

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
07 July 2022 (07.07.2022)



(10) International Publication Number
WO 2022/146711 A1

(51) International Patent Classification:

H01J 37/20 (2006.01) *G01N 19/02* (2006.01)
C23C 14/48 (2006.01) *H01J 37/317* (2006.01)

(21) International Application Number:

PCT/US2021/063866

(22) International Filing Date:

16 December 2021 (16.12.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/132,156 30 December 2020 (30.12.2020) US

(71) Applicant: **GLOBALWAFERS CO., LTD.** [CN/CN];
No. 8 Industrial East Road 2, Science-Based Industrial Park,
Hsinchu (TW).

(72) Inventors: **ALBRECHT, Peter Daniel**; 501 Pearl Drive,
St. Peters, Missouri 63376 (US). **WU, Junnan**; 501 Pearl
Drive, St. Peters, Missouri 63376 (US).

(74) Agent: **SCHUTH, Richard A.** et al.; ARMSTRONG
TEASDALE LLP, 7700 Forsyth Blvd., Suite 1800, St.
Louis, Missouri 63105 (US).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN,
KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW,
SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: METHODS FOR IMPLANTING SEMICONDUCTOR STRUCTURES WITH IONS

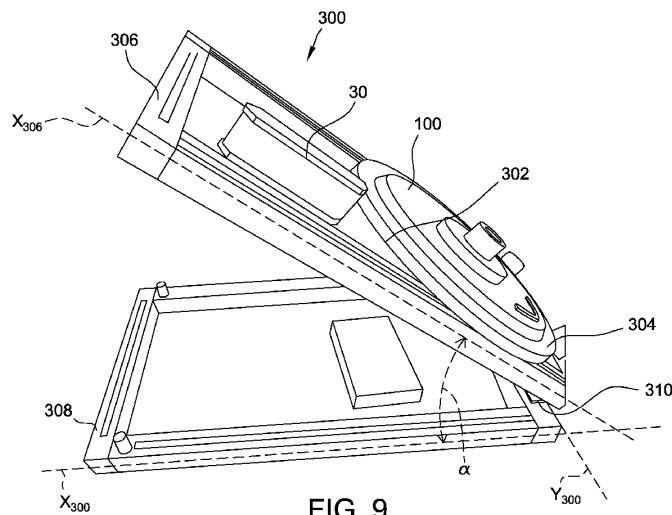


FIG. 9

(57) Abstract: Systems for implanting semiconductor structures with ions are disclosed. The semiconductor structure is positioned on a heatsink 100 and ions are implanted through a front surface of the semiconductor structure to form a damage region in the semiconductor structure. A parameter related to the coefficient of friction of the heatsink 100 is measured; e.g. a slide angle is measured by a testing apparatus 300. The parameter is compared to a baseline range.

[Continued on next page]

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))*