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EXAMINER

WALL, VINCENT

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL A. MASTRO and FRANCIS J. KUB

Appeal 2018-000933
Application 14/200,475
Technology Center 2800

Before MARK NAGUMO, KAREN M. HASTINGS, and
JENNIFER R. GUPTA, *Administrative Patent Judges*.

GUPTA, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellants² appeal under 35 U.S.C. § 134(a) from the Examiner’s final decision rejecting claims 1–5 and 7–12. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ In this Decision, we refer to the Specification filed March 7, 2014 (“Spec.”), the Final Office Action dated August 21, 2015 (“Final Act.”), the Appeal Brief filed July 22, 2016 (“Br.”), and the Examiner’s Answer dated October 18, 2016 (“Ans.”). No Reply Brief was filed.

² Appellants identify the real party in interest as The Government of the United States of America, as represented by the Secretary of the Navy.
Br. 2.

The claims are directed to a light emitting device, such as a light-emitting diode, on a metal foam substrate. Spec. ¶ 2. Claim 1, reproduced below, is illustrative of the claims on appeal.

1. A light emitting device, comprising:
 - an electrically conductive metal foam substrate;
 - one or more light emitting nanowires in contact with the substrate; and
 - a metal or conductive oxide contact layer in contact with each nanowire junction opposite of the substrate.

Br. 6 (App. A).

Claim 11 is also directed to a light emitting device and similarly requires “an electrically conductive metal foam substrate.” *Id.* at 7.

DISCUSSION

The Examiner maintains the rejection of claims 1–5 and 7–12 under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Gilet et al. (US 2013/0140521 A1, published June 6, 2013) (“Gilet”) in view of Oshima et al. (US 2004/0206967 A1, published October 21, 2004) (“Oshima”).
Ans. 2.

After review of Appellants and the Examiner’s opposing positions, we determine that Appellants have not identified reversible error in the Examiner’s rejection. *See generally* Br. 3–5. Accordingly, we affirm the rejection for reasons set forth below, in the Final Action, and in the Examiner’s Answer. We add the following.

We focus on independent claims 1 and 11 in deciding this appeal, and particularly on the recitation “an electrically conductive metal foam substrate.”

It is the Examiner's position that "a metal foam substrate is a porous substrate and vice-versa." Final Act. 8. To support this position, the Examiner points to paragraphs 10, 12, and 23 of Appellants' Specification. Paragraph 23 of Appellants' Specification discloses that, "The substrate can be a metal foam, a porous metal, or a metal nano-fiber mat." The Examiner also relies on Mastro et al., *Nickel Foam as a Substrate for III-Nitride Nanowire Growth*, 1538 Mater. Res. Soc. Symp. Proc. 311–316 (2013) ("Mastro") as further evidence that a metal foam substrate is made by a substantially similar process to that of a porous metal substrate such that the two substrates are functionally equivalent and synonymous with each other. Final Act. 8.

Appellants argue that Gilet does not explicitly teach an electrically conductive metal foam, and Oshima teaches a porous substrate comprising a metallic porous layer. Br. 4. Appellants argue that "[n]one of Gilet, Oshima, or their combination teach a metal foam substrate," as recited in independent claims 1 and 11. *Id.* Appellants also argue that Mastro "does not state or even infer that metal foams and porous metals are functionally equivalent and synonymous with each other." *Id.* at 3.

Appellants' unembellished arguments are not persuasive of reversible error because they fail to demonstrate, based on evidence of record, what a foam is and how a person of ordinary skill in the art would distinguish a metal foam substrate from a porous metal substrate as described in Oshima. *See* 37 C.F.R. § 41.37(c)(1)(iv) ("A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim."); *see also In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (explaining that, even if the examiner had failed to make a prima facie case,

the Board would not have erred in framing the issue as one of reversible error because “it has long been the Board’s practice to require an applicant to identify the alleged error in the examiner’s rejections” (citing *Ex parte Frye*, 94 USPQ2d 1072 (BPAI 2010) (precedential)); *In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (holding that “the Board reasonably interpreted Rule 41.37 to require more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art”).

The Examiner’s finding that Oshima teaches a light emitting diode that includes a metal foam substrate is reasonably supported by a preponderance of the evidence. It is the Examiner’s position that Appellants’ Specification is “devoid of 1) what the customary meaning to one of ordinary skill in the art of the terms metal foam and porous metal are, and 2) the specification does not shed light on said meaning.” Ans. 4. Accordingly, the Examiner looks to extrinsic evidence. *Id.* According to the Examiner, “[a] common sense definition is that a foam has pores, and a metal foam would have metal pores.” *Id.* The Examiner then frames the dispositive question on appeal as whether “a porous metal [must] be a metal foam.” *Id.* The Examiner finds that although Appellants’ Specification does not answer this question, Oshima teaches that “the substrate is formed by epitaxial growth during which heat treatment and an atmosphere of hydrogen[] or hydride[] gas is used to create voids in the substrate.” *Id.* (citing Oshima ¶¶ 40, 74). The Examiner finds that, “[i]t is these voids in the substrate which make the substrate porous[,]” and “[i]t is also these voids which the substrate a foam.” *Id.* The Examiner therefore finds “Oshima teaches that the porous substrate is a metal foam.” *Id.* at 5.

As the Examiner correctly points out, Appellants do not provide sufficient evidence that Oshima's porous metal substrate would not have been considered a metal foam substrate. *See* Ans. 4. Nor do Appellants address or identify harmful error in the Examiner's reasoning for combining Gilet and Oshima. *See* Br. 3–5. We, therefore, are not persuaded of harmful error in the appealed rejection. Accordingly, we sustain the rejection of claims 1–5 and 7–12.

DECISION

The rejection of claims 1–5 and 7–12 under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Gilet in view of Oshima is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED