

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. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID J. KLASSEN, MORGAN M. WHITNEY, JR,
THOMAS R. PETERMAN, PAUL E. PERGANDE
and DAVID R. COLLINS

Appeal No. 1999-1127
Application 08/689,164

ON BRIEF

Before FLEMING, BARRY and BLANKENSHIP, **Administrative Patent Judges**.

FLEMING, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-8.

The invention relates to a device fabrication method that includes provision of a substrate. Thereafter, a plurality of alternating insulating and conducting layers are deposited

atop the substrate and one another by thermal spraying of respective insulating or conducting material through correspondingly defined apertures in spray masks. Inter-layer electrical connections are intrinsically formed by direct metallurgical bonding between the conducting material of an overlaying layer and the conducting material of a previously sprayed layer. The defined apertures are formed through the use of positive and negative systems.¹

Independent claim 1 is reproduced as follows:

1. An interconnect device for interconnecting electronic components comprising:

a substrate;

a first conducting layer including conductive traces deposited over said substrate in a first pattern by thermal spraying;

a first insulating layer deposited over said first conducting layer by thermal spraying in a second pattern not including selected regions of said first conducting layer, said first insulating layer adhering to said first conducting layer by mechanical bonding as a result of thermal spraying; and

a second conducting layer deposited over said first insulating layer and said first conducting layer by thermal spraying in a third pattern including at least one of said selected regions, said second conducting layer adhering to

¹ See pages 2-3 of the brief.

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said first insulting layer by mechanical bonding as a result of thermal spraying;

whereby said selected regions provide interconnects between conducting layers through direct metallurgical bonding.

The Examiner relies on the following references:

Saito	4,525,383	Jun. 25, 1985
Sienski	5,200,580	Apr. 6, 1993

Claims 1 and 3-4 are rejected under 35 U.S.C. § 102(b) as being anticipated by Saito. Claims 1-2 are rejected under 35 U.S.C. §102(b) as being anticipated by Saito. Claims 5-7 are rejected under 35 U.S.C. § 103 as being unpatentable over Saito. Claim 8 is rejected under 35 U.S.C. § 103 as being unpatentable over Saito in view of Sienski.

Rather than reiterate all arguments of Appellants and the Examiner, reference is made to the briefs and the answer for the respective details thereof.²

²Rather than attempt to reiterate the Examiner's full commentary with regard to the above-noted rejections and the conflicting viewpoints advanced by the Examiner and Appellants regarding the rejections, we make reference to the examiner's answer (Paper No. 14, mailed October 13, 1998), for the reasoning in support of the rejections, and to Appellants' brief (Paper No. 13, filed August 28, 1998), and Reply Brief

OPINION

In reaching our decision in this appeal, we have given careful consideration to Appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by Appellants and the Examiner.

We will not sustain the rejection of claims 1-4 under 35 U.S.C. § 102(b) nor of claims 5-8 under 35 U.S.C. § 103.

The Examiner cites Saito as the basis for a rejection of lack of novelty for claims 1-4 and as the primary reference in rejections under 35 U.S.C. § 103.³ The Examiner specifically cites column 2, lines 40-46 of Saito for disclosure of "mechanical bonding" to join the first insulating layer to the first conducting layer and to join the second conducting layer to the first insulating layer.⁴

The Appellants traverse these rejections by arguing that

(Paper No. 15, filed October 26, 1998), for the arguments thereagainst.

³ See pages 4-8 of the examiner's answer.

⁴ See page 4 of the examiner's answer.

neither the cited section "nor any other portion of Saito refers to 'mechanical bonding' within the meaning of claims 1-8. The pastes of Saito are special chemical compositions which apparently stick together after baking (so that a smooth interface between layers would be expected)."⁵

As pointed out by our reviewing court, we must first determine the scope of the claim. "[T]he name of the game is the claim." *In re Hiniker Co.*, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). Moreover, when interpreting a claim, words of the claim are generally given their ordinary and accustomed meaning unless it appears from the specification or the file history that they were used differently by the inventor. *Carroll Touch, Inc. v. Electro Mechanical Sys., Inc.*, 15 F.3d 1573, 1577, 27 USPQ2d 1836, 1840 (Fed. Cir. 1993). Although an inventor is indeed free to define the specific terms used to describe his or her invention, this must be done with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994).

⁵ See page 5 of the appeal brief.

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Claim 1, the sole independent claim at issue here, recites an interconnect device comprising among other elements a "first insulating layer adhering to said first conducting layer by mechanical bonding as a result of thermal spraying" and a "second conducting layer adhering to said first insulating layer by mechanical bonding as a result of thermal spraying" A review of the specification fails to find disclosure of a definition of the phrase "mechanical bonding." Mechanical is defined as "relating to, produced by, or dominated by physical forces."⁶ Thus, the scope of claim 1 is limited to an interconnect device in which insulating and conducting layers are adhered by bonding that relates to, is produced by, or is dominated by physical forces.

Saito is directed to a manufacture of a multi-layer circuit substrate. Bonding between alternating conducting and insulating layers is discussed in col. 4, lines 9-21; col. 4, line 56 to column 5, line 2. These sections describe the

⁶ See **Webster's II New College Dictionary**.

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bonding process as a result of baking. No disclosure or suggestion of bonding as relating to, produced by, or dominated by physical forces is found. Thus, we agree with Appellants that Saito fails to disclose or suggest use of mechanical bonding as recited in claim 1.

It is axiomatic that anticipation of a claim under § 102 can be found only if the prior art reference discloses every element of the claim. **See *In re King***, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986) and ***Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.***, 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984). "Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention." ***RCA Corp. v. Applied Digital Data Sys., Inc.***, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.), ***cert. dismissed***, 468 U.S. 1228 (1984), ***citing Kalman v. Kimberly-Clark Corp.***, 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983).

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As Saito fails to disclose each and every claimed element expressly or under principles of inherency, we cannot sustain the rejection of claims 1-4 under 35 U.S.C. § 102(b).

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a **prima facie** case of obviousness (**see *In re Rijckaert***, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993); ***In re Oetiker***, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (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)). It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art, or by implications contained in such teachings or suggestions. ***In re Sernaker***, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983).

We find that the Examiner has failed to set forth a **prima facie** case. The Examiner fails provide to an express teaching

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or suggestion in Saito for use of mechanical bonding between
alternating conducting and insulating layers.

In light of the foregoing, we will not sustain the
rejection
of claims 1-4 under 35 U.S.C. § 102(b) nor of claims 5-8 under
35 U.S.C. § 103.

REVERSED

MICHAEL R. FLEMING)
Administrative Patent Judge)
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)
) BOARD OF PATENT
LANCE LEONARD BARRY)
Administrative Patent Judge) APPEALS AND
)
) INTERFERENCES
)
HOWARD B. BLANKENSHIP)
Administrative Patent Judge)

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MARK L. MULLON
FORD MOTOR COMPANY
ONE PARKLANE BLVD.
911 EAST PARKLANE TOWERS
DEARBORN, MI 48126

MRF:caw