

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.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. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte TONY CHIU and ROBERT ALVEREZ<sup>1</sup>

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Appeal No. 1998-0372  
Application No. 08/533,585

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ON BRIEF

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Before KRASS, FLEMING, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of Claims 21 and 23-28, all the claims remaining in the application.

We affirm-in-part.

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<sup>1</sup> We note that the USPTO database and certain papers filed by appellants spell the co-inventor's name as "Alvarez." However, the original declaration (filed August 30, 1994) spells the name as "Alvarez." The correct spelling should be confirmed before allowing the application to pass to issue.

BACKGROUND

The disclosed invention pertains to the attachment of a heat sink and a lead frame for use in packaged semiconductor devices. Claim 28 is reproduced below.

28. A device, comprising:

a heat spreader having a first main surface, a second main surface, corners and spacing pads encompassing said corners; and

a lead frame having a void therein and lead fingers and support leads extending from a periphery of said lead frame toward said void, said support leads being attached to said spacing pads.

The examiner relies on the following references:

Dennis	4,766,478	Aug. 23, 1988
Asada et al. (Asada)	5,091,341	Feb. 25, 1992

Japanese Laid-Open Patent Application 2-129951, May 18, 1990 (Okada)<sup>2</sup>

Claims 26-28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Asada.

Claims 21 and 23-25 stand rejected under 35 U.S.C. § 103 as being unpatentable over Asada, Okada, and Dennis.

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<sup>2</sup>The USPTO translation branch has provided an English translation (dated April, 2000) of the Japanese document. A copy of the translation is attached to this decision.

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We refer to the Final Rejection (Paper No. 13) and the Answer (Paper No. 21) for a statement of the examiner's position and to the Brief (Paper No. 20) for appellants' position<sup>3</sup> with respect to the claims which stand rejected.

### OPINION

#### Claims 26-28

The examiner concludes that the subject matter of Claims 26 through 28 is rendered obvious by the disclosure of Asada. The conclusion is based in part on the finding that the reference inherently suggests combining two different disclosed embodiments. The suggestion is that the embodiment of Figures 1A through 1D be modified by the teachings of Figures 5A through 5D so as to "allow the bond wires to be as short as possible, while allowing the heat sink to be as large as possible." (Final Rejection, page 4; Answer, page 4.)

Appellants do not address the examiner's finding. Instead, in defense of Claim 26, appellants point out deficiencies in the individual embodiments -- the embodiments with heat sink 3 in Figures 1A through 1D, and heat sink 23 in Figures 5A through 5D -- which is not responsive to the rejection made. (See Brief, page 11). The rejection is not for anticipation, but is based on what Asada would have suggested to the artisan.

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<sup>3</sup> We have not considered an earlier brief (Paper No. 18) that was held to lack compliance under 37 CFR § 1.192.

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Appellants also, in defense of Claim 26, allege that “the Asada reference teaches a device having a heat sink 3 with tie bar support portions 3a that are in a different plane than heat sink 3 (see Fig. 1A).” (Id.) Claim 26 recites “said corners [of the heat spreader] having extensions extending outward from said heat spreader along the same plane as said first main surface of said heat spreader....”

Unfortunately, the Answer appears not to address the language of instant Claim 26, as modified by the amendment filed February 5, 1997, after the Final Rejection, which was entered upon filing of the instant appeal. The Answer quotes Claim 26 as it stood before last amended -- “extensions extending outward from said heat spreader along the same plane as said heat spreader.” (Answer, page 4, emphasis omitted.) However, the examiner’s interpretation of Claim 26 as it stood before last amended remains apropos, and the interpretation has not been refuted -- nor even addressed -- by appellants. “[I]t is readily apparent that the plane of the bottom surface of the extensions is the same plane as the top surface of the heat spreader.” (Final Rejection, page 4; Answer, page 5.) Claim 26 as broadly drafted fails to distinguish over the “first main surface” of heat sink 3, upon which chip 1 is placed, in relation to the bottom surface of tie bar support portion 3a. The structures share a common plane, as shown in Figure 1A of Asada.

Appellants argue that the limitations of Claim 27 are not taught or suggested by Asada. However, the examiner identifies a relevant teaching in the reference (see Answer, page 12), and provides reasoning with regard to how the teachings of Asada

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would have led the artisan to the claimed subject matter. Appellants have elected not to respond to the examiner's additional findings with respect to the subject matter of Claim 27. Since the examiner sets out a reasonable prima facie case for unpatentability which stands unrebutted, we sustain the rejection of Claim 27.<sup>4</sup>

Appellants submit arguments for independent Claim 28 on page 12 of the Brief. Some of the arguments are clearly not commensurate with the claim -- such as the tie bar support portions 3a allegedly being "in a different plane than heat sink 3," and leads allegedly failing to "overlap" the first main surface of the heat sink. The remainder of the arguments in defense of Claim 28, at best, point to alleged deficiencies in individual embodiments disclosed by Asada.

Since appellants have not shown the rejection of any of Claims 26 through 28 to be in error, we sustain the rejection of those claims.

#### Claims 21, 23-25

We reach the opposite result with respect to the rejection of Claims 21 and 23 through 25. As appellants argue on pages 6 and 7 of the Brief, independent Claim 21 requires, inter alia, that "each coupling enclosing an end of said support lead not connected to said lead frame and at least a portion of one of said extensions."

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<sup>4</sup> We note that the Claim 27 recitation "said first main surface of said insulating layer" lacks proper antecedent in the claims.

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The applied references fail to provide sufficient evidence that the subject matter as a whole of Claim 21 would have been obvious to the artisan. For “couplings,” the rejection turns to Okada, which “teaches the use of a rivet-like structure which encloses a portion of the surface areas of the bound elements,” and Dennis, which “teaches that a clip like connector can be used in place of the prior art techniques of bonding and riveting.” (Answer, page 5.) Although there is much discussion concerning the proper interpretation of “couplings,” and whether “clips” are known equivalents for rivets or welds, the rejection and references as applied do not speak to all the requirements of Claim 21. The inquiry into obviousness of the claim does not turn on what prior art structure may or may not reasonably be referred to as a “coupling.” The claim requires that “each support lead [have] one and only one end connected to said lead frame,” and “each coupling enclosing an end of said support lead not connected to said lead frame and at least a portion of one of said extensions.”

We have considered all of the examiner’s points in the Answer, but the thrust of the examiner’s position appears directed to showing that it was within the artisan’s skill to have fashioned a device within the purview of Claim 21. The mere fact that the prior art could be modified to result in the claimed invention would not have made the modification obvious unless the prior art suggested the desirability of the modification. See, e.g., In re Laskowski, 871 F.2d 115, 117, 10 USPQ2d 1397, 1398 (Fed. Cir. 1989).

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The allocation of burdens requires that the USPTO produce the factual basis for its rejection of an application under 35 U.S.C. § § 102 and 103. In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984)(citing In re Warner, 379 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967)). The one who bears the initial burden of presenting a prima facie case of unpatentability is the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). We do not consider a prima facie case of obviousness to have been established with respect to the subject matter as a whole of Claim 21.

Since Claims 23 through 25 contain at least the limitations of base Claim 21, we do not sustain the rejection of Claims 21 and 23 through 25.

#### CONCLUSION

The rejection of Claims 21 and 23-25 is reversed.

The rejection of Claims 26-28 is affirmed.

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

AFFIRMED-IN-PART

ERROL A. KRASS	)	
Administrative Patent Judge	)	
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	)	
	)	BOARD OF PATENT
MICHAEL R. FLEMING	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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	)	
HOWARD B. BLANKENSHIP	)	
Administrative Patent Judge	)	

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