

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD L. MAHLE, JOHN W. ORCUTT
and RANDALL V. TEKAVEC

Appeal No. 2001-0687
Application No. 09/080,070

ON BRIEF

Before KRASS, JERRY SMITH and BARRY, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1, 3, 5, 7, 9, 11 and 13-18, all of the pending claims.

The invention is directed to a method of making a ball grid array package wherein a palladium coating is placed over the leads and the balls after the balls are secured to the leads.

Independent claim 1 is reproduced as follows:

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1. A method of making a ball grid array package comprising the steps of:

(a) providing a partially fabricated package having a semiconductor die having die pads, leads and balls secured to predetermined ones of said leads;

(b) then coating said leads and said balls with palladium;
and

(c) then encapsulating said die, leads and at least a portion of each of said balls.

The examiner relies on the following references:

Cosati et al. (Cosati)	5,244,838	Sep. 14, 1993
Tsuji et al. (Tsuji)	5,293,072	Mar. 8, 1994
Hembree	5,783,461	Jul. 21, 1998
		(Filed Oct. 3, 1996)
Manteghi	5,847,455	Dec. 8, 1998
		(Filed Nov. 7, 1995)

Claims 1, 3, 5, 7, 9, 11 and 13-18 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner cites Tsuji, Hembree and Manteghi with regard to claims 1, 3, 13 and 14, adding Casati with regard to claims 5, 7, 9, 11 and 15-18.

Reference is made to the briefs and answer for the respective positions of appellants and the examiner.

OPINION

Turning our attention, first, to the independent claim, the examiner asserts that Tsuji teaches a ball grid array package having die pads, leads and balls which are encapsulated. Tsuji teaches the coating of the balls, at column 5, lines 24-25, even

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though the coating material is not specified as being palladium. The examiner then relies on Hembree for a teaching of coating balls of a ball grid array with palladium after securing the balls to the lead frame, at column 5, lines 20-25. The examiner cites Manteghi, at column 3, lines 45-48, for the teaching of applying a palladium coating to the leads. The examiner combines these teachings to conclude that the instant claimed subject matter would have been obvious within the meaning of 35 U.S.C. § 103 since it would have been obvious "to coat the balls and leads as taught by the process of Tsuji . . . with palladium as taught by Manteghi and Hembree in order to improve the conductivity" (answer, page 3).

It does appear to us that the skilled artisan, having the teachings of (1) securing the balls to the leads and then coating the balls with palladium and (2) coating the leads with palladium, would clearly have been led to coat both the leads and the balls with palladium after securing the balls to the package for the advantages taught by the references.

Appellants argue (reply brief, pages 1 and 2) that the references do not suggest that after the balls are secured to the leads, both the balls and the leads are coated with palladium, "this being a single step," and that while Hembree is the only

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reference teaching the coating of the balls after attachment to the package, there is no teaching in any of the references relating "to the coating of the balls and the leads after securing the balls to the leads. In other words, the claims require securing of the balls to the leads and then coating of the balls and the leads in a single step."

While the simultaneous coating of the leads and the balls after the balls are secured to the package may not be taught by the references, contrary to what appellants' argument may indicate, instant claim 1 does not require the coating of the balls and the leads "in a single step." Rather, the claim requires, after providing the partially fabricated package, "then coating said leads and said balls with palladium." While this claim language certainly requires the coating of both the leads and the balls with a palladium coating, it does not require that the coating be performed in a single step. Therefore, we need not address the obviousness of coating these elements in a single step because such is not a limitation of the claim and appellants' argument is not commensurate in scope with the claim language.

Since the applied references, in combination, clearly suggest coating the leads and the balls, after securing the balls

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to the package, with palladium, the instant claim language is met.

Accordingly, we will sustain the rejection of claim 1, as well as claims 3, 13 and 14, dependent thereon and not separately argued, under 35 U.S.C. § 103.

We will also sustain the rejection of claims 5, 7, 9, 11 and 15-18 under 35 U.S.C. § 103. Because of additional limitations appearing in these claims, the examiner further applied Casati to show the obviousness of employing mold members to support an object being encapsulated. The examiner reasonably explained, at pages 4 and 5 of the answer, why the combination of references is believed to make the instant claimed subject unpatentable within the meaning of 35 U.S.C. § 103.

In response, appellants merely set forth, at pages 5 and 6 of the principal brief, a recitation of elements appearing in these claims and a general allegation that "[n]o such combination of steps either alone or in combination with the claims from which they depend are taught or suggested by [the references]." Thus, appellants do not set forth any arguments specifically pointing to errors in the examiner's rationale for the rejection.

Since appellants have not convinced us of any error in the examiner's rejection, by specifically indicating where the

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examiner's rationale is mistaken or how the examiner has misconstrued the teachings of the references, we will sustain the rejection of dependent claims 5, 7, 9, 11 and 15-18 under 35 U.S.C. § 103.

The examiner's decision rejecting claims 1, 3, 5, 7, 9, 11 and 13-18 under 35 U.S.C. § 103 is affirmed.

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

AFFIRMED

ERROL A. KRASS)	
Administrative Patent Judge)	
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JERRY SMITH)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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LANCE LEONARD BARRY)	
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