

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was not written for publication and is not
binding precedent of the Board.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.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte DAVID A. BEAUCHAINE, TIMOTHY L. BROWN,
SERGEI V. KOVESHNIKOV and ROMONY SAN

Appeal No. 2005-1139
Application No. 10/410,792

ON BRIEF

Before SMITH, GROSS, and BARRY, Administrative Patent Judges.
JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from
the examiner's rejection of claims 37-40, which constitute all
the claims pending in the application.

The disclosed invention pertains to a double-side mirror-
polished semiconductor wafer containing extrinsic gettering sites
on a back surface of the wafer. The claims on appeal are
directed to the wafer as made by a specific claimed process.

Representative claim 37 is reproduced as follows:

37. A double-side mirror-polished semiconductor wafer containing extrinsic gettering sites on a back surface of the wafer, prepared by a process comprising the steps of:

providing a semiconductor wafer, said wafer having a front surface and a back surface, wherein the back surface has been polished;

forming a polysilicon layer on the front surface and the back surface, said polysilicon layers containing oxygen;

forming a thermal oxide layer on each of the polysilicon layers, wherein the oxide layers consume the polysilicon layers;

stripping the thermal oxide layers off of the wafer;
and

polishing the front side of the wafer.

The examiner relies on the following references:

Brehm et al. (Brehm)	5,164,323	Nov. 17, 1992
Kato et al. (Kato)	5,942,445	Aug. 24, 1999

Claims 37-40 stand rejected under 35 U.S.C. § 103(a). As evidence of obviousness the examiner offers Brehm in view of Kato.

Rather than repeat the arguments of appellants or the examiner, we make reference to the brief and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the brief along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 37-40. Accordingly, we affirm.

Appellants have indicated that for purposes of this appeal the claims will all stand or fall together as a single group [brief, page 3]. Consistent with this indication appellants have made no separate arguments with respect to any of the claims on appeal. Accordingly, all the claims before us will stand or fall together. Note In re King, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). Therefore, we will consider the rejection

against independent claim 37 as representative of all the claims on appeal.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re

Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR § 41.37(c)(1)(vii)(2004)].

With respect to representative claim 37, the examiner finds that Brehm teaches the same structure as claimed except that Brehm does not expressly teach or suggest that the polished front and rear sides of the wafer have mirror polished surfaces as claimed. The examiner cites Kato as teaching a double side silicon wafer polishing method in which both surfaces are mirror polished. The examiner finds that it would have been obvious to the artisan to use a mirror polish finish as taught by Kato in the wafer processing device of Brehm [answer, pages 3-4].

Appellants argue that the examiner's position that Brehm's wafer does not have any additional damage on the back side of the wafer is incorrect because of the presence of flat imprints and pressure marks. Appellants also argue that the processes taught by Brehm and Kato cannot be accomplished simultaneously. Appellants argue that regardless of which of the processes is performed first, the resultant wafer would be unsatisfactory for its intended purpose [brief, pages 4-7].

The examiner responds that the claimed invention does not exclude the presence of flat imprints or pressure marks that are invisible to the naked eye. The examiner observes that if Brehm were to start with wafers that had both sides mirror polished for the advantages taught by Kato, then the processed wafers would retain the mirror polish finish after the Brehm processing. The examiner points out that Brehm teaches that his processing does not affect the roughness of the rear side as a result of the processing. The examiner also responds that the rejection presumes that the process of Brehm is performed on mirror polished wafers as taught by Kato. The examiner notes that it is not unreasonable to interpret that mirror finish means a surface quality that is capable of reflecting an image, and that appellants' specification indicates that a mirror finish is

related to surface roughness. The examiner asserts that Brehm teaches that his surfaces are smooth and free of scratches and that the process does not alter the roughness of the rear side compared with the previously polished state [answer, pages 4-7].

We will sustain the examiner's rejection of claims 37-40 for essentially the reasons argued by the examiner in the answer. We agree with the examiner that Kato teaches the advantages in general of using wafers which have been mirror polished on both sides. Thus, we also agree with the examiner that it would have been obvious to the artisan to perform the processing of Brehm on a wafer that has already been mirror polished on both sides for the advantages taught by Kato. Brehm teaches that his process can be performed on wafers which are polished on both sides [column 2, lines 36-37]. We also agree with the examiner that Brehm teaches that his process does not alter the roughness of the rear side compared with the previously polished state [column 7, lines 49-51]. Thus, it appears to us that if Brehm starts with a wafer having mirror polished surfaces on both sides as taught by Kato, the finished wafer will be a double-side mirror polished semiconductor wafer containing extrinsic gettering sites on the back surface as recited in the claims on appeal.

In summary, we have sustained the examiner's rejection of the claims on appeal. Therefore, the decision of the examiner rejecting claims 37-40 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED

JERRY SMITH)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
ANITA PELLMAN GROSS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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LANCE LEONARD BARRY)	
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