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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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 47

UNITED STATES PATENT AND TRADEMARK OFFICE

MAILED

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

MAY 26 1995

**PATENT OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte HENRY I. SMITH
and
CARL V. THOMPSON

Appeal No. 94-0823
Application 07/814,327¹

ON BRIEF

Before GOLDSTEIN, TURNER and WARREN, Administrative Patent Judges.

TURNER, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the Examiner's decision finally rejecting claims 1-3 and 5-15 which are all of the claims

¹ Application for patent filed December 23, 1991. According to applicants, the application is a continuation of Application 07/680,629, filed April 1, 1991, which is a continuation of Application 07/129,716, filed December 7, 1987.

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remaining under rejection. Claim 4 has been allowed. Claims 1 and 6 are illustrative and are appended to this decision.

The references of record relied upon in this appeal are:

Geis et al. (Geis)	4,565,599	Jan. 21, 1986
Fan et al., "Graphite-Strip-Heater Zone-Melting Recrystallization Of Si Films", Journal of Crystal Growth 63 (1983), pp. 453-483.		

Claims 2 and 8 stand rejected under 35 U.S.C. § 112, second paragraph and sixth paragraph as indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regard as their invention. Claim 2 stands rejected under 35 U.S.C. § 112, second paragraph, as indefinite and improper in that the "means for relatively displacing" is not defined by any structure set forth in the specification. Finally, claims 1, 3, 5-7, and 9-15 stand rejected under 35 U.S.C. § 103 as unpatentable over Fan in view of Geis. We shall affirm the rejections under 35 U.S.C. § 112, second paragraph and reverse the rejection under 35 U.S.C. § 103.

The subject matter on appeal is directed to an epitaxy enhancing structure and a method of enhancing epitaxy. The structure comprises a substrate having a film to be oriented, a template of a composition different from the composition of said film, the template contacting the film to deform the exposed surface of the film while it is in a solid state, the template being characterized by a geometry which is impressed on or in

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said film while the film is in a solid state such that crystallographic orientation of the film is changed. A more detailed description can be gleaned from a reading of claim 1.

According to the Examiner, claims 1, 3, 5-7, and 9-15 stand or fall together because Appellants fail to present reasons in support of these claims not standing or falling together. According to Appellants, claims 2 and 8 stand or fall together insofar as the § 112 rejection is concerned.

OPINION

We have reviewed the record before us including the position advanced by Appellants and the Examiner in support of their respective positions. Our review leads us to conclude that the position of the Examiner is well founded as to the rejection under § 112. However, we do not agree with the conclusion of the Examiner as to the rejection under § 103. Our reasons follow.

REJECTION OF CLAIM 2 UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

We shall affirm this rejection primarily for the reasons advanced by the Examiner in the Answer which refers to a previous Board decision. To reiterate, claims 2 specifies a "means for relatively displacing said template and said film". The specification fails to disclose any structure which corresponds to the means described in claim 2. The absence of any corresponding structure, as indicated by the merits panel deciding Appeal No. 89-3750, "precludes an analysis of the

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claimed structure in accord with the last paragraph of 35 U.S.C. § 112. Determination of the scope of the claim relies totally on speculation." Clearly, the claim is rendered indefinite since it is not possible to refer to the specification for any means for relatively displacing the template and the film. Appellants seem to rely upon an opinion by a declarant to support the position that the claim is definite. Obviously, we give little weight to the opinion which cannot serve to make definite the language described above which does not meet the requirement of § 112, paragraphs two and six. We find it somewhat amazing that Appellants suggest that the means are known to those of ordinary skill. Appellants have not shown this to be the case and this merits panel finds no support in the record for this allegation. Additionally, Appellants refer to a proposed amendment which was not entered. Since such an amendment is not before this merits panel and is not the subject of the appeal, we will not comment further thereon.

REJECTION OF CLAIMS 2 AND 8 UNDER 35
U.S.C. § 112, PARAGRAPHS TWO AND SIX

We affirm this rejection for reasons expressed above in our comments regarding claim 2 and since these claims are said to stand or fall together. We do not find a material difference in the two rejections under § 112, second paragraph, since both rejections have been grouped together by Appellants under a single discussion and the Examiner, in the Answer, has dealt with

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the rejections essentially as a single rejection. Also, claims 2 and 8 are both indicated as indefinite and the reasons given are the same for both rejections. We, accordingly, affirm the rejection of claims 2 and 8 for the same reasons as indicated above for claim 2. The "means for relatively displacing....." phraseology is in claim 2 as well as claim 8 and claim 8 depends from claim 2. We refer to the comments of the merits panel in the decision in Appeal No. 89-3750 which is of record in the file of the application here on appeal as well as our comments supra. For these reasons, we affirm the rejection.

REJECTION OF CLAIMS 1, 3, 5-7 AND 9-15 UNDER
35 U.S.C. § 103 OVER FAN IN VIEW OF GEIS

We shall not affirm this rejection. We refer to the Answer and the Brief for the respective positions of the Examiner and Appellants. We do not find that the Examiner has established a prima facie case of obviousness. The claims here on appeal provide limitations significantly different than the comparatively broad claims before our predecessor panel in Appeal No. 89-3750. We find that the prior art does not teach

1) a template of material of composition different from the composition of the film;

2) a template having high interfacial energy with respect to the film;

3) contacting the film to deform the exposed surface of the film while the film is in a solid state and orient the film

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while in the solid state in accordance with the surface relief structure; and

4) the template having a geometry which is impressed on the film while the film is in a solid state such that the orientation is changed to be in accord with the geometry impressed thereon with the template.

These characteristics of the structure and method have not been specifically commented upon by the Examiner. We do not find these particular characteristics in the structure of either of the prior art references and the Examiner has not indicated where or why combining the references would yield an epitaxy structure having the characteristics specified in the claims here on appeal. The Examiner has chosen not to provide any specific comments on the claim limitations as they are presented in the claims here on appeal but rather, relies upon comments made by the merits panel in the prior appeal identified above. Again, we note that the claims are different and the Examiner has not focused upon the newly added claim limitations. On the basis of the record before us, we do not find that the Examiner has established a prima facie case of obviousness and we reverse.

Accordingly, we affirm the rejection under 35 U.S.C. § 112 of claims 2 and 8 and reverse the rejection under 35 U.S.C. § 103 of claims 1, 3, 5-7, and 9-15.

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APPENDIX

1. Epitaxy enhancing structure comprising,
a substrate having a film to be oriented,
a template of material of composition different from the
composition of said film having high interfacial energy with
respect to that of said film capable of being reused having a
surface relief structure for orienting said film,

said template contacting said film to deform the exposed
surface of said film while said film is in a solid state to orient
said film while said film is in a solid state in accordance with
said surface relief structure,

the deformation being conducive to changing the
crystallographic orientation of said film while said exposed
surface of said film that is then in contact with said template
remains in a solid state,

said template characterized by a geometry which is
impressed on or in said film while said film is in a solid state
such that the crystallographic orientation of said film is changed
to be in accord with said geometry impressed thereon with said
template while said film is in a solid state.

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6. A method of enhancing epitaxy using a substrate having a film to be oriented and a reusable template having a surface relief structure geometry for orienting said film with the material of said template having high interfacial energy with respect to that of said film which method includes the steps of,

depositing said film upon said substrate,

and pressing said template surface relief structure into contact with said film to deform the exposed surface of said film to orient said film in accordance with said surface relief structure while said film is in a solid state to impress said geometry on or in said film while said film is in a solid state such that the crystallographic orientation of said film is changed to be in accord with said geometry impressed thereon with said template while said film is in a solid state,

the deformation being conducive to changing the crystallographic orientation of said film while said exposed surface of said film that is in contact with said template remains in a solid state.