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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 September 2014 (25.09.2014)

WIPO | PCT

(10) International Publication Number
WO 2014/149340 A1

(51) International Patent Classification:
H01L 21/68 (2006.01)

(21) International Application Number:
PCT/US2014/017435

(22) International Filing Date:
20 February 2014 (20.02.2014)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/792,705 15 March 2013 (15.03.2013) US

(71) Applicant: **APPLIED MATERIALS, INC.** [US/US]; 3050 Bowers Avenue, Santa Clara, California 95054 (US).

(72) Inventor: **GAJENDRA, Manoj A.**; #21(10/1) "Prathama" V-Main, Rajahamsa Rd., Ittamadu, BSK III Stage, Bangalore 560085 (IN).

(74) Agents: **PATTERSON, B. Todd** et al.; Patterson & Sheridan, LLP, 24 Greenway Plaza, Suite 1600, Houston, TX 77046 (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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

[Continued on next page]

(54) Title: SUBSTRATE POSITION ALIGNER

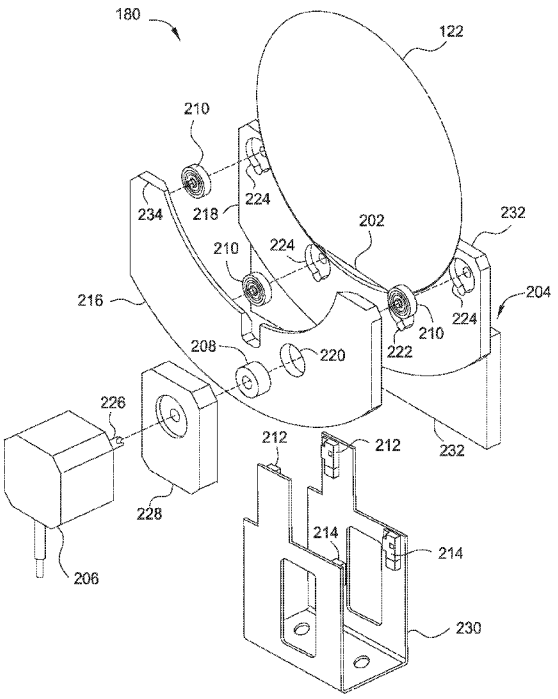


FIG. 2

(57) Abstract: A substrate position aligner includes a substrate holding assembly, a plurality of rollers, a rotation mechanism, and a sensor. The substrate holding assembly is configured to hold a substrate in a vertical orientation. The plurality of rollers include at least two idler rollers and a drive roller. Each roller has a point on its perimeter spaced on a common radius from a center of substrate rotation defined within the substrate holding assembly. The sensor is positioned approximately on the common radius and configured to detect the presence of an orientation cut in the substrate when the orientation cut is not orientated within a range between about - 44 degrees and about + 44 degrees from horizontal. A method of aligning a substrate having an orientation cut includes sensing a presence of the orientation cut when the orientation cut is not orientated within the above recited range.

WO 2014/149340 A1

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).

Published:

— *with international search report (Art. 21(3))*