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11/867,740	10/05/2007	Madhavi R. Chandrachood	011453 ETCH/MASK-ETCH	9597
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PATTERSON & SHERIDAN, LLP - - APPM/TX 3040 POST OAK BOULEVARD, SUITE 1500 HOUSTON, TX 77056			REMAVEGE, CHRISTOPHER	
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The time period for reply, if any, is set in the attached communication.

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* MADHAVI R. CHANDRACHOOD,  
AMITABH SABHARWAL, TOI YUE LEUNG,  
and MICHAEL GRIMBERGEN

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Appeal 2012-007987  
Application 11/867,740  
Technology Center 1700

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Before EDWARD C. KIMLIN, HUBERT C. LORIN, and DONNA M. PRAISS, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claim 26, the only claim remaining in the present application. We have jurisdiction under 35 U.S.C. § 6(b). Claim 26 reads as follows:

26. A method for processing a photolithographic reticle, comprising:

positioning the reticle on a support member in a processing chamber, wherein the reticle comprises a metal photomask layer formed on an optically transparent substrate and a patterned resist material deposited on the metal photomask layer;

introducing a processing gas comprising an oxygen containing gas, a fluorocarbon gas, and trifluoromethane (CHF<sub>3</sub>) into the processing chamber;

delivering power to the processing chamber to generate a plasma formed from the processing gas by applying a source RF power to a coil in the processing chamber and applying a bias power to a reticle support in the processing chamber; and

etching exposed portions of the metal photomask layer using the plasma.

The Examiner relies upon the following references as evidence of obviousness:

Buxbaum et al. (Buxbaum)	US 2004/0209477 A1	Oct. 21, 2004
Mathuni et al. (Mathuni)	6,919,147 B2	Jul. 19, 2005

Appellants' claimed invention is directed to a method for processing a photolithographic reticle comprising etching exposed portions of a metal photomask layer with a plasma formed from a gas comprising an oxygen containing gas, a fluorocarbon gas, an trifluoromethane (CHF<sub>3</sub>).

Appealed claim 16 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Buxbaum in view of Mathuni.

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 rejection for essentially those reasons expressed in the Answer, and we add the following primarily for emphasis.

There is no dispute that Buxbaum, like Appellants, discloses a method for processing a photolithographic reticle by etching exposed portions of a metal photomask layer with a plasma formed from a processing gas comprising an oxygen containing gas and CHF<sub>3</sub>. As recognized by the Examiner, Buxbaum does not teach that the plasma is generated from a processing gas comprising a fluorocarbon gas in addition to an oxygen containing gas and CHF<sub>3</sub>. However, the Examiner correctly points out that Mathuni evidences that it was known in the art to etch a pattern in a metal photomask with a plasma generated from a processing gas comprising an oxygen containing gas and either CHF<sub>3</sub> or a fluorocarbon. Accordingly, we find no error in the Examiner's legal conclusion that it would have been obvious for one of ordinary skill in the art to substitute a fluorocarbon for the CHF<sub>3</sub> of Buxbaum, or include a mixture of a fluorocarbon and CHF<sub>3</sub> in the processing gas of Buxbaum. It is well settled that it is a matter of obviousness for one of ordinary skill in the art to combine two or more materials when each is taught by the prior art to be useful for the same purpose. *In re Kerkhoven*, 626 F.2d 846, 850 (CCPA 1980). In the present case, Mathuni expressly discloses that it was known in the art to generate a plasma from a processing gas comprising an oxygen containing gas and either CHF<sub>3</sub> or a fluorocarbon for etching a chromium photomask. Hence, we are satisfied that the Examiner properly concluded that it would have been obvious for one of ordinary skill in the art to use a mixture of an oxygen containing gas, CHF<sub>3</sub> and a fluorocarbon to etch the chromium photomask of Buxbaum.

The principal argument advanced by Appellants is that Mathuni, in discussing prior art, discloses a disadvantage of poor etching selectivity when using a plasma generated from  $\text{CHF}_3$  or a fluorocarbon. We agree with the Examiner, however, that it would have been obvious for one of ordinary skill in the art to etch a chromium photomask with a plasma generated from a processing gas comprising a mixture of  $\text{CHF}_3$  and a fluorocarbon with the reasonable expectation of poor etching selectivity. Just as it is a matter of obviousness for one of ordinary skill in the art to eliminate a feature of the prior art along with its attendant advantage, it is also a matter of obviousness for the skilled artisan to employ a known process along with its known disadvantage. Appellants have not established on this record that they have achieved an unexpected result by utilizing a processing gas comprising  $\text{CHF}_3$  and a fluorocarbon without experiencing poor etching selectivity. Furthermore, Mathuni discusses the disadvantage in association with producing halftone phase masks and the claimed method presently on appeal is not directed to making a halftone phase mask.

As a final point, we note that Appellants base no argument upon objective evidence of nonobviousness, such as unexpected results.

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

The decision of the Examiner is affirmed.

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

AFFIRMED

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