

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL BARROW

Appeal No. 2000-0708
Application No. 08/873,973

ON BRIEF

Before RUGGIERO, GROSS, and BLANKENSHIP, Administrative Patent Judges.

GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 18, which are all of the claims pending in this application.

Appellant's invention relates to a printed circuit board for a ball grid array integrated circuit package. In particular, the printed circuit board includes a conductive plane and a solder mask that covers the conductive plane and that has openings exposing contact pad areas of the conductive plane. Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A printed circuit board for a ball grid array integrated circuit package, comprising:

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a substrate which has a first outer conductive plane on a top surface of said substrate; and

a solder mask that covers said first outer conductive plane and which has a plurality of openings that expose a plurality of contact pad areas of said first outer conductive plane.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Lin et al. (Lin)	5,216,278	Jun. 01, 1993
Frankeny et al. (Frankeny)	5,691,041	Nov. 25, 1997
		(filed Sep. 29, 1995)

Claims 1 through 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Frankeny in view of Lin.

Reference is made to the Examiner's Answer (Paper No. 18, mailed August 26, 1999) for the examiner's complete reasoning in support of the rejection, and to appellant's Brief (Paper No. 17, filed June 4, 1999) for appellant's arguments thereagainst.

OPINION

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellant and the examiner. As a consequence of our review, we will reverse the obviousness rejection of claims 1 through 18.

Each of independent claims 1, 9, and 17 recites "a first outer conductive plane" on a top surface of the substrate of the printed circuit board. Appellant's sole argument regarding claims 1, 9, 17, and dependent claims 3 through 7, 11, 13, and 18 (Brief, pages 7-8) is that Frankeny, Lin, and the combination

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thereof fail to teach the claimed first outer conductive plane. The examiner counters (Answer, page 4) by restating a portion of the rejection, "Frankeny clearly discloses a printed circuit board and an electronic assembly having all of the features claimed except for the use of solder mask." The examiner fails to provide any specific citations in either Frankeny or Lin showing the claimed conductive plane, and yet concludes that the claimed element is "clearly disclose[d]" by Frankeny. Such an answer, merely restating the rejection with no evidence to support the statement, is an inadequate response to appellant's argument.

We find no conductive plane in Frankeny. As indicated by appellant (Brief, page 8), both Frankeny and Lin disclose "individual discrete surface pads," not a conductive plane. Specifically, Frankeny shows in Figures 2, 3, and 7, an insulative body 4 with dendrite plated vias/pads 6 which are all isolated from one another, and Lin discloses (column 4, lines 23-27, and column 4, line 55-column 5, line 23) connecting the electronic component 18 to a land arrangement, land layout, or land configuration on the surface of the PCB. Nowhere does Frankeny or Lin teach or suggest forming a conductive plane on the surface of the printed circuit board. Therefore, the examiner has failed to establish a *prima facie* case of

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obviousness, and we cannot sustain the obviousness rejection of claims 1, 3 through 7, 9, 11, 13, 17, and 18.

Claims 2, 8, 10, 12, and 14 through 16 depend from claims 1 and 9 and are, therefore, non-obvious over Frankeny in view of Lin for the same reasons discussed *supra*. However, claims 2, 8, 10, 12, and 14 through 16 further recite that the substrate includes an adhesion opening that is covered by the solder mask. Appellant (Brief, page 8) argues that the proposed combination of Frankeny and Lin further lacks this additional limitation. Again the examiner fails to respond with any specific teachings in the references. Instead, the examiner clings to language in appellant's explanation of the importance of such adhesion openings, stating that "the features upon which appellant relies ... are not recited in the rejected claim(s)." As the examiner has directed us to no specific disclosure of adhesion openings, and we find none of our own accord, we cannot sustain the obviousness rejection of claims 2, 8, 10, 12, and 14 through 16, as the references lack the extra claim limitation of adhesion openings.

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CONCLUSION

The decision of the examiner rejecting claims 1 through 18 under 35 U.S.C. § 103 is reversed.

REVERSED

JOSEPH F. RUGGIERO)	
Administrative Patent Judge)	
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)	
)	
)	BOARD OF PATENT
ANITA PELLMAN GROSS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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HOWARD B. BLANKENSHIP)	
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