

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board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. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES  
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Ex parte YOSHIHIRO MIYAZAWA  
and SHUZO SATO  
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Appeal No. 2000-1713  
Application No. 09/025,551  
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HEARD: March 19, 2002  
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Before PAK, LIEBERMAN and PAWLIKOWSKI, Administrative Patent Judges.

PAWLIKOWSKI, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's refusal to allow claims 1-8, which are the claims pending in this application.

Claims 1, 7 and 8 are representative of the subject matter on appeal and are set forth below:

1. A surface processing method for a workpiece, comprising the steps of:

setting a reference plane in the workpiece;

controlling a shape of said reference plane to a planar shape **by deforming the workpiece**; and then

removing material constituting the workpiece from the surface of the workpiece toward said reference plane.  
[emphasis added]

7. A workpiece surface processing method as claimed in claim 1, wherein said workpiece comprises two semiconductor wafers which are bonded to each other.

8. A semiconductor thin layer forming method comprising the steps of:

bonding the surface of a first semiconductor wafer and the surface of a second semiconductor wafer to each other to form a composite;

controlling a shape of a reference plane which is set in one of said first semiconductor wafer and said second semiconductor wafer to have a planar shape by **deforming the composite**; and then

removing said first semiconductor wafer from the back surface of said first semiconductor wafer toward said reference plane to form a semiconductor thin layer from the residual first semiconductor wafer. [emphasis added]

In support of the rejections, the examiner relies upon the following prior art:

|                        |           |               |
|------------------------|-----------|---------------|
| Yamaki et al. (Yamaki) | 4,962,056 | Oct. 9, 1990  |
| Miller                 | 5,529,051 | June 25, 1996 |

Claims 1-7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Miller.

Claim 8 stands rejected under 35 U.S.C. § 103 as being unpatentable over Miller in view of Yamaki.

We have carefully reviewed the claims, specification and applied art, including all of the arguments advanced by both the examiner and appellants in support of their respective positions. This review leads us to conclude that the examiner's § 103 rejection is not well founded. Accordingly, we reverse the examiner's §103 rejection for essentially those reasons set forth in the Brief and Reply Brief. We add the following primarily for emphasis and completeness.

It is well settled that application claims, in proceedings before the USPTO, are to be given their broadest reasonable interpretation consistent with the specification. In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983). Thus, we look to appellants' specification for guidance in interpreting the claimed language regarding the recitation of "by deforming" the workpiece or composite.

We observe that on page 42, first paragraph, of the specification, appellants disclose that the chuck **40** is deformed in accordance with the height of the vertically-removable member **44** by suction force (shown in Figure 12). As a result, the shape of the reference plane of the workpiece **10** fixed on the workpiece holding face **22** of chuck **40** can be controlled. In the paragraph bridging pages 42-43 of the specification, the appellants disclose that workpiece **10** is attracted to chuck **40** under vacuum suction with sufficient suction force. Further, chuck **40** is strongly attracted to holder **43** comprising the pre-load shaft under vacuum suction. In this way, the workpiece **10** is deformed along the shape of

the workpiece holding face **22** of chuck **40** which is deformed by the operation of the surface straightening portion **42**, thereby straightening the reference plane.

On page 43 of the specification, beginning at line 13, appellants disclose that in the grinding/polishing process of workpiece **10**, even when any force is applied to the surface of the workpiece **10**, the elastic deformation amount of the workpiece due to such force is very small. That is, the elastic deformation amount of the workpiece due to the force which is applied to the surface of the workpiece from the grinding/polishing process is extremely smaller than the deformation amount of the workpiece due to the control of the reference plane of the workpiece.

Thus, appellants' disclosure indicates that there is a distinction between deformation due to the control of the reference plane of the workpiece versus elastic deformation due to the force from the grinding/polishing process.

In view of the disclosure as set forth in the specification as discussed above, it therefore is clear that the phrase "by deforming" a workpiece or composite means deformation due to the control of the reference plane of the workpiece caused by forces from the workpiece holding face **22** of chuck **40** which is deformed by the operation of surface straightening portion **42**, and that therefore the phrase does not mean elastic deformation due to the force applied at the surface of the workpiece during grinding/polishing processing.

In view of the above claim interpretation, we now analyze the examiner's rejections.

As indicated by appellants on page 3 and page 4 of the brief, neither Miller nor Yamaki teach or suggest controlling the shape of the reference plane to a planar shape by deforming the workpiece (deforming as used here means deforming caused when the workpiece **10** is deformed along the shape of the workpiece holding face **22** of chuck **40** which is deformed by the operation of the surface straightening portion **42**, thereby straightening the reference plane; deforming as used here does not mean elastic deforming caused by grinding or polishing).

The examiner interprets the Miller reference as controlling the shape of the reference plane during the grinding operation. (answer, page 3). Hence, the examiner is misinterpreting the claims with respect to the phrase "by deforming". Additionally, on page 5 of the answer, the examiner clearly is interpreting Miller as deforming due to grinding (and therefore not due to the control of the reference plane of the workpiece as discussed above).

We observe that Miller does not suggest deforming in the manner as interpreted above. That is, Miller does not control the shape of the reference plane by utilizing forces caused when a workpiece **10** is deformed along the shape of a workpiece holding face **22** of chuck **40** which is deformed by the operation of a surface straightening portion **42**. The examiner has not shown that Miller provides such control by such forces.

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Furthermore, the examiner has not explained whether the forces in Miller cause elastic deformation or deformation as defined in appellants' specification. We note that the secondary reference of Yamaki does not cure these deficiencies of Miller.

Therefore, we determine that the examiner has not set forth a *prima facie* case.

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In view of the above, we reverse the rejections of  
record.

**REVERSED**

Chung K. Pak )  
Administrative Patent Judge )  
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Paul Lieberman ) BOARD OF PATENT  
Administrative Patent Judge ) APPEALS AND  
 ) INTERFERENCES  
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Beverly A. Pawlikowski )  
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