

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. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte
KENNETH MICHAEL FALLON,
CHRISTIAN ROBERT LE COZ,
and MARK VINCENT PIERSON

Appeal No. 2003-0200
Application No. 09/250,524

ON BRIEF

Before OWENS, LIEBERMAN and TIMM, Administrative Patent Judges.

LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 57, 79 and 80. Claims 48 and 74 through 78 stand withdrawn from consideration pursuant to a restriction requirement. These are all the claims pending

in this application.

THE INVENTION

The invention is directed to a carrier module containing in part, an array of chip bonding pads and a wiring layer on a substrate. The wiring layer includes flat metal terminals which are physically separated and different from bonding pads. Additional limitations are described in the following illustrative claim.

THE CLAIMS

Claim 57 is illustrative of appellants' invention and is reproduced below.

57. A module, for subsequent placement onto an interconnect structure, comprising:
- a substrate having a chip bonding surface;
 - an array of chip bonding pads on the chip bonding surface;
 - a computer chip bonded to the bonding pads;
 - a wiring layer on the substrate including flat metal terminals said flat metal terminals physically separated and different from said bonding pads;
 - first bumps of a different metal having a melting temperature substantially lower than the melting temperature of said metal terminals, said first bumps in direct contact with and attached to said metal terminals;
 - second bumps of a solder material having a melting temperature substantially lower than said melting temperature of said different metal of said first bumps, said second bumps covering said first bumps.

THE REFERENCES OF RECORD

As evidence of anticipation and obviousness, the examiner relies upon the following references:

Papathomas et al. (Papathomas)	5,194,930	Mar. 16, 1993
Agarwala et al. (Agarwala)	5,251,806	Oct. 12, 1993

THE REJECTIONS

Claims 57 and 80 stand rejected under 35 U.S.C. §102(b) as being anticipated by Agarwala.

Claim 79 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Agarwala in view of Papathomas.

OPINION

We have carefully considered all of the arguments advanced by the appellants and the examiner and agree with the appellants for the reasons stated in the Brief and those set forth herein that the rejection of claims 57, 79 and 80 under §§ 102(b) and 103(a) is not well founded. Accordingly, we reverse both rejections.

The Rejections under §§ 102(b) and 103(a)

It is the examiner's position that Agarwala teaches a substrate having in part, "a wiring layer on the substrate including flat metal terminals (Au layer of 14 in direct contact with first bumps 16), said flat metal terminals physically separated (by surface 12 and the intervening ball limiting layers) and different from said bonding pads." See Answer, pages 3 and 4. We disagree with the examiner's findings.

The critical portion of the claimed subject matter requires, "a wiring layer on the substrate including flat metal terminals physically separated and different from said bonding pads." See claim 57. There is general agreement that Agarwala discloses chip bonding pads 10 and a wiring layer on the substrate including flat metal terminals. See Brief, page 5 and Answer, page 3. The examiner submits that surface 12 provides the requisite separation between the flat metal terminals and the intervening ball limiting layer 14. It is evident however, from Figures 1 to 4 that surface 12 provides an intervening layer only at the periphery of the pads. Furthermore, Agarwala teaches that even if the conductor is inside the substrate 12, a portion of the conductor 10 must be exposed as shown in Figure 1. See column 9, lines 12-19. Accordingly, we conclude that there necessarily is some direct contact between a portion of the conductor 10 and the wiring layer 14. As the Answer has failed to distinguish between the wiring layer on the substrate and item 14, we conclude that there is no evidence teaching or disclosing the requisite physical separation required by the claimed subject matter. Accordingly, on the record before us, the examiner has not established a *prima facie* case of anticipation.

With respect to the rejection of claim 79 the reference to Papathomas is relied upon for its teaching of a substrate which is a flexible organic film. See Answer, page 5. It is not directed to the issue at hand and accordingly, does not overcome the deficiency of the primary reference.

Other Matters

The appellants in the Brief have not indicated any given place in the specification which provides support for the critical limitation in the claimed subject matter which states, "said flat metal terminals physically separated and different from said bonding pads." We are cognizant that the examiner entered a rejection under 35 U.S.C. § 112, first paragraph, in the final Office action directed to a written description requirement. No such rejection is found in the Answer. Nor has the examiner stated that the rejection was withdrawn. The appellant, however, has commented on the rejection. See Brief, page 4. Accordingly, the examiner may wish to reconsider whether there is written description support for the aforesaid limitation, "physically separated and different from." If no support is found, a rejection under 35 U.S.C. § 112, first paragraph written description requirement should be entered by the examiner.

DECISION

The rejection of claims 57 and 80 under 35 U.S.C. § 102(b) as being anticipated

by Agarwala is reversed.

The rejection of claim 79 under 35 U.S.C. §103(a) as being unpatentable over
Agarwala in view of Papathomas is reversed.

The decision of the examiner is reversed.

REVERSED

TERRY J. OWENS)	
Administrative Patent Judge)	
)	
)	
)	
)	
)	
)	BOARD OF PATENT
PAUL LIEBERMAN)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
)	
CATHERINE TIMM)	
Administrative Patent Judge)	

Appeal No. 2003-0200
Application No. 09/250,524

7

MICHAEL E. BELK
IBM CORPORATION
I. P. LAW DEPARTMENT, N50/040-4
ENDICOTT, NY 13760