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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GUENTHER HAMBITZER,
JOACHIM HEITBAUM, CLAUS DAMBACH, MARTIN KAMPA,
CHRISTIAN PSZOLLA, and CHRISTIANE RIPP

Appeal 2019-002544
Application 14/056,556
Technology Center 1700

BEFORE KAREN M. HASTINGS, GEORGE C. BEST, and LILAN REN, *Administrative Patent Judges.*

REN, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 20, 21, 39–41, and 49–60. Final Act. 4. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] We use the word "Appellant" to refer to "Applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as "Alevo International S.A." Appeal Br. 1.

CLAIMED SUBJECT MATTER

The claims are directed to a rechargeable electrochemical battery. Independent claims 20 and 49, reproduced below, are illustrative of the claimed subject matter:

> 20. Rechargeable electrochemical battery cell, comprising:
> a housing,
> a positive electrode,
> a negative electrode,
> an active metal,
> an electrolyte which contains sulfur dioxide and a conductive salt of the active metal, and
> *a total quantity of oxygen contained in compounds which are able to react with sulfur dioxide in a reaction by which the sulfur dioxide is reduced of not more than 10 mMol per Ah theoretical charge capacitance of the rechargeable electrochemical battery cell,* wherein the compounds which are able to react with sulfur dioxide are on or in the positive electrode, the negative electrode, and/or the electrolyte.
>
> 49. A rechargeable electrochemical battery cell, comprising a positive electrode, a negative electrode, an electrolyte which contains sulfur dioxide, and *a total quantity of oxygen contained in compounds which are able to react during charging, recharging or overcharging of the cell with sulfur dioxide in a reaction by which the sulfur dioxide is reduced, of not more than 10 mMol per Ah theoretical charge capacitance of the cell*.

Claims Appendix (Appeal Br. 19, 20) (emphases added).

REFERENCES

The prior art references relied upon by the Examiner are:

Hambitzer	US 2007/0065714 A1	Mar. 22, 2007
Masataka	JP 2002-352801	Dec. 6, 2002

REJECTION

The Examiner rejects claims 20, 21, 39–41, and 49–60 under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Hambitzer in view of Masataka. Final Act. 4.

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. *Cf. 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 having considered the evidence presented in this Appeal and each of Appellant's contentions, we are not persuaded that reversible error has been identified, and we affirm the Examiner's § 103 rejection for the reasons expressed in the Final Office Action and the Answer. We add the following primarily for emphasis.

Claim 20

In rejecting claim 20[2], the Examiner finds Hambitzer teaches a rechargeable battery having the recited structural components including a housing, positive and negative electrodes, an active metal and a conductive salt thereof, and a sulfur dioxide electrolyte. Final Act. 4 (citing various portions of Hambitzer). Appellant does not dispute these findings. *Compare id.*, *with* Appeal Br. 6–18.

With regard to the remaining limitation, namely "a total quantity of oxygen contained in compounds which are able to react with sulfur dioxide in a reaction by which the sulfur dioxide is reduced of not more than 10 mMol per Ah theoretical charge capacitance of the rechargeable electrochemical battery cell," the Examiner finds that the Specification describes a battery with the inclusion of an aluminum oxide barrier to achieve this recited function. Final Act. 5–6 (citing Specification pp. 18–19). Appellant does not dispute this finding. *Compare id.*, *with* Appeal Br. 15–16. The Examiner then finds Masataka describes a prior art battery having an aluminum oxide barrier which is undisputed. *Compare* Final Act. 6, *with* Appeal Br. 6–18. Based on the undisputed structural identity between the recited apparatus and the combined prior art teaching, the Examiner finds that a skilled artisan would combine the prior art teachings to arrive at the recited battery having the recited function. Final Act. 5 (citing Masataka ¶ 4

[2] Appellant does not present separate arguments for the obviousness rejections of claims 21, 39–41, 50, 51, and 53–60. *See, e.g.*, Appeal Br. 18. The obviousness rejections of claims 21, 39–41, 50, 51, and 53–60 therefore stands or falls with that of claim 20. *See id.*; *see also* 37 C.F.R. § 41.37(c)(1)(iv).

stating the goal to "improve[] output characteristics of a charge-discharge cycle characteristic" as the reason to combine).

Appellant raises multiple arguments that the Examiner reversibly erred in rejecting claim 20. From the outset, we emphasize that "apparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1468 (Fed. Cir. 1990). Appellant's arguments do not structurally distinguish the prior art and are therefore unpersuasive. *See In re Pearson*, 494 F.2d 1399, 1402 (CCPA 1974) ("[T]erms [that] merely set forth the intended use for, or a property inherent in, an otherwise old composition . . . do not differentiate the claimed composition from those known in the prior art."). "Where . . . the claimed and prior art products are identical or substantially identical . . . the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. . . . [The] fairness [of the burden-shifting] is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products." *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977). Appellant has not presented such rebuttal evidence. We analyze each argument in detail below.

Appellant first argues that the Examiner reversibly erred because "the Examiner does not address disturbing oxides present on or in Hambitzer's positive electrode" and "does not address any disturbing oxides that may be present in the Hambitzer electrolyte." Appeal Br. 11. Appellant argues that the Examiner's "modification does not address the positive electrode or the electrolyte, which are also significant sources of disturbing oxides." *Id.* As the Examiner points out and Appellant acknowledges, claim 20 is an open-ended claim reciting that the "compounds . . . are on or in the positive

electrode, the negative electrode, and/or the electrolyte" without restricting the compounds to be located on the positive electrode, negative electrode, or the electrolyte. Final Act. 9; Appeal Br. 12.

Appellant's argument is therefore unpersuasive because it is not commensurate in scope with the apparatus claim limitation whose functional limitation does not require a particular source of disturbing oxide. Appellant's speculative statement that "other sources of disturbing oxides, which may, individually or in combination, exceed *10 mMol per Ah theoretical charge capacitance of the cell*" (Appeal Br. 11) is unsupported by evidence and unpersuasive. *See Johnston v. IVAC Corp.*, 885 F.2d 1574, 1581 (Fed. Cir. 1989) ("Attorneys' argument is no substitute for evidence.").

Appellant's argument is also unpersuasive as it does not structurally distinguish the prior art. "[W]hen[, as here,] the prior art evidence reasonably allows the PTO to conclude that a claimed feature is present in the prior art, the evidence 'compels such a conclusion if the applicant produces no evidence or argument to rebut it.'" *In re Crish*, 393 F.3d 1253, 1259 (Fed. Cir. 2004) (quoting *In re Spada*, 911 F.2d 705, 708 n.3 (Fed. Cir. 1990)).

Appellant contrasts the prior art teaching by arguing that Appellant "discloses a method of heat-treating a graphite negative electrode to reduce the quantity of disturbing oxide." Appeal Br. 13. Claim 20, however, is an apparatus claim and this argument is therefore unpersuasive because it is not based on the claim language.

Appellant then argues that the aluminum oxide coating in Masataka does not completely cover the electrode. Appeal Br. 14. This argument is not persuasive because it is not commensurate in scope with claim 20 which

does not require the electrode to be completely covered by a barrier layer. Appellant then speculates that the Masataka electrode "is likely comprised of a substrate that has a high concentration of disturbing oxides with a partial coating of metal film" and that "[i]t is doubtful that an incomplete metal oxide coating, like the one taught by Masataka, would prevent the reaction." *Id.* Such "[a]ttorneys' argument is no substitute for evidence." *Johnston*, 885 F.2d at 1581. Moreover, because of "the PTO's inability to manufacture products or to obtain and compare prior art products," *Best*, 562 F.2d at 1255, Appellant must provide evidence to show the purported difference in functionality between the prior art and the recited apparatus — which Appellant fails to do here.

Appellant next argues that a skilled artisan would not have combined Hambitzer and Masataka because the electrolyte in Hambitzer is SO_2 based whereas the electrolyte in Masataka is organic based. Appeal Br. 14. As the Examiner points out, however, "Masataka's teachings are not confined to specific electrolyte system they are taught as generally improving capacity of the negative electrode of lithium batteries." Ans. 16 (citing Masataka ¶ 32). Moreover, all of the features of the secondary reference need not be bodily incorporated into the primary reference and the skilled artisan is not compelled to blindly follow the teaching of one prior art reference over the other without the exercise of independent judgment. *See Lear Siegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 889 (Fed. Cir. 1984). Appellant's argument is unsupported by evidence (e.g., data, scientific reasoning, etc.) to show that it is beyond a skilled artisan's skill to apply the combined teachings of the references to arrive at the apparatus recited in claim 20. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) ("[I]f a technique has been used to

improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.").

Appellant, in fact, acknowledges that "Hambitzer and Masataka agree that a passivation layer forms on the negative electrode during the first charging and they agree that the formation of the passivation layer is the cause of initial capacity degradation." Appeal Br. 15. Appellant's argument that a skilled artisan would not combine the references because the references "disagree about how to resolve the problem on a fundamental level" is not persuasive. *Id.* Obviousness does not require prior art references to recognize or even suggest the problem that applicant attempted to solve. Prior art does not have to teach combining references for the reason that Applicant combined them. *In re Dillon*, 919 F.2d 688, 692–93 (Fed. Cir. 1990). Appellant's argument is unpersuasive as it does not identify reversible error in the Examiner's reasoning that all the recited structures are known and a skilled artisan would have combined the known structures "according to their established functions." *KSR*, 550 U.S. at 417; Final Act. 4–5.

Moreover, Appellant argues that Hambitzer "teaches to purposefully form the passivation layer" whereas Masataka teaches to eliminate the passivation layer. Appeal Br. 15. As Appellant recognizes, however, both references "agree that the formation of the passivation layer is the cause of initial capacity degradation." *Id.* at 15; Hambitzer ¶ 70 (noting "a problem which results from the formation of a cover layer on the negative electrode"). Hambitzer provides that the problem may be solved by "transferring the active metal required for forming the cover layer from a

reserve supply to one of the electrodes." *Id.* Appellant further acknowledges that Hambitzer uses "an auxiliary electrode" in addition to an electrode between which "active metal is to be transferred." Appeal Br. 15; Hambitzer ¶ 73. Appellant's argument does not sufficiently explain why a skilled artisan would not have combined the prior art structures based on the known functions of these structures.

Appellant next argues that the Examiner engaged in impermissible hindsight in rejecting the claim. More specifically, Appellant argues that the Examiner's reference to the Specification for the aluminum oxide barrier is such an impermissible hindsight reconstruction. Appeal Br. 16. Appellant argues that "[w]ithout the benefit of Applicant's teachings, the phenomenon of disturbing oxides' reduction of SO_2 is totally hidden." *Id.* We again emphasize that claim 20 recites an apparatus and the Examiner's finding that all the recited structural components are known is undisputed. Appellant's argument that the recited function is only explicitly explained in the Specification does not patentably distinguish the prior art structure for "the patentability of apparatus or composition claims depends on the claimed structure, not on the use or purpose of that structure." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 809 (Fed. Cir. 2002).

Appellant lastly argues that "the inherency theory is in the context of obviousness and the threshold burden for applying inherency to establish obviousness is high." Appeal Br. 17. We again emphasize that where, as here, "the claimed and prior art products are identical or substantially identical . . . the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. Whether the rejection is based on 'inherency' under 35

U.S.C. § 102, on 'prima facie obviousness' under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products." *Best*, 562 F.2d at 1255. Appellant's argument here repeats the arguments previously addressed and is unpersuasive for the reasons provided *supra*. Appeal Br. 18 (arguing that "the Examiner fails to consider all sources of disturbing oxides in the Hambitzer" and that "Masataka does not teach complete coverage of the anode with the aluminum oxide layer").

Claims 49 & 52

Appellant acknowledges that independent claims 49 and 52 do not recite the limitation in claim 20 "wherein the compounds which are able to react with sulfur dioxide are on or in the positive electrode, the negative electrode, and/or the electrolyte." Appeal Br. 12. Unlike claim 20, which requires the compounds to be present in any of the positive electrode, the negative electrode, the electrolyte, or a combination thereof, claims 49 and 52 do not limit the compounds to be present in any particular part of the apparatus. Appellant's argument with regard to disturbing oxygen on the positive electrode in Hambitzer (*id.* at 11) is therefore not commensurate in scope with the claims 49 and 52. The Examiner finds that the structural components recited in apparatus claims 49 and 52 are known in the art and Appellant does not dispute this finding. *Compare id.*, *with* Final Act. 4–5. Appellant does not present evidence to rebut the structural identity and to show that the functions recited in claims 49 and 52 are not present in the prior art structure. Appeal Br. 6–18; *see In re Crish*, 393 F.3d at 1259 ("[W]hen[, as here,] the prior art evidence reasonably allows the PTO to

conclude that a claimed feature is present in the prior art, the evidence 'compels such a conclusion if the applicant produces no evidence or argument to rebut it.'"). We therefore sustain the rejection.

CONCLUSION

The Examiner's rejection is affirmed.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
20, 21, 39–41, 49–60	103(a)	Hambitzer, Masataka	20, 21, 39–41, 49–60	

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