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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 April 2008 (24.04.2008)

PCT

(10) International Publication Number
WO 2008/048604 A1

(51) International Patent Classification:
H01L 21/3065 (2006.01) *H01L 21/205* (2006.01)

(21) International Application Number:
PCT/US2007/022080

(22) International Filing Date: 16 October 2007 (16.10.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/852,345 16 October 2006 (16.10.2006) US
11/701,430 2 February 2007 (02.02.2007) US

(71) Applicant *(for all designated States except US)*: **LAM RESEARCH CORPORATION** [US/US]; 4650 Cushing Parkway, Fremont, CA 94538 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LARSON, Dean, J.** [US/US]; 922 Sunset Creek Lane, Pleasanton, CA 94566 (US). **BROWN, Daniel** [US/US]; 5060 Haven Place, #208, Dublin, CA 94568 (US). **ULLAL, Saurabh, J.** [IN/US]; 144 Clay Avenue, South San Francisco, CA 94080 (US).

(74) Agent: **SKIFF, Peter, K.**; Buchanan Ingersoll & Rooney PC, PO Box 1404, Alexandria, VA 22313-1404 (US).

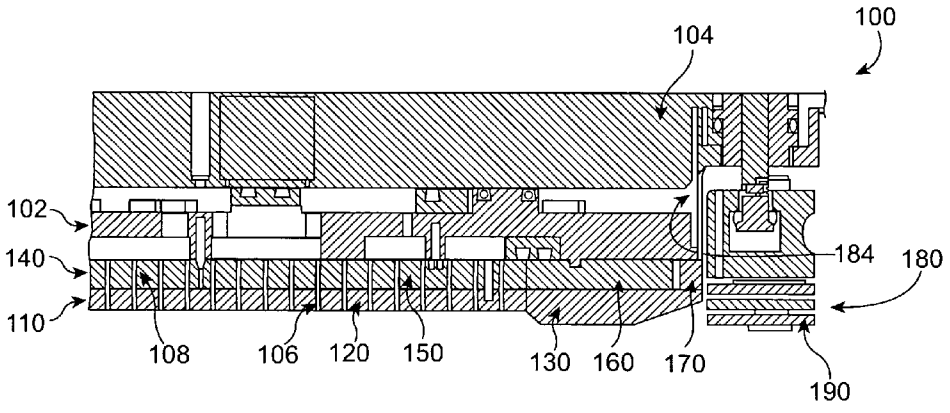
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN,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

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:
— *with international search report*

(54) Title: QUARTZ GUARD RING



(57) Abstract: An electrode assembly for a plasma reaction chamber used in semiconductor substrate processing. The assembly includes an upper electrode, a backing member attachable to an upper surface of the upper electrode, and an outer ring. The outer ring surrounds an outer surface of the backing member and is located above the upper surface of the upper electrode.

WO 2008/048604 A1