

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KEITH W. MICHAEL

Appeal No. 94-3284
Application 07/948,570¹

ON BRIEF

Before CALVERT, COHEN and PAK, Administrative Patent Judges.
CALVERT, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 12 to 23, all the claims remaining in the application.

Claim 12 is representative of the subject matter in issue, and reads (as amended by the Amendment Under 37 CFR 1.116, filed May 20, 1994):

12. A hermetically sealed integrated circuit comprising:

¹ Application for patent filed September 23, 1992.

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a circuit subassembly having bond pads and streets;

a primary passivation layer on the surface of the subassembly which is etched at the bond pads and streets; and

one or more ceramic layers covering the primary passivation layer and the sides of the primary passivation created by etching at the bond pads and streets;

wherein the ceramic layers comprise a ceramic material which is deposited by a process selected from the group consisting of chemical vapor deposition and physical vapor deposition.

The references relied upon by the primary examiner in the final rejection are:²

Haluska et al. (Haluska)	4,849,296	Jul. 18, 1989
Kobayashi et al. (Kobayashi)	5,177,589	Jan. 5, 1993
		(filed Sept. 25, 1991)

Claims 12 to 23 stand finally rejected:

(1) as failing to comply with the second paragraph of 35 U.S.C. § 112;

(2) as unpatentable over Haluska in view of Kobayashi, under 35 U.S.C. § 103.

Rejection (1)

The examiner takes the position that the claims are indefinite, because the expression "one or more ceramic layers," found in each of independent claims 12, 15 and 19, is "alternative claim language" which, according to the MPEP, makes

² It is noted that the number given in the examiner's answer (page 2) for the Haluska et al. patent is incorrect.

claims indefinite because the alternatives are not equivalent (answer, pages 3 and 5).³ Appellant, on the other hand, asserts at page 3 of his brief that the language in question "simply means, and can only be interpreted as, 'at least one' ceramic layer," and that "the Board has sanctioned such language," although no decision is cited in support of this statement.

The examiner does not cite any particular section of the MPEP as a basis for his statement that a recitation of alternatives is indefinite if they are not equivalent, and we find none in § 2173.05(h), "Alternative Limitations."⁴ To the contrary in fact, part (b) of § 2173.05(h) states that "[a]lternative expressions using 'or' are acceptable" (page 2100-153).

A claim complies with the second paragraph of 35 U.S.C. § 112 if its language, when read by a person of ordinary skill in the art in light of the specification, describes the subject matter with sufficient precision that the bounds of the claimed subject matter are distinct. In re Merat, 519 F.2d 1390, 1396,

³ The examiner states in the supplement to the examiner's answer (Paper No. 16) that a second ground of rejection of the claims under § 112, second paragraph, is eliminated in view of the aforementioned Amendment Under 37 CFR 1.116.

⁴ The discussion in part (a) of § 2173.05(h) concerning Markush groups is of no relevance here.

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186 USPQ 471, 476 (CCPA 1975). We have no doubt that the expression "one or more ceramic layers" clearly defines the bounds of what is claimed insofar as the number of layers is concerned, and agree with appellant that it means the same thing as "at least one ceramic layer." In this regard we note that in In re Gaubert, 524 F.2d 1222, 1227, 187 USPQ 664, 667-68 (CCPA 1975), the Court held that the claimed alternative expression "one or several pieces" meant the same as "at least one piece" and complied with § 112, second paragraph, since it did not "render the boundaries of the [claimed] invention undeterminable."

Accordingly, rejection (1) will not be sustained.

Rejection (2)

The basis of this rejection is stated on pages 3 and 4 of the examiner's answer. After noting that Haluska discloses a nitrided ceramic coating applicable to many electronic devices, the examiner states (page 4):

Kobayashi et al. discloses the use of a refractory metal in a multi-layer metalization [sic]. As shown in Figure 6E [sic: 6(e)], a titanium nitride (TiN) film 67 is deposited as a barrier metal. A tungsten silicide film 68 is deposited on top of the titanium nitride film 67. Tungsten 610 contacts tungsten silicide film 68 through a hole in the spin-on-glass insulating layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to

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use the multilevel metallization of Kobayashi et al. with the nitrided ceramic coating of Haluska et al. This is because Haluska et al. indicate that their coating is suitable for electronic devices and Kobayashi et al. show that their multilevel metallization coexists with an insulation coating on the surface of the semiconductor device.

Further, at page 7, the examiner concludes:

As to whether there is motivation to combine the references, the Examiner believes that because Haluska et al. teaches the use of the ceramic coating on a wide variety of devices, including semiconductor devices, the use of the coating on the structure of Kobayashi et al. would have been obvious to one of ordinary skill in the art.

After fully considering the record in this case⁵ in view of the arguments presented in appellant's brief and the examiner's answer, we conclude that rejection (2) should not be sustained.

On page 6 of the answer, the examiner lists three points by which appellant alleges that his invention differs from Haluska. We will assume for the sake of argument that the examiner is correct in holding that points 1 and 3 do not patentably distinguish the claims from Haluska. Moreover, we agree with the examiner that, as a general proposition, it would have been obvious to one of ordinary skill in the art to apply the nitrided

⁵ In considering the record, we note that the features recited in claims 14, 18, 19 (diffusion barrier metal layer) and 23 are not shown in the drawings, as required by 37 CFR § 1.83(a).

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ceramic coating disclosed by Haluska to the structure disclosed by Kobayashi.

On the other hand, however, we agree with appellant that even if the references were combined in the manner proposed by the examiner, the resulting combination would not meet all the claimed limitations; in particular, it would not have a ceramic layer "covering . . . the sides of the primary passivation [layer] created by etching at the bond pads and streets" (emphasis added). The examiner indicates at the bottom of page 6 of the answer that tungsten 9 of Kobayashi, shown in Figure 5(e), is "at the surface of the device," i.e., as we understand it, he would interpret layer 8 (Figure 5(e)) or 69 (Figure 6(e)) of Kobayashi as being the "primary passivation layer" recited in the claims. However, if the nitrided ceramic coating of Haluska were applied to the top of either of the structures shown in Kobayashi Figures 5(e) or 6(d) it is not evident, nor does the examiner explain, how this would result in a ceramic layer covering the sides of the layer 8 or 69 at holes h', since those holes would already be filled by tungsten 9 or 610, respectively. Alternatively, we do not consider that it would have been obvious to apply the nitrided ceramic coating to the Kobayashi structure with unfilled holes h' (i.e., as shown in Figures 5(d) or 6(c)), because the holes would then serve no purpose.

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We therefore conclude that claims 12 to 23 are not unpatentable over the combination of references applied.

Conclusion

The examiner's decision to reject claims 12 to 23 is reversed.

REVERSED

IAN A. CALVERT)	
Administrative Patent Judge)	
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IRWIN CHARLES COHEN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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