

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

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

Ex parte BRETT E. HUFF,
KEN SCHATZ,
MIKE MAXIM, and
WILLIAM G. PETRO

Appeal No. 2001-2510
Application No. 09/001,350

ON BRIEF

Before KIMLIN, WALTZ, and TIMM, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 7-12, all the claims remaining in the present application. Claim 7 is illustrative:

7. A method of conducting a sputter etch comprising:
providing a semiconductor wafer having a wafer surface;

providing a sputter etch system including an etch chamber having a wafer

pedestal with a top surface to support a wafer and a magnet coupled to said etch chamber and configured to provide a continuous magnetic field directed at and in a direction normal to said top surface of said wafer pedestal;

placing said wafer on said pedestal; and

exposing said wafer surface to a sputter etch.

The examiner relies upon the following reference as evidence of obviousness:

Taki et al. (Taki)	5,733,405	March 31, 1998
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Appellants' claimed invention is directed to a method of sputter etching wherein a magnet provides a continuous magnetic field that is directed normal to the top surface of a pedestal which supports the wafer being etched.

Appealed claims 7-10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Taki. Claims 11 and 12 stand rejected under 35 U.S.C. § 103 as being unpatentable over Taki in view of the admitted prior art.

Appellants submit at page 5 of the principal brief that they "wish rejected claims 7-12 to stand or fall together on this Appeal." Accordingly, all the appealed claims stand or fall together with claim 7, and we will limit our consideration to the examiner's rejection of claim 7.

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejections for essentially those reasons expressed in the Answer and we add the following for emphasis only.

There is no dispute that Taki discloses the claimed system comprising "an etch chamber having a wafer pedestal with a top surface to support a wafer and a magnet coupled to said etch chamber and configured to provide a continuous magnetic field directed at and in a direction normal to said top surface of said wafer pedestal" (claim 7, lines 3-7). Appellants' principal, if not sole, argument is that Taki does not disclose an apparatus for sputter etching but, rather, an apparatus for plasma etching.

The dispositive issue on appeal focuses upon a single paragraph in the Taki reference, namely, the paragraph at column 16, lines 12-18, which reads as follows:

In the above-mentioned embodiments, use of etching apparatuses has been explained. However, the present invention is applicable to a plasma CVD apparatus or a plasma sputtering apparatus to obtain the same effect. For instance, when SiH_4 of silane type is introduced as a CVD gas, the gas is decomposed by electric discharge so that a deposited layer of silicon is formed on the workpiece.

According to appellants, the referenced disclosure of Taki contrasts the plasma etching apparatus previously explained to a plasma CVD apparatus or a plasma sputtering apparatus which deposits, not etches, a substrate. The examiner, on the other hand, takes the position that since all the examples of Taki are directed to an etching apparatus, the plasma sputtering apparatus cited would have been understood by one of ordinary skill in the art to be a plasma sputtering etching apparatus. The examiner explains that appellants have not disputed the fact that "[i]t is notoriously known that a sputtering apparatus operates in one of only two possible manners: as a sputter deposition apparatus or as a sputter etching apparatus" (page 5 of Answer, penultimate paragraph). Therefore, the examiner reasons that one of ordinary skill in the art would have understood that the sputtering apparatus described by Taki could be

used in an etching method similar to the exemplified plasma etching methods.

Since Taki does not specify that the described sputtering apparatus is to be used for either etching or deposition, and Taki discloses that the sputtering apparatus can be used to obtain the same effect as that of the plasma etching apparatus disclosed above, we are persuaded that the examiner has set forth a reasonable rationale which supports the legal conclusion that it would have been obvious for one of ordinary skill in the art to employ the plasma sputtering apparatus disclosed by Taki in a method of sputter etching a wafer surface, as presently claimed. We note that appellants have not proffered any objective evidence which establishes on this record that such an interpretation would have been contrary to a perspective taken by one of ordinary skill in the art at the time of filing the present application. While appellants point to their specification disclosure that conventional sputter etching processes are conducted at a zero gauss state (the absence of a magnetic field), appellants have not supported this assertion with any independent, objective evidence. In addition, appellants have not demonstrated with objective evidence that the claimed method would not experience any of the disadvantages purported to be attendant with sputter etching in a magnetic field.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision in rejecting the appealed claims is affirmed.

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

AFFIRMED

Edward C. Kimlin)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
Thomas A. Waltz)	
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
Catherine Timm)	
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