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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* LEE HAN MENG@ EUGENE LEE,  
ANIS FAUZI BIN ABDUL AZIZ, SUEANN LIM WEI FEN

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Appeal 2019-005606  
Application 15/287,561  
Technology Center 2800

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Before ALLEN R. MacDONALD, JAMES B. ARPIN, and  
ADAM J. PYONIN, *Administrative Patent Judges*.

MacDONALD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 8–14. Final Act. 8. Claims 1–7 have been withdrawn. Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

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<sup>1</sup> Appellant identifies the real party in interest as Texas Instruments Incorporated. Appeal Br. 3.

CLAIMED SUBJECT MATTER

Claims 8–11 are illustrative of the claimed subject matter (emphasis, formatting, and bracketed material added):

8. A packaged electronic system comprising:

[A.] a vertical stack including

[i.] a second sub-leadframe aligned over and insulated from a first sub-leadframe,

[ii.] the first sub-leadframe having a pad suitable as substrate of the system,

[iii.] the second sub-leadframe having leads with narrow and wide portions,

[iv.] the wide portions having first recesses facing the pad and second recesses facing away from the pad;

[B.] a semiconductor chip disposed between the first recesses and the pad;

[C.] discrete components attached to the second recesses, topping the second sub-leadframe; and

[D.] the vertical stack including the first sub-leadframe, the chip, the second sub-leadframe, and the components encapsulated in a packaging compound, leaving the leads un-encapsulated, all portions of the first sub-leadframe encapsulated within the packaging compound belonging to a first plane plus all portions of the second sub-leadframe encapsulated within the packaging compound belonging to a second plane.

9. The system of Claim 8 wherein the discrete components include passive components such as capacitors, resistors, and inductance.

10. The system of Claim 8 wherein the insulation between the first and second sub-leadframe derives from packaging compound channeled between the first and second sub-leadframes during the encapsulation process.
11. A packaged electronic system comprising:
  - [A.] a vertical stack including
    - [i.] a second sub-leadframe aligned over and insulated from a first sub-leadframe,
    - [ii.] the first sub-leadframe having a pad suitable as substrate of the system,
      - [a.] *the pad further including through-holes extending into elongated grooves across a first surface,*
      - [b.] *the through-holes and the grooves suitable for channeling a viscous encapsulation compound,* and
    - [iii.] the second sub-leadframe having leads with narrow and wide portions,
    - [iv.] the wide portions having first recesses facing the pad, and second recesses facing away from the pad;
  - [B.] a semiconductor chip disposed between the first recesses and the pad;
  - [C.] discrete components attached to the second recesses, topping the second sub-leadframe; and
  - [D.] the vertical stack including the first sub-leadframe, the chip, the second sub-leadframe, and the components encapsulated in a packaging compound, leaving the leads un-encapsulated.

#### REFERENCE

The Examiner relies on the following reference:

Name	Reference	Date
Saye	US 2013/0249051 A1	Sept. 26, 2013

#### REJECTION

The Examiner rejects claims 8–13 under 35 U.S.C. 102(a)(2) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over, Saye.<sup>2</sup> Final Act. 8–16.

As to claim 8, Appellant separately argues claim 8. We discuss below that separate argument.

As to claim 9, to the extent Appellant discusses claim 9, Appellant merely recites the particular language of claim 9 and asserts the cited prior art reference does not disclose the claim limitations. Without more, this fails to constitute an argument on the merits. *See* 37 C.F.R. § 41.37(c)(1)(iv); *In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011). Thus, Appellant does not present separate arguments for claim 9. Therefore, the rejections of this claim turn on our decision as to claim 8. Except for our ultimate decision, we do not discuss the claim 9 further herein.

As to claim 10, the Appeal Brief paragraph bridging pages 10–11 similarly recites the particular language of claim 10 and asserts the cited prior art reference does not disclose the claim limitations. Again, without more, this fails to constitute an argument on the merits. As to the argument with respect to claim 10 in the first full paragraph of Appeal Brief page 11, we discuss below that separate argument.

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<sup>2</sup> For convenience, we refer to this rejection as being under §§ 102/103.

As to claims 11–13, we select claim 11 as the representative claim for this rejection because Appellant’s contentions discussed herein as to claim 11 are determinative as to the rejection of claims 11–13.

#### OPINION

We have reviewed the Examiner’s rejections in light of Appellant’s Appeal Brief arguments that the Examiner has erred.

##### A.1.

Appellant raises the following argument in contending that the Examiner erred in rejecting claim 8 under 35 U.S.C. §§ 102/103.

The Appellant respectfully traverses the assertion in the Office Action (pages 2, 3, and 5) that [Saye’s] leadframes 101 and 110 are sub-leadframes. The Applicant submits that the Specification defines the “two sub-leadframes” as belonging to a single leadframe 100 (paragraphs 0022; FIGS. 1-2). In addition, the Specification teaches that the “first sub-leadframe 110 is connected to a second sub-leadframe by a couple of links 150 ... suitable for easy bending” (paragraph 0023; FIG. 1) (See also paragraph 0028 and FIG. 2.) Saye instead teaches that leadframes 101 and 110 are separate leadframes.

Appeal Br. 8.

In the Answer, the Examiner responds:

The appellant refers to Para [0022] of the specification to argue that the claim “first sub-leadframe” and “second sub-lead frame” are different from Saye’s first and second sub-leadframes. The Examiner would like to point out that appellant misinterprets the principle that claims are interpreted in the light of the specification. Although these elements (first sub-leadframe and second sub-leadframe) are found as examples or embodiments in the specification, they were not claimed explicitly. Nor were the words that are used in the claims defined in the specification to require these limitations. A reading of the specification provides no evidence to indicate that these

limitations must be imported into the claims to give meaning to disputed terms. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ 2d 1064. The appellant further highlights details of Saye's leadframe structure, which seems irrelevant in view of the broadness of claim features. The claim recites "a vertical stack including a second sub-leadframe aligned over and insulated from a first sub-leadframe", which remains broad and Saye's associated features (sub-lead frames 101 & 110) read on said limitations.

Ans. 7–8.

We are unpersuaded by Appellant's argument. We agree with the Examiner that the argued limitations are not found in the claim, and will not be read from the Specification into the claim. That is, the argument is not commensurate with the scope of the claim language. The steps of claim 8 are not explicitly so limited, nor does Appellant explain how claim 8 would be inherently so limited, nor do we find alternative language that would similarly mandate the argued limitation. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) ("Many of appellant's arguments fail from the outset because . . . they are not based on limitations appearing in the claims.").

A.2.

Also, Appellant raises the following argument in contending that the Examiner erred in rejecting claim 8 under 35 U.S.C. §§ 102/103.

The Appellant also respectfully traverses the assertion in the Office Action (page 5) that "Saye teaches in Para [0033] wherein the leads 105 are left unencapsulated". The Appellant submits that Saye teaches that elements 105 are instead "lead ends" (paragraph 0033) of "first leads 102" (paragraph 0034; FIGS. 1-2). Therefore elements 105 of Saye are not leads.

Appeal Br. 9.

In the Answer, the Examiner responds:

The appellant's argument that un-encapsulated lead ends 105 (Saye's Fig. 1) are not leads is not persuasive. The Examiner maintains that lead ends 105 are part of the lead structure, and as such they are leads. Because the packaging material 140 does not cover lead portions/ends 105, therefore, leads 105 are un-encapsulated for external electrical connections.

Ans. 8.

We are unpersuaded by Appellant's argument. Essentially, Appellant's argument is that claim 8 requires that more than a lead end is "un-encapsulated." We disagree. As Appellant uses the term "lead" in the disclosure, it may refer to the entire lead or a sub-portion thereof. The Examiner's reading of the "lead" limitation is consistent with the embodiments of the Specification, paragraphs 34–35 ("the narrow portions of the leads are left un-encapsulated" and "the un-encapsulated leads are formed") and Figures 6, 7A, and 7B, where the un-encapsulated lead discussed is only an end of a larger overall lead.

B.

Appellant also raises the following arguments in contending that the Examiner erred in rejecting claim 10 under 35 U.S.C. §§ 102/103.

The Appellant respectfully traverses the assertion in the Office Action (page 3) that "Saye teaches ... packaging compound channeled between the first and second sub-leadframes during the encapsulation process (Fig. 1)." The Applicant submits that Saye teaches the existence of "a package 140 made of polymeric material" (paragraph 0032), but Saye ***does not teach any*** encapsulation process.

Appeal Br. 11 (emphasis added).

We are unpersuaded by Appellant’s argument. Contrary to Appellant’s argument, we determine that Saye does teach an encapsulation process. Saye explains:

*In the next process step, the 3-dimensional network is encapsulated in a packaging compound.* A preferred method is a transfer molding technology using an epoxy-based molding compound filled with inorganic filler particles.

Saye ¶ 40 (emphasis added).

C.

Appellant raises the following argument in contending that the Examiner erred in rejecting claim 11 under 35 U.S.C. §§ 102/103.

[T]he Appellant respectfully traverses the assertion in the Office Action (page 4) that Saye teaches that the pads 113 have “through-holes and the grooves suitable for channeling a viscous encapsulation compound”. The Appellant submits that *Saye does not teach* that the cited “second pads 113” has *through-holes or extended grooves* (paragraph 0036; FIG 4), as defined in the Specification and required by Claim 11. More specifically, the Appellant submits that Saye never teaches “through-holes and grooves suitable for channeling a viscous encapsulation compound” (paragraph 0040), as required by Claim 11.

Appeal Br. 14 (emphasis added).

As articulated by the Federal Circuit, the Examiner’s burden of proving non-patentability is by a preponderance of the evidence. *See In re Caveney*, 761 F.2d 671, 674 (Fed. Cir. 1985) (“preponderance of the evidence is the standard that must be met by the PTO in making rejections”). “A rejection based on section 103 clearly must rest on a factual basis[.]” *In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967). “The Patent Office has the initial duty of supplying the factual basis for its rejection. It may not . . . resort to speculation, unfounded assumptions or hindsight reconstruction to

supply deficiencies in its factual basis.” *Id.* We conclude the Examiner’s analysis fails to meet this standard because the rejection does not adequately explain the Examiner’s findings of fact.

Particularly, we agree with Appellant that the language of claim 11 requires “through-holes and grooves suitable for channeling a viscous encapsulation compound,” and we disagree with the Examiner’s reasoning that Saye alone without more is sufficient to show the argued claim limitation. Consistent with Appellant’s arguments, we conclude that there is insufficient articulated reasoning to support the Examiner’s finding that Saye discloses the argued claim limitation.

Therefore, we conclude that there is insufficient articulated reasoning to support the Examiner’s final conclusion that claim 11 is anticipated or would have been obvious to one of ordinary skill in the art at the time of Appellant’s invention.

#### CONCLUSION

The Examiner has not erred in rejecting claims 8–10 as unpatentable under 35 U.S.C. §§ 102/103.

Appellant has established that the Examiner erred in rejecting claims 11–13 as unpatentable under 35 U.S.C. §§ 102/103.

The Examiner's rejection of claims 8–10 as unpatentable under 35 U.S.C. §§ 102/103 is **affirmed**.

The Examiner's rejection of claims 11–13 as unpatentable under 35 U.S.C. §§ 102/103 is **reversed**.

#### DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>References/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
8–13	102/103	Saye	8–10	11–13

#### 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 IN PART