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EXAMINER	
DOAN, THERESA T	

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The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SATOSHI NAKAMURA

Appeal 2009-011749
Application 10/240,068
Technology Center 2800

Before THOMAS S. HAHN, ELENI MANTIS MERCADER, and CARL W. WHITEHEAD, JR., *Administrative Patent Judges*.

MANTIS MERCADER, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from the final rejection of claims 1, 4-7, and 15-18. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

INVENTION

Appellant's Figure 3 is depicted below:

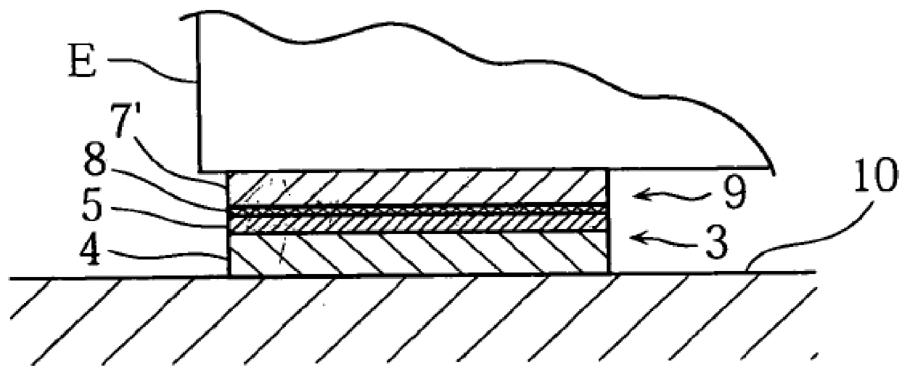

Figure 3 depicts Appellant's claimed invention which is directed to a mounting structure for the electronic device E. An electronic device E is mounted to a conductive mount portion on a substrate (10) via a connection layer (9), which includes solder. The solder utilized for the connection layer (9) is Pb-free solder containing at least Sn. The connection layer (9) includes a diffusion-preventing layer (8) formed of an alloy of Ni and Sn for preventing the Cu contained in the base layer (4) from diffusing into the solder. *See* Spec. 11:8-15, 13:13-21, 15:19-24 *see also* Fig. 13; Spec. 8:5-11.

Claim 1, reproduced below, is representative of the subject matter on appeal:

1. An electronic device mounting structure in which an electronic device is mounted to a conductive mount portion on a substrate via a connection layer formed utilizing solder;

the conductive mount portion including a base layer and a first plating layer formed on the base layer in advance, the base layer containing Cu, the first plating layer containing Ni;

the solder utilized for the connection layer being Pb-free solder containing at least Sn;

the connection layer including a diffusion-preventing layer formed of an alloy of Ni and Sn for preventing the Cu contained in the base layer from diffusing into the solder.

THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

Takashi	JP 11-245083	Sep. 14, 1999
Tsukada	EP 1 009 202 A1	June 14, 2000

The following rejection is before us for review:

The Examiner rejected claims 1, 4-7, and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over Tsukada in view of Takashi.

ISSUE

The pivotal issue is whether Tsukada's connection layer 12 formed of an alloy of Ni and Sn inherently constitutes "a diffusion-preventing layer . . . for preventing the Cu contained in the base layer from diffusing into the solder" as recited in independent claim 1.

FINDINGS OF FACT

We adopt all of the findings of fact as recited in the Examiner's Answer and we emphasize the following facts supported by a preponderance of the evidence:

1. Appellant's Specification describes forming layer 8 by fusing Sn from solder 7 and fusing Ni from plating layer 5 (Spec. 14:15-17).
2. Tsukada teaches forming layer 12 by fusing Sn from solder 4 and fusing Ni from layer 10 (¶ [0004], ll. 25-27).
3. Tsukada's Ni-Sn layer 12 overlays the copper base layer 9 (*see* Fig. 1; ¶ [0003], l. 19).
4. Takashi teaches that solder can be composed of SnPb or SnAg (Abstract).

PRINCIPLES OF LAW

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977).

"[W]hen the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990).

The prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *Best*, 562 F.2d at 1255; *see also* MPEP § 2112.01 I.

"[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco, Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999). Thus, the claiming of a new use, new function, or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *Best*, 562 F.2d at 1254.

ANALYSIS

Appellant argues (Br. 3-4) that there is no recognition in Tsukada that an alloy formed of Ni and Sn would be beneficial in preventing the Cu contained in the base layer from diffusing into a lead-free solder. Appellant asserts (Br. 4) that there would have been no reasonable basis for one of ordinary skill to conclude that the Pb-free solder of Takashi could have been used with Tsukada without the deleterious effects resulting from diffusion of Cu from the base layer into the Pb-free solder. Appellant further argues (Br. 4) that the failure of Tsukada to mention the Cu-diffusion prevention property precludes any reasonable expectation of achieving the results exhibited by the present invention, and thus, the unexpected results enjoyed by the present invention overcome any prima facie case of obviousness.

We are not persuaded by Appellant's arguments. We are in complete agreement with the Examiner's reasoned analysis and application of the prior art. Accordingly we will adopt the Examiner's reasoning as our own in sustaining the rejections of record, and we present the following primarily for emphasis.

Appellant's Specification describes forming layer 8 by fusing Sn from solder 7 and fusing Ni from plating layer 5 (FF 1). Tsukada teaches forming layer 12 by fusing Sn from solder 4 and fusing Ni from layer 10 (FF 2). Thus, a prima facie case (a Ni-Sn layer) has been established. *Best*, 562 F.2d at 1255.

The Examiner reasoned (Ans. 6-7), and we agree, that Tsukada's Ni-Sn layer 12 would necessarily possess the same property, as Appellant's Ni-Sn layer 8, of preventing Cu from the base layer 9 (FF 3) from diffusing into the solder 4, because the two Ni-Sn layers are identical or substantially identical, and are produced by identical or substantially identical processes. *Best*, 562 F.2d at 1255.

On the record before us, Appellant has not presented any evidence to show that the prior art product does not necessarily possess the characteristics of the claimed product. *Best*, 562 F.2d at 1255. Thus, the Examiner has established that Tsukada's Ni-Sn layer possesses the characteristic of preventing diffusion of Cu from the base layer into the solder.

With respect to Appellant's argument (Br. 3-4) that there is no recognition in Tsukada that an alloy formed of Ni and Sn would be beneficial in preventing the Cu contained in the base layer from diffusing into a lead-free solder, we note that the discovery of a previously unappreciated property of a prior art composition does not render the old composition patentably new to the discoverer. *Atlas*, 190 F.3d at 1347.

Appellant also argues (Br. 5) that *Spada*, cited by the Examiner for the principle that if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present, is

inapplicable in obviousness rejections. Appellant explains (Br. 5) that this is because the inherent property, which would be unknown before making the combination, is incapable of providing any motivation for making the combination.

We note that the Examiner did not propose the inherent property as a motivation in combining Tsukada and Takashi. The Examiner (Ans. 8) only introduced Takashi for the teaching that it is well known in the art to substitute AgSn solder (Pb free solder) for PbSn solder because they are equivalent solder materials (FF 4).

Accordingly, for the reasons articulated *supra*, we will affirm the Examiner's rejection of independent claim 1, and for similar reasons, the rejections of dependent claims 4-7 and 15-18 as no other arguments of patentability were presented with respect to these claims.

CONCLUSION

Tsukada's connection layer 12 formed of an alloy of Ni and Sn inherently constitutes "a diffusion-preventing layer . . . for preventing the Cu contained in the base layer from diffusing into the solder."

ORDER

The decision of the Examiner to reject claims 1, 4-7, and 15-18 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)(1)(v).

AFFIRMED

babc

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