

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
15 October 2020 (15.10.2020)



(10) International Publication Number
WO 2020/210311 A1

(51) International Patent Classification:

B24B 53/017 (2012.01) **H01L 21/67** (2006.01)
B24B 53/12 (2006.01)

(21) International Application Number:

PCT/US2020/027207

(22) International Filing Date:

08 April 2020 (08.04.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/831,544 09 April 2019 (09.04.2019) US

(71) Applicant: **ENTEGRIS, INC** [US/US]; 129 Concord Road, Billerica, Massachusetts 01821 (US).

(72) Inventors: **YENER, Doruk**; 43 old Stagecoach Road, Bedford, Massachusetts 01730 (US). **SURIAGA, Conrad**; 405 South Main Street, Andover, Massachusetts 01810 (US). **SOUSA, Joseph**; 13 Holloway Brook Road, Lakeville, Massachusetts 02347 (US). **OEUR, Laundry**; 9

Saint James Place, Apartment 908, Nashua, New Hampshire 03062 (US). **RIVERS, Joseph**; 9431 Spring Hollow Drive, Austin, Texas 78750 (US). **BALU, Elango**; 1 South Union Street, Apartment 212 W, Lawrence, Massachusetts 01843 (US).

(74) Agent: **AMICI, Robert, M.**; Entegris, INC., 129 Concord Road, Billerica, Massachusetts US (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, 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,

(54) Title: SEGMENT DESIGNS FOR DISCS

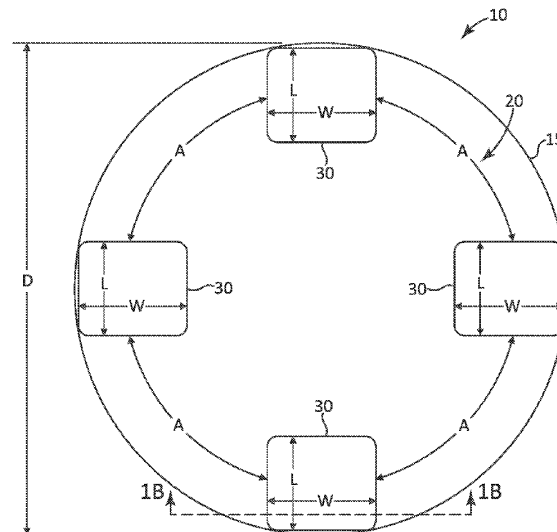


Figure 1A

(57) Abstract: A pad conditioner and chemical mechanical planarization (CMP) pad conditioner assembly for a CMP assembly are disclosed. The pad conditioner includes a substrate having a first surface and a second surface opposite the first surface. A plurality of protrusions protrude away from the first surface in a direction that is normal to the first surface. The plurality of protrusions are arranged in a plurality of rows. A first row of the plurality of rows is offset from a second row of the plurality of rows.

[Continued on next page]

WO 2020/210311 A1

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, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, 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))*

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))*