

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIROSHI KOJIMA, YOSHIFUMI TAHARA
and IZUMI ARAI

Appeal No. 95-0142
Application 07/817,961¹

HEARD: February 5, 1998

Before METZ, GARRIS and WALTZ, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 14 through 19 and 21 through 28 which are all of the claims remaining in the application.

The subject matter on appeal relates to a method of plasma-etching a wafer which includes the post-etching steps of

¹ Application for patent filed January 8, 1992. According to appellants, this application is a continuation of Application 07/510,124, filed April 17, 1990, now abandoned.

Appeal No. 95-0142
Application 07/817,961

supplying an inactive gas into the processing vessel and exhausting the vessel while supplying the inactive gas during as well as after unloading the wafer from the wafer mounting surface in the vessel. Further details of this appealed subject matter are set forth in illustrative claim 25, a copy of which taken from the appellants' brief is appended to this decision.

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

Ukai et al. (Ukai)	4,816,638	Mar. 28, 1989
Jucha et al. (Jucha)	4,915,777	Apr. 10, 1990
		(filed Mar. 2, 1989)

All of the appealed claims are rejected under the first paragraph of 35 U.S.C. § 112 which the examiner considers to be violated by the last two steps recited in each of the independent claims on appeal.

All of the appealed claims are newly rejected in the answer under 35 U.S.C. § 103 as being unpatentable over Jucha in view of Ukai.

We refer to the principal and reply briefs and to the principal and supplemental answers for a complete exposition of the opposing viewpoints advanced by the appellants and the examiner concerning the above-noted rejections.

OPINION

We cannot sustain either of these rejections.

Appeal No. 95-0142
Application 07/817,961

The § 112 Rejection

The examiner has been less than a model of clarity as to whether his § 112, first paragraph, rejection is based upon noncompliance with the enablement requirement versus the written description requirement of this paragraph. To the extent that it is based upon nonenablement, the § 112 rejection plainly cannot be sustained since the examiner has failed to advance any reasoning whatsoever inconsistent with enablement pursuant to his burden of proof. In re Strahilevitz, 668 F.2d 1229, 1232, 212 USPQ 561, 563 (CCPA 1982).

As for the written description requirement, the test for compliance therewith is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983). On page 4 through page 10, line 13, of their principal brief, the appellants have set forth detailed reasons associated with specifically identified portions of their specification disclosure in support of their belief that the originally filed disclosure of this application would reasonably convey to an artisan that they had possession as of the filing date of the now

Appeal No. 95-0142
Application 07/817,961

claimed subject matter including the last two steps of the method defined by independent claims 25 and 26 on appeal. We fully agree with the appellants on this matter, and we adopt their aforementioned reasons as our own for not sustaining the examiner's § 112 rejection to the extent that it is based upon the written description requirement.

In light of the foregoing, we cannot sustain the examiner's rejection of claims 14 through 19 and 21 through 28 under the first paragraph of 35 U.S.C. § 112.

The § 103 Rejection

The examiner concedes that Jucha fails to disclose the unloading/removing step and the continuing step recited in the independent claims on appeal but argues that it would have been obvious to provide the Jucha method with these steps in view of Ukai. As support for this conclusion of obviousness, the examiner states that "[u]nder the condition of Fig. 4 of Ukai et al, the exhaustion of the etching chamber (1) is carried out while the wafer is being unloaded from the supporting surface and after the wafer is removed from the etching chamber (col. 6[,] lines 58-68)" and that "[s]uch an evacuating action to a high extent serves to force absorbed gases in the processing chamber and on the substrates into the atmosphere, according to Ukai et al. (col. 7[,] lines 1-7)" (answer, page 6).

Appeal No. 95-0142
Application 07/817,961

The Ukai reference contains no teaching or suggestion of using an inactive gas for purging patentee's processing vessel. This fact militates against the examiner's position that it would have been obvious to continue supplying the inactive gas of Jucha during and after the wafer unloading/removing operation. However, an even more serious deficiency is unquestionably fatal to the examiner's obviousness position, namely, the examiner's above-quoted statements of fact regarding the Ukai disclosure are clearly erroneous.

Specifically, the "exhaustion" and "evacuating action" referred to by the examiner do not occur "while the wafer is being unloaded from the supporting surface and after the wafer is removed from the etching chamber" as the examiner represents. To the contrary, these conditions occur while the wafer is being moved into, rather than removed from, the etching chamber. The accuracy of this interpretation is most clearly and readily evinced by Ukai's disclosure that "[s]uch an evacuating action . . . serves to force absorbed gases on unetched substrates into the atmosphere" (column 7, lines 1 through 4; emphasis added). At the risk of belaboring the obvious, the substrates or wafers would be "unetched" while being moved into the etching chamber and would be etched while being removed from the etching chamber.

Appeal No. 95-0142
Application 07/817,961

In short, the applied references contain no teaching or suggestion of removing contaminants (e.g., etching by-products) from a wafer processing vessel via an inactive gas purge as in Jucha or via an evacuating action as in Ukai during and after the wafer unloading/removing step. It follows that we cannot sustain the examiner's § 103 rejection of claims 14 through 19 and 21 through 28 as being unpatentable over Jucha in view of Ukai.

CONCLUSION

The decision of the examiner is reversed.

REVERSED

ANDREW H. METZ)	
Administrative Patent Judge)	
)	
)	
)	
BRADLEY R. GARRIS)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
THOMAS A. WALTZ)	
Administrative Patent Judge)	

Appeal No. 95-0142
Application 07/817,961

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APPENDIX

25. A method of plasma-etching a wafer by using an apparatus comprising a processing vessel, wafer supporting means provided in the vessel and having a wafer mounting surface, cooling means for cooling the wafer mounting surface, and means for forming a radio-frequency electric field in the vessel, said method comprising the steps of:

loading a wafer on the mounting surface;

etching the wafer by forming a radio-frequency electric field in the vessel and supplying an etching gas into the vessel after loading the wafer, thereby exciting the plasma of the etching gas;

cooling the wafer by the cooling means through the mounting surface during the etching;

stopping the etching by ending supply of the etching gas and the forming of the radio-frequency electric field;

beginning supply of an inactive gas into the vessel in synchronism with said ending of the supply of the etching gas;

exhausting the vessel during said supply of the inactive gas, and creating a flow of the inactive gas on the wafer and the mounting surface;

Appeal No. 95-0142
Application 07/817,961

unloading the wafer from the mounting surface while continuing said supply of the inactive gas and said exhausting of the vessel, thereby maintaining said flow of the inactive gas on the wafer and the mounting surface; and

continuing said supply of the inactive gas and said exhaustion of the vessel after unloading the wafer, thereby maintaining said flow of the inactive gas on the mounting surface and preventing by-products from adhering to the mounting surface which has been cooled and exposed.