

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(2) is not binding precedent of the Board.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. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREAS M.T.P. VAN DER PUTTEN,
NICOLAAS P. WILLARD, LAMBERTUS G.J. FOKKINK,
and IVO G.J. CAMPS

Appeal No. 1997-2919
Application No. 08/573,921

ON BRIEF

Before WINTERS, CAROFF, and LIEBERMAN, Administrative Patent Judges.

CAROFF, Administrative Patent Judge.

DECISION ON APPEAL

Appellants appeal the examiner's final rejection of
claims 2-7 and 9, all of the claims remaining in appellants'
application.

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The appealed claims relate to a method of providing a metal pattern on a glass substrate. The method involves four fundamental process steps, namely, formation of a silane layer on the substrate, selective removal of a portion of the silane layer by irradiation, activation of the remaining portion of the silane layer with a stabilized palladium (Pd) sol, and electroless metallization of the activated area. Claim 9, the sole independent claim, is illustrative:

9. A method of providing a metal pattern on a glass substrate by an electroless process, said method comprising applying an aqueous solution of a silane to a surface of a glass substrate to thereby provide said substrate with a silane layer, exposing said silane layer to actinic radiation in accordance with a pattern in a manner to thereby remove a portion of the silane layer and expose the glass substrate in the irradiated portion, bringing said substrate into contact with a Pd sol, stabilized with a water-soluble polymer and having, as its sole metal, Pd, to thereby activate a surface of the remaining portion of the silane layer only and then bringing said substrate into contact with an electroless metallization bath to thereby form a metal pattern on glass.

The following references of record are relied upon by the examiner as evidence of obviousness:

Lombardo et al. (Lombardo) 1976	3,978,252	Aug. 31,
Gulla et al. (Gulla) 1988	4,725,314	Feb. 16,
Nakayama et al. (Nakayama) 1990	4,900,582	Feb. 13,
Bach et al. (Bach) 1990	4,976,990	Dec. 11,

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Schnur et al. (Schnur) 5,079,600 Jan. 7,
1992

All of the appealed claims stand rejected under 35 U.S.C. § 103 for obviousness. The claims, and the references applied against those claims, are grouped as follows:

I. Claims 2, 6 and 9 (Schnur in view of Gulla).

II. Claims 3 and 4 (Schnur in view of Gulla, further taken in view of either Bach or Lombardo).

III. Claims 5 and 7 (Schnur in view of Gulla, further taken in view of Nakayama).

After consideration of the entire record in light of the opposing positions presented on appeal, we agree with the examiner that claims 2-4, 6 and 9 fail to define patentable subject matter within the context of 35 U.S.C. § 103.

However, we shall reverse the rejection relating to claims 5 and 7 for the reasons presented by appellants.

As a preliminary matter, the examiner has indicated that the copy of claim 2 appearing in the Appendix to appellants' brief is incorrect. The correct version appears on page 10 of appellants' specification. We also note that the copy of

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claim 7 in the Appendix of appellants' brief is incorrect due to an apparent typographical error in the spelling of the word "patterned" on line 3.

With regard to the rejections relating to claims 2-4, 6 and 9, we note that Schnur discloses a method which, like appellants', involves four fundamental process steps including formation of a silane layer on a substrate (which may be a glass substrate), selective removal of a portion of the silane layer by irradiation, activation of the remaining portion of the silane layer with a palladium-based catalyst, and electroless metallization of the activated area.

We agree with the examiner that it would have been prima facie obvious within the purview of 35 U.S.C. § 103 to use the Gulla tin-free palladium catalyst, stabilized with a water-soluble polymer, in the Schnur process to obtain the many benefits disclosed by Gulla (col. 1, l. 65-col. 2, l. 3; col. 3, l. 50-col. 4, l. 15).

We also agree with the examiner that it would have been obvious to employ the particular silanes of claims 3 and 4 in the Schnur process since these silanes are specifically taught in Bach (col. 5, l. 41-43; col. 4, l. 31-34) and Lombardo

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(claim 7; col. 2, l. 23-25) as being beneficial in that they promote adhesion between a substrate and a subsequently applied palladium-based catalyst or metal layer.

With regard to the applicability of Gulla, Bach and Lombardo, appellants argue that those references relate only to organic substrates rather than glass substrates. This argument is unconvincing since all of the applied references appear to be reasonably pertinent to the field of appellants' process and that of Schnur. In this regard, all of the applied references relate to electroless metal deposition processes involving prior activation of the substrate with a palladium-based catalyst. The teachings of Gulla, Bach and Lombardo appear to generically apply to any substrate involved in such processes. For instance, in Gulla, organic (epoxy) substrates are mentioned only by way of example. There is nothing to indicate that Gulla's teachings are limited to organic substrates. More to the point, Bach (col. 4, l. 66- col. 5, l. 4; col. 11, l. 57-60) clearly indicates that, in general, "any number of different types of non-conductive substrates" are considered to be within this field of endeavor, either "organic or inorganic" substrates.

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Appellants also argue that Schnur does not teach removal of the silane layer in irradiated regions to the extent that underlying portions of the glass substrate are "uncoated" or "exposed." In other words, appellants argue that Schnur does not suggest that the silane layer is removed down to the substrate in the irradiated areas.

We find this argument unpersuasive. Schnur does suggest removal of portions of the silane layer by radiation (col. 8, l. 62-col. 9, l. 10), although Schnur theorizes that removal may be incomplete (col. 24, l. 32-40). A "partial atomic layer of silicon oxide" may be left on the original substrate after irradiation. Be that as it may, regardless of Schnur's theory, appellants have not shown that their irradiation step differs in any material respect from that of Schnur, nor do appellants' claims distinguish over the removal of the silane layer effected by Schnur. In this regard, we find that the requirement in claim 9 to "remove a portion of the silane layer and expose the glass substrate in the irradiated portion" essentially reads on the operation described in Schnur. In any event, since Schnur uses substantially the same silane coating materials and irradiation technique as

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appellants, the burden of establishing that there is a substantial difference in result with regard to the extent of silane removal falls upon appellants. Cf. In re Thorpe, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985); In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Appellants have adduced no credible evidence of any differences, let alone any patentably significant differences, in this regard.

As for the rejection of claims 5 and 7, we agree with appellants that Nakayama would appear to teach away from irradiating a silane layer in an ozone atmosphere in the context of appellants' claimed invention. In appellants' claimed method, irradiation is used to remove a silane layer from a substrate. As we see it, the irradiation procedure in Nakayama serves an entirely different purpose, i.e., to enhance the density and other properties of a silane film coated on a substrate. Thus, we find that Nakayama would lead a person of ordinary skill in the art away from using a UV-ozone treatment in the context of the method defined by appellants' claims.

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For the foregoing reasons, the decision of the examiner is affirmed as to claims 2-4, 6 and 9, and reversed as to claims 5 and 7.

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

AFFIRMED-IN-PART

	Sherman D. Winters)	
	Administrative Patent Judge)	
)	
)	
	Marc L. Caroff)	BOARD OF
PATENT	Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
	Paul Lieberman)	
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