

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES C. UTTER, MICHAEL J. MATTS
and AHMED S. SHAH

Appeal No. 97-0745
Application No. 08/355,886¹

ON BRIEF

Before COHEN, ABRAMS and CRAWFORD, Administrative Patent Judges.
ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the decision of the examiner finally rejecting claims 1 through 5, which constitute all of the claims of record in the application.

The appellants' invention is directed to a metal stencil mask for use in forming a paste pattern on a substrate. The

¹Application for patent filed December 14, 1994.

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subject matter before us on appeal is illustrated by reference to claim 1, which has been reproduced in an appendix to the appellants' Brief.

THE REFERENCE

The reference relied upon by the examiner to support the final rejection is:

Ahn <i>et al.</i> (Ahn)	4,803,110	Feb. 7, 1989
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THE REJECTION

Claims 1 through 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ahn.

The rejection is explained in the Examiner's Answer.

The opposing viewpoints of the appellants are set forth in the Brief and the Reply Brief.

OPINION

The examiner has taken the position that the claims are unpatentable under 35 U.S.C. § 103. We have evaluated this rejection on the basis of the following guidelines provided by our reviewing court. The examiner bears the initial burden of presenting a *prima facie* case of obviousness (see *In re*

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Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) and *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)), which is established when the teachings of the prior art itself would appear to have suggested the claimed subject matter to one of ordinary skill in the art (see *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) and *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).

This invention relates to a metal stencil mask for screen printing a conductive paste upon a substrate during the fabrication of microelectronic devices. According to the appellants, these masks typically comprise a stencil portion, which is placed in contact with the substrate, and a mesh portion which provides support for the stencil portion. The depth of the voids in the stencil portion of the mask determine the thickness of the lines of conductive paste deposited upon the substrate. Known masks often deposit excessive amounts of paste upon the substrate. In the case where the substrate is an unfired ceramic sheet, this can result in problems such as substrate instability, the result of which can be substrate "opens" as a result of "via" columns being misaligned. The objective of the appellants' invention is to overcome these problems, and this is accomplished

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by the establishment of certain dimensional relationships between the various components. Specification, pages 1 through 4.

As recited in independent claim 1, the invention comprises a metal stencil mask of foil produced from an essentially homogeneous metal sheet having a thickness of less than about 200 microns, a stencil formed in the foil and extending inwardly from a first exterior surface to a first depth, and a mesh formed in the foil and extending inwardly from a second surface to a second depth, wherein the ratio of the first depth to the second depth is less than 60:40.

The examiner is of the view that the subject matter of this claim would have been obvious to one of ordinary skill in the art on the basis of the disclosure of Ahn. The appellant argues that, while Ahn bears a strong resemblance of the claimed mask, the reference fails to disclose or teach the required 60:40 ratio between the depths of the stencil and the mesh. The examiner's stated position, however, is that while Ahn does not specify that the claimed ratio is present in his mask, one of ordinary skill would have understood this to be the case by recognizing from the drawings that the two layers appear to be of similar depths, considering that "if the ratio of the depths were to be 10:90 or any other extreme . . . the reference would have made a note of

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such a drastic difference" (Answer, page 4). The examiner continues that

[i]n view of the teaching of Ahn et al., the specific depths of each . . . layer would appear to involve simply obvious experimentation based upon the total thickness of the metal stencil mask defined, the stability of the mask when voids are present in both layers and the specific needs of the item to be printed.

We agree with the appellants that the teachings found in the Ahn patent document fail to establish a *prima facie* case of obviousness with respect to the subject matter recited in claim 1. The appellants have recognized a problem that goes unrecognized in Ahn and is far afield from Ahn's stated goal of reducing the abrasive wear on masks. While Ahn is totally silent as to any specific details of the ratio between the two layers, in text and drawings, this is a key element of the appellants' invention which is recited with particularity in the appellants' claims. From our perspective, the only suggestion for providing the claimed ratio between the two layers is found in the luxury accorded one who first viewed the appellants' disclosure. This, of course, cannot be the basis for a rejection under Section 103. See *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

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The rejection of independent claim 1, and dependent claims 2 through 5, therefore is not sustained.

The decision of the examiner is reversed.

REVERSED

IRWIN CHARLES COHEN)	
Administrative Patent Judge))	
)	
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NEAL E. ABRAMS)	BOARD OF PATENT
Administrative Patent Judge))	APPEALS AND
)	INTERFERENCES
)	
MURRIEL E. CRAWFORD)	
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