housing with:
a housing cover including an external surface configured such that
when the battery cell is housed, a first and second terminal extend partially outwardly from the external surface at a first and second location, respectively;
a metal core circuit board positioned on the housing cover between the first and second terminals at a third location between the first and second locations; and
an electronic component arranged on the metal core circuit board on the housing cover,
wherein the metal core circuit board is directly adhered to the housing cover.

Appeal Br. 23–25 (Claims Appendix).

ANALYSIS

We review the appealed rejections for error based upon the issues Appellant identifies, 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.”). After considering the argued claims in light of the case law presented in this Appeal and each of

Appellant’s arguments, we are not persuaded of reversible error in the appealed rejections.

The Examiner rejects claims 6–9 as follows. Final Act. 2–8.

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis
6–9	112, first para.	Written Description
6	103(a)	Rao, ⁴ Brauer ⁵
7–9	103(a)	Rao, Brauer, Fujii ⁶

We separately address each rejection below.

Written Description: Claims 6–9

Appellant contends the Examiner erred in rejecting claims 6–9 because the Specification discloses (1) a metal core printed circuit board has a printed circuit board adhered to a metal core, and (2) an “electronic component can be adhered to the metal core circuit board on the housing cover or the metal core circuit board is part of the metal housing cover.” Appeal Br. 5–6 (citing Spec. 3:1–3, 3:17–26). According to Appellant, “direct adherence of an electric component to the housing cover is supported by [Specification] page 4 lines 7–34.” *Id.* at 6. Appellant asserts this disclosure is sufficient to reasonably convey to those skilled in the art that the inventor has possession of the claimed subject matter as of the patent application filing date. *Id.* at 6–7.

⁴ US 5,159,272, issued Oct. 27, 1992.

⁵ US 5,153,986, issued Oct. 13, 1992.

⁶ US 2008/0026284 A1, published Jan. 31, 2008.

Appellant’s arguments do not persuade us that the Examiner reversibly erred in rejecting claims 6–9 for lacking written descriptive support in the Specification. Specifically, we are not persuaded that disclosure of direct adherence of an electronic component to a housing cover adequately conveys to persons having ordinary skill in the art that a specific component of the electronic component, namely, a metal core circuit board, may be directly adhered to the housing cover. The Specification describes the electronic component as “preferably a circuit for monitoring a battery cell” and “part of a battery management system.” Spec. 3:9–15. The Specification describes a metal core circuit board as a “circuit board[] on a metal substrate.” *Id.* at 3:18–19. Thus, the Specification separately defines the terms “electronic component” and “metal core circuit board” and does not use the terms interchangeably. Nor does the Specification convey that the metal core circuit board itself is adhered directly to the housing cover.

In the Reply Brief, Appellant directs us to Figure 1 as showing “*only* the metal core circuit board on the cover 12.” Reply Br. 4. Appellant’s Figure 1 is shown below.

Fig. 1

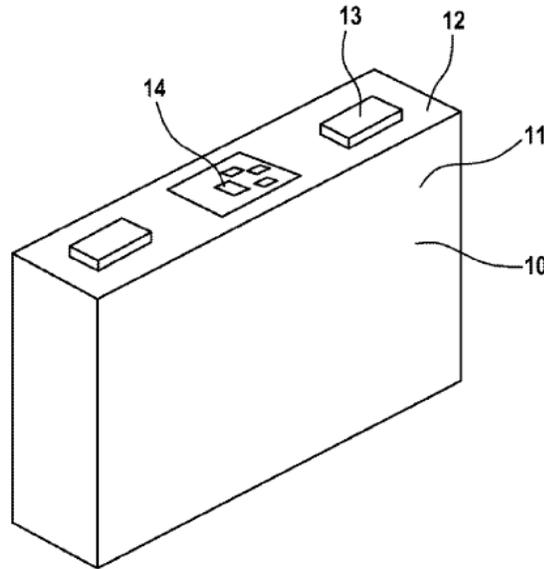


Figure 1 is a perspective view of battery cell 10. Spec. 5:32–33.

According to the Specification, housing 11 is welded to housing cover 12, two terminals 13 are embodied on the upper face “and an electronic component 14 for monitoring the battery cell 10 is arranged between said terminals.” Spec. 6:1–3. The Specification further states “[t]he electronic component 14 is embodied on *a metal core circuit board that is not illustrated separately in the figure* and is arranged on the housing cover 12.” *Id.* at 6:4–6 (emphasis added). Appellant’s argument that Figure 1 *only* shows the metal core circuit board on the cover is not supported by the record because the Specification explicitly states that the metal core circuit board is *not* shown in Figure 1.

Appellant also argues in the Reply Brief that the Specification discloses an assembly wherein a circuit board is “directly adhered to a metal substrate,” therefore, the claim language “directly adhered to the housing cover” means “the housing cover is necessarily the metal core of the metal core circuit board.” Reply Br. 2 (citing Spec. 3:17–26). The difficulty with

Appellant's argument is that the Specification discloses "[t]he electronic component can be adhered to the metal core circuit board" not that the metal core circuit board is directly adhered to the housing cover as required by independent claims 6 and 9. Spec. 3:1–3. Stated another way, the disclosure that a circuit board may be adhesively attached to a metal substrate to form a metal core circuit board (Spec. 3:17–26) is not a disclosure that the metal core circuit board may be adhered to the housing cover. As the Examiner points out (Ans. 15), if the metal core circuit board comprises the housing cover as its metal substrate, then it could not be positioned on the housing cover. That is, it would have to be directly adhered to itself in order to satisfy the claim.

The preponderance of the evidence in this appeal record therefore supports the Examiner's determination that the claimed subject matter lacks written descriptive support in the Specification. Accordingly, we affirm the Examiner's rejection of claims 6–9 under 35 U.S.C. § 112, first paragraph, for the above reasons and those provided by the Examiner.

Obviousness: Claim 6

The Examiner rejects claim 6 over the combination of Rao and Brauer. Final Act. 3–4. Appellant contends the Examiner erred because claim 6 requires "the circuit board of the metal core circuit board be directly adhered to the housing cover." Appeal Br. 19. Appellant contends "directly adhered to" makes claim 6 narrower in scope than claim 1, which recites "wherein the housing cover forms a metal core of the metal core circuit board." *Id.*; *id.* at 23 (Claims Appendix). Appellant distinguished claim 1 over the prior art combination on the basis that "the circuit board of Brauer

cannot be included in the device of Rao such that the housing cover (212) of Rao forms the metal core of Brauer's circuit board." *Id.* at 17.

We find Appellant's arguments unpersuasive of error in the Examiner's combination of Rao and Brauer for the reasons provided in the Examiner's Final Office Action and Answer. We add the following primarily for emphasis.

As the Examiner points out, claim 6 is not narrower than claim 1 because claim 1 does not include the limitation "wherein the [metal core] circuit board is directly adhered to the housing cover." Ans. 19. Claim 6's "circuit board" includes a metal substrate because the term refers back to "a metal core circuit board," which is defined in the Specification as having a metal substrate, but claim 6 does not require that the metal core of the metal core circuit board is the housing cover as required by claim 1. Thus the arguments distinguishing claim 1 over the cited prior art do not apply to claim 6. *Id.* at 20. The Examiner finds Rao discloses a terminal contact sleeve soldered to the printed circuit board, therefore modified Rao discloses the metal core circuit board directly adhered to the housing cover. *Id.* at 19 (citing Rao 6:50–53). As discussed above, we are not persuaded by Appellant's argument (Reply Br. 2) that the Examiner misconstrued claim 6. Thus, we likewise are not persuaded (*id.* at 6) that the rejection of claim 6 over Brauer and Rao is in error on the basis that claim 6 requires the housing cover is necessarily the metal substrate of the metal core circuit board.

Accordingly, we affirm the Examiner's rejection of claim 6 under 35 U.S.C. § 103(a).

Obviousness: Claims 7–9

Claims 7 and 8 depend from claim 6 and recite “the battery cell is a lithium ion cell” (claim 7) and “a plurality of the battery cells comprise a battery module” (claim 8). Appeal Br. 24 (Claims Appendix). Appellant contends the Examiner erred in rejecting claims 7 and 8 over the combination of Brauer, Rao, and Fujii for the same provided regarding claim 6. *Id.* at 20. Because we do not find Appellant’s arguments with respect to claim 6 persuasive of error, we affirm the rejection of claims 7 and 8 for the same reasons.

With respect to the rejection of independent claim 9 over the combination of Brauer, Rao, and Fujii, Appellant argues even if Rao’s terminal contact sleeves (26, 27) are considered metal cores, neither the printed circuit board (17) nor the terminal contact sleeves (26, 27) are adhered to the housing cover (212). Appeal Br. 21.

The Examiner responds “housing cover” is a broad term that has no limitations with regard to materials or structural components, therefore, in addition to element 212, Rao’s components between 15 and 16, including lower surface 16 but excluding circuit board 17, comprise the housing cover required by claim 9. Ans. 21 (citing Rao, Fig. 1). The Examiner finds second terminal contact sleeve 27, which is considered part of the housing cover, is soldered to the printed circuit board and in registration with opening 28 formed in the housing bottom 16. *Id.* Rao’s Figure 1 is shown below.

FIG. 1

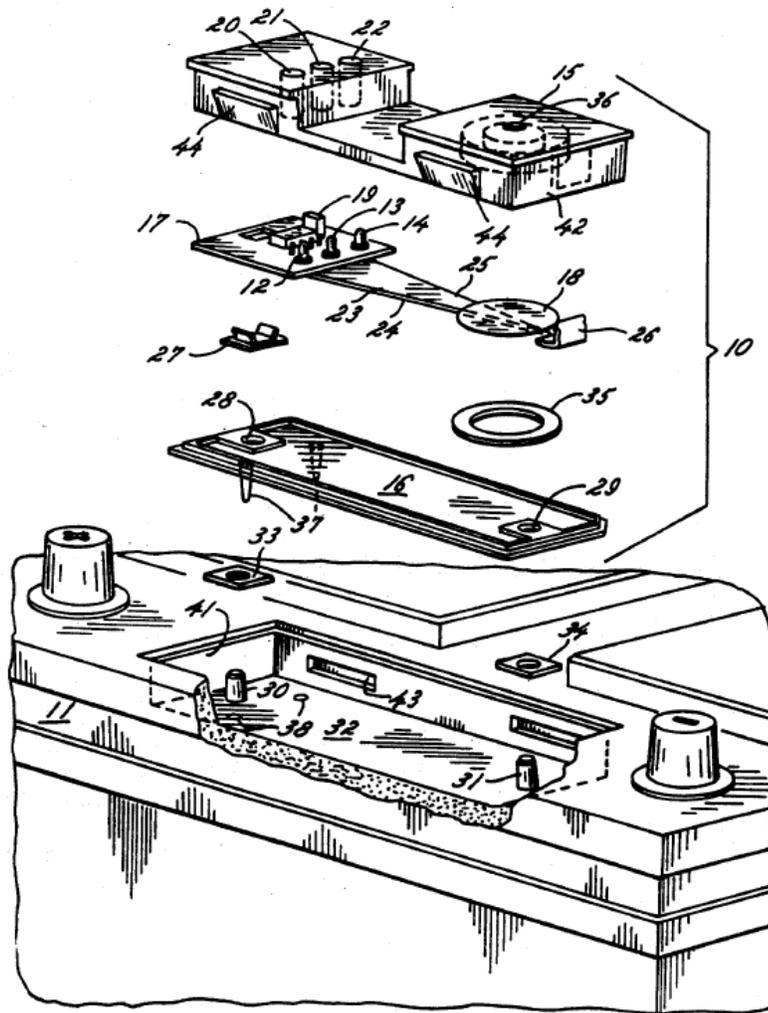


Figure 1 above is an exploded view of Rao's monitoring device.

According to Rao, the shape and placement of the monitoring device and receptacle may be changed, i.e., mounting in a wall of a container rather than the cover 212. Rao 15:45–50.

Appellant's arguments do not persuade us that the Examiner reversibly erred in rejecting claim 9 over the cited prior art references. Appellant asserts the plain meaning of "cover" is "something that covers, as the lid of a container or the binding of a book." Reply Br. 8. Appellant

contends that, while the term “housing” is used broadly to include the housing cover, the term “housing cover” is used to identify the “lid” or “cap plate” of the housing, which may include the metal core circuit board as a part of the housing cover. *Id.* (citing Spec. 1:33–35). Appellant argues Rao’s components between 15 and 16, inclusive of 16 and exclusive of circuit board 17, are not “something that covers” because Rao identifies “monitoring device 10” with its own upper and lower surfaces 15, 16 separately from cover 212. *Id.* at 9.

We agree with the Examiner that the term “housing cover” recited in claim 9 is not limited to any particular structure, including a single, flat layer as Appellant appears to argue based on the perspective view of a battery cell in Appellant’s Figure 1. Indeed, Appellant’s use of the term “cap plate” in the Specification is to describe the prior art battery housing components. Such “cap plates” are not limited to a single layer because the Specification states “[t]he housing cover comprises at least a metal plate on the upper face of which are located [sic] the two terminals.” Spec. 1:39–2:2. Therefore, the Examiner’s interpretation of “housing cover” is not unreasonably broad as applied to the cover of modified Rao.

Accordingly, we affirm the Examiner’s rejection of claim 9 under 35 U.S.C. § 103(a).

CONCLUSION

For these reasons and those the Examiner provides, we uphold the Examiner’s rejection of claims 6–9 under 35 U.S.C. §§ 103(a) and 112, first paragraph.

DECISION SUMMARY

In summary:

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
6-9	112, first para.	Written Description	6-9	
6	103(a)	Rao, Brauer	6	
7-9	103(a)	Rao, Brauer, Fujii	7-9	
Overall Outcome			6-9	

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)(1)(iv).

AFFIRMED