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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RICHARD J. BISKUP and SAM CHANG

Appeal 2019-006444
Application 13/835,760
Technology Center 2800

Before CATHERINE Q. TIMM, N. WHITNEY WILSON, 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 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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 Atieva, Inc. Appeal Br. 1.

CLAIMED SUBJECT MATTER²

Appellant describes the invention as relating to a battery pack monitoring apparatus. Spec. ¶¶ 1–3. Claim 1 is illustrative, and we reproduce it below with emphasis added to certain key recitations:

1. A battery pack monitoring apparatus, comprising:

a voltage measurement system coupled to opposed ends of each of a plurality of blocks of a battery pack and to measure voltages thereof, the plurality of blocks being coupled in series by a plurality of interconnects each having a non-zero interconnect resistance and each being a bus bar, a connecting plate, a cable, a wire or other interconnect structure wherein none of the plurality of interconnects comprises a battery cell; and

the voltage measurement system being further configured to:

derive an internal resistance of each of the plurality of blocks based upon the voltages of the opposed ends of each of the plurality of blocks and based upon a measurement of current of the battery pack; and

derive the interconnect resistance of each of the plurality of interconnects based upon the voltages of the opposed ends of each of the plurality of blocks and based upon the measurement of current.

Appeal Br. 16 (Claims App.) (emphasis added).

REFERENCES

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

² In this Decision, we refer to the Non-Final Office Action dated July 2, 2018 (“Non-Final Act.”), the Appeal Brief filed Feb. 4, 2019 (“Appeal Br.”), the Examiner’s Answer dated May 31, 2019 (“Ans.”).

<u>Name</u>	<u>Reference</u>	<u>Date</u>
Kodama et al. ("Kodama")	US 2004/0238261 A1	Dec. 2, 2004
Ishikawa et al. ("Ishikawa")	US 2010/0301868 A1	Dec. 2, 2010
Sahu et al. ("Sahu")	US 2014/0103877 A1	Apr. 17, 2014
http://hyperphysics.phy-astr.gsu.edu/hbase/electric/resis.html, April 9, 2000 (as archived by the Internet Archive Wayback Machine) ("Hyperphysics").		
Energizer Battery Application Manual, Eveready Carbon Zinc (Zn/MnO ₂) Application Manual, Nov. 6, 2001 ("Energizer").		

REJECTIONS

The Examiner maintains (Ans. 4–5) the following rejections on appeal:

A. Claims 1–20 under 35 U.S.C. § 112 as failing to comply with the written description requirement. Non-Final Act. 13–14.

B. Claims 1–7, 9–13, 17, 18, and 20 under 35 U.S.C. § 103 as obvious over Sahu and Hyperphysics. *Id.* at 14–15.

C. Claim 19 under 35 U.S.C. § 103 as obvious over Sahu, Hyperphysics, and Energizer. *Id.* at 24.

D. Claims 8, 15, and 16 under 35 U.S.C. § 103 as obvious over Sahu, Hyperphysics, and Ishikawa. *Id.* at 25.

E. Claim 14 under 35 U.S.C. § 103 as obvious over Sahu, Hyperphysics, and Kodama. *Id.* at 28.

OPINION

Rejection A, written description. The Examiner rejects claims 1–20 under 35 U.S.C. § 112 as failing to comply with the written description requirement. Non-Final Act. 13–14. Independent claim 1 recites “a plurality of interconnects . . . each being a busbar, a connecting plate, a cable, a wire or other interconnect structure.” Appeal Br. 16 (Claims App.). Independent claims 7 and 13 recite similar language. *Id.* at 18, 20. The Examiner determines that “other interconnect structure” can refer to structures Appellant has not disclosed such as washer assemblies, vacuum tubes, transistors, or thermistors. Non-Final Act. 14; Ans. 6–13.

Pursuant to the written description requirement of 35 U.S.C. § 112, a patent application’s disclosure must “reasonably convey[] to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). The written description inquiry is a question of fact. *Id.*

The question at hand is whether or not Appellant’s written description adequately conveys possession of claim 1’s recited genus “other interconnect structure.” Our reviewing court has set forth two ways disclosure to support a claim’s recited genus can meet the written description requirement:

A genus can be described by disclosing: (1) a representative number of species in that genus; or (2) its “relevant identifying characteristics,” such as “complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between

function and structure, or some combination of such characteristics.”

In re Alonso, 545 F.3d 1015, 1019 (Fed. Cir. 2008) (quoting *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 970 (Fed. Cir. 2002)).

Here, Appellant’s Specification discloses sufficient structure and relevant identifying characteristics to demonstrate Appellant’s possession of the genus “other interconnect structure.” In particular, the Specification recites various examples of interconnect structure including bus bars, connecting plates, cables, or other wire. Appeal Br. 9–10; Spec. ¶ 19. The Specification also discloses that the interconnect structure functions to electrically connect battery pack blocks. Appeal Br. 9–10; Spec. Figs. 1, 2, 4, 5, ¶¶ 3 (“blocks being coupled in series by interconnects each having an interconnect resistance”), 4 (describing interconnects between battery pack terminals). The correlation between the function and structure of electrical interconnects is disclosed and known. We, therefore, do not sustain the Examiner’s rejection.

Rejections B–E, obviousness. The Examiner rejects independent claims 1, 7, and 13 as obvious over Sahu and Hyperphysics. Non-Final Act. 14–15. The Examiner applies various other references to certain dependent claims. *Id.* at 24–28. To resolve the issues before us on appeal, we focus on the Examiner’s findings and determinations that relate to the error Appellant identifies.

Claim 1 recites a voltage measure system configured to “derive an internal resistance of each of the plurality of blocks” and “derive the interconnect resistance of each of the plurality of interconnects.” Appeal Br. 16 (Claims App.). Independent claims 7 and 13 include similar recitations.

Id. at 17–18, 20. The Examiner finds that Sahu does not teach these derivations. Non-Final Act. 15; *see also* Ans. 13 (“the purpose of the Sahu reference was to show that such a configuration of blocks of batteries having interconnects between them is a well know[n] configuration”). The Examiner finds that Hyperphysics teaches these derivations. Non-Final Act. 15. The Examiner determines that it would have been obvious to modify Sahu based on Hyperphysics “because knowing the internal and interconnect resistance would lead to information regarding the service life of the battery and using Ohms law would be no more than predictable use of prior art elements according to their established functions.” *Id.* at 16.

Appellant argues that neither reference teaches the claims’ “derive” recitations. Appeal Br. 11–13. We agree. The Hyperphysics reference merely provides, for example, information on how resistance may be calculated. *See, e.g.*, Hyperphysics, Resistor Combinations, Resistivity Calculation. The Examiner has not established that Hyperphysics teaches or suggests deriving the internal resistance of battery pack blocks and also deriving interconnect resistances.

While we agree with the Examiner that the evidence supports a determination that a person of ordinary skill in the art *could* have made such derivations (Ans. 13–16), the Examiner has not identified adequate evidence to support a determination that a person of ordinary skill in the art would have *had reason* to make such derivations. *See, e.g.*, *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”). The Examiner states a reason to apply Hyperphysics to Sahu to make the

recited derivations, but the Examiner does not provide evidentiary support for the stated rationale. Non-Final Act. 16. The Examiner does not, for example, identify evidence within the prior art indicating some benefit or other reason why a person of skill in the art would reach the claims' "derive" recitations. As such, we agree with Appellant that the Examiner's determination appears to be improperly based on hindsight (Appeal Br. 13), and we do not sustain the Examiner's rejection of claims 1, 7, and 13.

Because the Examiner's treatment of dependent claims does not cure the error addressed above, we also do not sustain the Examiner's rejection of those claims.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-20	112	Written Description		1-20
1-7, 9-13, 17, 18, 20	103	Sahu, Hyperphysics		1-7, 9-13, 17, 18, 20
19	103	Sahu, Hyperphysics, Energizer		19
8, 15, 16	103	Sahu, Hyperphysics, Ishikawa		8, 15, 16
14	103	Sahu, Hyperphysics, Kodama		14
Overall Outcome				1-20

REVERSED