(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 475 457 A8

(12) **CORRECTED EUROPEAN PATENT APPLICATION**
Note: Bibliography reflects the latest situation

(15) Correction information:
Corrected version no 1 (W1 A2)
INID code(s) 84

(48) Corrigendum issued on:
23.02.2005 Bulletin 2005/08

(43) Date of publication:
10.11.2004 Bulletin 2004/46

(21) Application number: **04017496.3**

(22) Date of filing: **28.10.2002**

(51) Int Cl.[7]: **C23C 14/00**, C23C 14/02, C23C 14/06, C23C 14/16, C23C 28/02, H01L 21/768

(84) Designated Contracting States:
DE FR GB

(30) Priority: **14.11.2001 JP 2001348325**
05.02.2002 JP 2002027738
21.02.2002 JP 2002044289
21.02.2002 JP 2002044296

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
02024416.6 / 1 312 696

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Remarks:
This application was filed on 23 - 07 - 2004 as a divisional application to the application mentioned under INID code 62.

(54) **Metal barrier film production apparatus, metal barrier film production method, metal film production method, and metal film production apparatus**

(57) A barrier metal film production method comprising: supplying a source gas containing a halogen to an interior of a chamber between a substrate and a metallic etched member; converting an atmosphere within the chamber into a plasma to generate a source gas plasma so that the etched member is etched with the source gas plasma to form a precursor from a metal component contained in the etched member and the source gas; exciting a nitrogen-containing gas in a manner isolated from the chamber accommodating the substrate; forming a metal nitride upon reaction between excited nitrogen and the precursor; and making a temperature of the substrate lower than a temperature of means for formation of the metal nitride to form the metal nitride as a film on the substrate.

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