

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PATRICK W. TANDY

Appeal No. 2003-0175
Application No. 09/769,976

ON BRIEF

Before LIEBERMAN, MOORE and POTEATE, Administrative Patent Judges.

POTEATE, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 31-36, which are all of the claims pending in the application.

Claim 31 is representative of the subject matter on appeal and is reproduced below:

31. A packaged integrated circuit device comprising:

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a plurality of solder ball bond pads each having a gold coating;

a plurality of wire bond bond pads each having a gold coating; and

the gold coating on said solder ball bond pads being thinner than the gold coating on said wire bond bond pads.

The references relied upon by the examiner are:

Kano	5,380,679	Jan. 10, 1995
Calviello	4,692,997	Sep. 15, 1987

Grounds of Rejection¹

1. Claims 31, 32 and 36 stand rejected under 35 U.S.C. § 102(b) as anticipated by Kano.

2. Claims 33-35 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kano in view of Calviello.

We affirm as to both grounds of rejection.

¹ The rejection of claims 31-36 under 35 U.S.C. § 112, second paragraph, has been withdrawn. Examiner's answer, paper no. 10, mailed June 28, 2002, page 4, paragraph (6).

Background

The invention relates to a packaged integrated circuit device comprising a plurality of solder ball bond pads and wire bond bond pads. Each having a gold coating. Claim 31. The gold coating on the solder ball bond pads is thinner than the gold coating on the wire bond bond pads. *Id.* According to appellant, in prior art processes, the wire bond bond pads and solder ball bond pads are coated simultaneously. Specification, page 1, lines 5-7. These processes provide either too much gold on the solder ball bond pads or too little gold on the wire bond bond pads. *Id.*, lines 12-15. Too much gold causes solder ball joint embrittlement while too little gold causes wire bonding problems. *Id.*, lines 8-10.

According to appellant, he has developed a method of coating bond pads in the fabrication of integrated circuits which produces a structure wherein the gold coating is thinner on the solder ball bond pads than the coating on the wire bond bond pads thereby eliminating the above-noted drawbacks associated with the prior art method of simultaneously coating bond pads.

Discussion

1. *Rejection of claims 31, 32 and 36 under 35 U.S.C. § 102(b) as being anticipated by Kano.*

Anticipation requires the disclosure, in a single prior art reference, of each element of the claims under consideration. **See *W. L. Gore & Assocs. v. Garlock, Inc.***, 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), ***cert. denied***, 469 U.S. 851 (1984).

The examiner found that Kano discloses the invention as claimed in claim 31, with the exception that Kano does not specifically show a “plurality” of structures corresponding to the claimed solder ball bond pads and wire bond bond pads. See examiner’s answer, page 5. However, the examiner maintains that it is inherent that there are a plurality of such pads and coatings. *Id.*

According to appellant, Kano cannot anticipate the present invention because, “Kano does not disclose bond pads.” Appeal brief, page 8. Appellant maintains that Kano’s structures have nothing to do with solder ball bond pads or wire bond bond pads. *Id.*, page 9. The examiner responds to this argument by noting that the terms “solder ball bond pad” and “wire bond bond pad” merely define “bond pad one and bond pad two.” Examiner’s answer, page 7. These terms are merely statements of intended use and cannot be relied on to patentably distinguish over the prior art. *Id.*

Where the claimed and prior art structures are identical or substantially identical, the PTO can require an applicant to prove that the prior art structure does not

necessarily or inherently possess the characteristics of the claimed structure. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In the present case, we find that the examiner has properly shifted the burden to appellant to show that the claimed structure is different from that of Kano.

Appellant argues that the terms “solder ball bond pads” and “wire bond bond pads” “are terms that are used in the art to distinguish bond pads having different characteristics. Thus, these limitations are not merely statements of intended use.” Appeal brief, page 9. In support of his contention, appellant relies on the teaching of Trask et al., U.S. Patent No. 5,311,404 (“Trask”). *Id.*

We have reviewed Trask and cannot agree with appellant that the disclosure supports appellant’s position that the aforementioned terms are known in the art as distinguishing bond pads having different characteristics. In fact, appellant’s own specification appears to support the examiner’s contention that these terms merely recite an intended use for the bond pads. See specification, page 6, lines 17-20 (“the bond pads 40 *may be* solder ball bond pads *for coupling* to solder balls (not shown). The bond pads 42 *may be* wire bond bond pads *for coupling* to bonding wires 50.”) (emphasis added). Moreover, while appellant asserts that solder ball bond pads and wire bond bond pads are known to have different characteristics, appellant fails to state

what these different characteristics are.²

Appellant also argues that Kano fails to teach that the gold layer 5 of his structure must be sufficiently low to reduce the likelihood of solder ball joint embrittlement. Appeal brief, page 9. This argument is not, however, relevant to claim 31, since such limitation is not present in the claim.³ Accordingly, the rejection of claims 31, 32 and 36 under 35 U.S.C. § 102(b) as anticipated by Kano is affirmed.

2. Rejection of claims 33-35 under 35 U.S.C. § 103 as unpatentable over Kano in view of Calviello.

The examiner concedes that Kano is silent with respect to the thickness of the first and second gold coatings. Examiner's answer, page 6. However, the examiner maintains that it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the gold coating thicknesses of Calviello in Kano's structure in order to have a thickness of gold suitable for a semiconductor device. *Id.* Calviello teaches, in particular, forming a gold coating that is about 0.1-0.25 microns in thickness. *Id.* (citing Calviello, column 11, lines 10 and 11).

Appellant's argument in response to this ground of rejection again focuses on his

² We have conducted our own review of the prior art and have been unable to locate any patents which utilize the specific terms "solder ball bond pads" or "wire bond bond pads" other than U.S. Patent No. 6,403,457 which issued June 11, 2002 from U.S. Serial No. 09/382,930, the parent of the present application.

³ This limitation is present in claim 32. However, appellant has indicated that the claims stand or fall together for purposes of the appeal as to this ground of rejection. Appeal brief, page 5; 37 CFR § 1.192(c)(7). Thus, we have elected to focus on claim 31, the broadest claim, in considering this appeal. In any event we note that adjustment of the thickness of the gold layer would appear to be nothing more than a result effective variable.

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contention that Kano (as well as Calviello) does not relate to bond pads. However, we do not agree with appellant's position for the reasons discussed above. Moreover, we note that the examiner is merely relying on Calviello for a teaching of appropriate thicknesses of gold coatings for use in semiconductor devices. We are in agreement with the examiner that one of ordinary skill in the art would have been motivated to have looked to Calviello in considering appropriate thicknesses for the gold coatings in Kano's structure.

The rejection of claims 33-35 under 35 U.S.C. § 103(a) as unpatentable over Kano in view of Calviello is affirmed.

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Time period for response

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

AFFIRMED

PAUL LIEBERMAN)	
Administrative Patent Judge)	
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JAMES T. MOORE)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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LINDA R. POTEATE)	
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