



(11) **EP 3 961 671 A8**

(12) **CORRECTED EUROPEAN PATENT APPLICATION**

(15) Correction information:
Corrected version no 1 (W1 A1)
Corrections, see
Bibliography INID code(s) 30

(48) Corrigendum issued on:
13.04.2022 Bulletin 2022/15

(43) Date of publication:
02.03.2022 Bulletin 2022/09

(21) Application number: **21189481.1**

(22) Date of filing: **03.08.2021**

(51) International Patent Classification (IPC):
H01J 37/305^(2006.01) H01J 37/20^(2006.01)

(52) Cooperative Patent Classification (CPC):
H01J 37/3056; H01J 37/20; H01J 2237/026;
H01J 2237/2007; H01J 2237/3151;
H01J 2237/31745

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **14.08.2020 JP 2020136922**

(71) Applicant: **Jeol Ltd.**
Akishima-shi, Tokyo 196-8558 (JP)

(72) Inventors:
• **KATAOKA, Shogo**
Tokyo, 196-8558 (JP)
• **MINO, Tatsuro**
Tokyo, 196-8558 (JP)
• **TODOROKI, Koji**
Tokyo, 196-8558 (JP)

(74) Representative: **Boult Wade Tennant LLP**
Salisbury Square House
8 Salisbury Square
London EC4Y 8AP (GB)

(54) **ION MILLING APPARATUS AND SAMPLE HOLDER**

(57) There is provided an ion milling apparatus capable of reliably supporting a part of a sample to be milled and of suppressing material sputtered off by ion beam irradiation from remaining on the sample. The ion milling apparatus (10) has: a sample holder (27) including a shield member (29) for shielding the sample (11) except for a portion to be milled (11b); and a sample locking member (31) cooperating with the shield member (29) such that the sample (11) is sandwiched and held therebetween (31, 29). The shield member (29) has an edge

portion (29a) that determines a milling position on or in the sample (11). The sample locking member (31) is disposed downstream of the edge portion (29a) in the direction of irradiation by the ion beam (12) and has a support portion (33) cooperating with the edge portion (29a) to support the milled portion (11b) therebetween (29a, 33). The support portion (33) has a first surface (34) making contact with the sample (11) and a second surface (35) making a given angle (θ) to the first surface (34). The given angle (θ) is equal to or less than 90° .

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