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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NAGESH R. BASAVANHALLY, CHRISTOPHER D. W.
JONES, and DAVID ANDREW RAMSEY

Appeal 2009-015132
Application 11/444,860
Technology Center 2800

Before MAHSID D. SAADAT, ERIC S. FRAHM, and GREGORY J.
GONSALVES, *Administrative Patent Judges*.

GONSALVES, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the rejection of claims 1-20. (App. Br. 3.) We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

The Invention

Exemplary independent claim 1 follows:

1. An apparatus, comprising:

a substrate having a top surface;

a housing having an inner surface, the top and inner surfaces being located to form a cavity between the housing and the substrate;

a joint between the top surface and the housing;

a micro-electronic structure being exposed to the cavity and being located between the substrate and housing;

metal electrical feedthroughs traversing the joint and being connected to the micro-electronic structure;

a dielectric layer located over the substrate, portions of the electrical feedthroughs being located in trenches in the dielectric layer; and

a capping dielectric layer located on both the electrical feedthroughs and the dielectric layer, and located in-between the dielectric layer and the housing,

wherein the metal electrical feedthroughs have a density along part of the joint of at least 10 per millimeter.

The Examiner rejected claims 6-8, 12, 15, 16, and 20 under 35 U.S.C. § 103(a) as being unpatentable based on Dove (US 6,809,931 B2) and Yasumura (US 7,192,320 B2). (Ans. 3-7.)

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The Examiner rejected claims 1 and 3 under 35 U.S.C. § 103(a) as being unpatentable based on Dove, Yasumura, and Jacobs (US 4,811,082). (Ans. 7-9.)

The Examiner rejected claims 2 and 4 under 35 U.S.C. § 103(a) as being unpatentable based on Dove, Yasumura, Jacobs, and Steddom (US 2004/0080917 A1). (Ans. 10.)

The Examiner rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable based on Dove, Yasumura, Jacobs, Steddom, and Tatum (US 2004/0076205 A1). (Ans. 11.)

The Examiner rejected claims 9, 13, and 17 under 35 U.S.C. § 103(a) as being unpatentable based on Dove, Yasumura, and Jacobs. (Ans. 11-13.)

The Examiner rejected claims 10, 11, 18, and 19 under 35 U.S.C. § 103(a) as being unpatentable based on Dove, Yasumura, and Tatum. (Ans. 14-15.)

The Examiner rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable based on Dove, Yasumura, Jacobs, Tatum and Steddom. (Ans. 15.)

ISSUES

Appellants' responses to the Examiner's positions present the following issues:

1. Did the Examiner establish that it is proper to combine Dove and Yasumura?
2. Did the Examiner establish that the combination of Dove, Yasumura, and Jacobs teaches "wherein the joint, housing, and substrate hermetically seal the cavity," as recited in claim 4?

3. Did the Examiner establish that it is proper to combine Tatum with Dove, Yasumura, Jacobs, and Steddom?

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellants' arguments (Appeal Brief) that the Examiner has erred. We disagree with Appellants' conclusion regarding the obviousness of claims 1-20. We adopt as our own (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken and (2) the reasons set forth by the Examiner in the Examiner's Answer (Ans. 3-19) in response to the Appellants' Appeal Brief. We concur with the conclusion reached by the Examiner. But we highlight and address specific findings and arguments regarding the combination of Dove and Yasumura, the combination of Tatum with Dove, Yasumura, Jacobs and Steddom, and the claimed limitation that "the joint, housing, and substrate hermetically seal the cavity."

Issue 1 – Obviousness Rejection of Claim 1

Appellants contend that claim 1 is not obvious because the Examiner did not show that it is proper to combine Dove and Yasumura. (App. Br. 8-12.) Appellants argue that Dove teaches away from Yasumura's channels because "inadvertent gaps 165 or open spaces between his heat sink 115 and conductive layer 145 (also serving a ground plane) provides an opening through which electromagnetic signals can radiate." (App. Br. 9, *citing* Dove 3:64 – 4:1.) The cited portions of Dove, however, indicate that Dove's apparatus does indeed contain open spaces. (Dove 3:64-4:1.) Moreover, Dove also teaches that these open spaces could be closed by attachment of a

plate to prevent “radiation of the electromagnetic signals through the open space … ” (Dove 4:1-7.) Accordingly, in a similar manner, any additional open spaces that may be introduced into Dove’s apparatus by Yasumura’s channels may also be closed. Thus, Dove does not teach away from the channels or feedthroughs of the claimed invention.

Appellants also contend that “[t]here is no reasonable expectation of success of introducing Yasumura’s electrical interconnections into Dove’s apparatus.” (App. Br. 11-12.) In support of their contention, Appellants provide a description of certain components of Dove’s apparatus and their interconnections. (App. Br. 11-12; Reply Br. 3.) As explained by the Examiner, however, a channel with a conductive lead, as taught by Yasumura could be cut out of Dove’s apparatus. (Ans. 17.) And Appellants did not explain why their description of Dove’s components and interconnections indicates otherwise. (*See* App. Br. 11-12; Reply Br. 3.)

Appellants also contend that the Examiner did not cite any art to support his finding that one would be motivated to include Yasumura’s channels in Dove’s device to reduce its size and stabilize its integrity. (App. Br. 12.) As explained by the Examiner, however, one could integrate the conductors on the surface of Dove’s device into channels within the device (Ans. 17.) It is reasonable to conclude that this integration of the conductors from the surface of the device to channels within the device would at least decrease its size because the conductors would no longer take up space on the device’s surface. And Appellants did not explain why such an integration, that decreases the size of the device, would not be desirable. (*See* App. Br. 12.)

For these reasons and the reasons expressed in the Examiner’s Answer, we sustain the Examiner’s rejections of claim 1.

Issue 2 – Obviousness Rejection of Claim 4

Appellants also contend that Dove does not teach that “the joint, housing, and substrate hermetically seal the cavity.” (App. Br. 13.) As explained by the Examiner, however, Dove teaches the sealing of a metal cover to a cavity using a conductive epoxy. (Ans. 18.) It is reasonable to conclude that such a structure would secure against the entry of water vapor and foreign particles. Accordingly, we find that the Examiner, giving the claim its broadest reasonable meaning consistent with the Specification, *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997), properly reasons that the metal cover and conductive epoxy of Dove hermetically seal a cavity by preventing entry of water vapor and foreign particles. We also note that Appellants did not explain why the structure of Dove would not hermetically seal the cavity. (See App. Br. 13-14.) .

Issue 3 – Obviousness Rejection of Claim 5

Appellants also argue that the Examiner “does not present reasoning with rational underpinnings to explain why one of ordinary skill in the art would replace, or add to, Dove’s integrated circuit, an array of Tatum’s vertical cavity surface emitting lasers.” (App. Br. 14-15.) To support their argument, Appellants provide a short description of Dove’s apparatus. (App. Br. 15.) But coupling Tatum’s lasers to Dove’s apparatus would at least add to Dove’s features the ability to communicate with optical devices. (See e.g., Ans. 18.) And Appellants have not explained why their description of Dove would dissuade one of ordinary skill in the art from

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adding lasers to Dove's apparatus. (*See* App. Br. 15.) We will also sustain the Examiner's rejections of the remaining claims (*i.e.*, claims 2-3, and 6-20) because Appellants did not set forth any different and separate patentability for those claims. (*See* App. Br. 12-19.)

For these reasons and the reasons expressed in the Examiner's Answer, we sustain the Examiner's obviousness rejection of independent claims 1 and 13 as well as the claims that depend from claims 1 and 13 (*i.e.*, claims 2-12, 14-16, and 18-24) because Appellants did not set forth any separate patentability arguments for those claims. (*See* App. Br. 9-10.)

Appellants also present arguments for the first time in the Reply Brief that "a person of ordinary skill in the art would have no motivation to combine Challenger with Speakman." (Reply Br. 7-8.) Because Appellants could have raised these arguments in the Appeal Brief to rebut the rejections made in the Final Office Action and did not do so, they waived these arguments, and therefore, we will not consider them. *Ex parte Borden*, 93 USPQ2d 1473, 1474 (BPAI 2010) (informative decision) ("[T]he reply brief [is not] an opportunity to make arguments that could have been made in the principal brief on appeal to rebut the Examiner's rejections, but were not.").

DECISION

We affirm the Examiner's decision rejecting claims 1-20 as obvious.

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

ELD