

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
10 March 2022 (10.03.2022)



(10) International Publication Number
WO 2022/051373 A1

(51) International Patent Classification:

B25J 11/00 (2006.01) *B25J 15/00* (2006.01)
B25J 9/16 (2006.01) *H01L 21/677* (2006.01)

(21) International Application Number:

PCT/US2021/048681

(22) International Filing Date:

01 September 2021 (01.09.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/073,715 02 September 2020 (02.09.2020) US
17/392,392 03 August 2021 (03.08.2021) US

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

(72) Inventors: **NEWMAN, Jacob**; 3050 Bowers Avenue, Santa Clara, California 95054 (US). **CONSTANT, Andrew J.**;
3050 Bowers Avenue, Santa Clara, California 95054 (US).

RICE, Michael R.; 3050 Bowers Avenue, Santa Clara, California 95054 (US). **REUTER, Paul B.**; 3050 Bowers Avenue, Santa Clara, California 95054 (US). **ASSAF, Shay**; 3050 Bowers Avenue, Santa Clara, California 95054 (US). **KOSHTI, Sushant S.**; 3050 Bowers Avenue, Santa Clara, California 95054 (US).

(74) Agent: **KIMES, Benjamin A.** et al.; LOWENSTEIN SANDLER LLP, One Lowenstein Drive, Roseland, New Jersey 07068 (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,

(54) Title: SYSTEMS AND METHODS FOR INTEGRATING LOAD LOCKS INTO A FACTORY INTERFACE FOOTPRINT SPACE

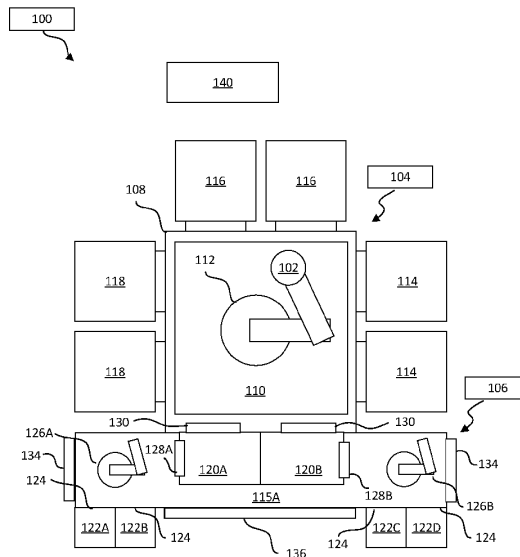


FIG. 1A

(57) Abstract: The disclosure describes devices, systems, and methods for integrating load locks into a factory interface footprint space. A factory interface for an electronic device manufacturing system can include an interior volume defined by a bottom, a top and a plurality of sides, a first load lock disposed within the interior volume of the factory interface, and a first factory interface robot disposed within the interior volume of the factory interface, wherein the first factory interface robot is configured to transfer substrates between a first set of substrate carriers and the first load lock.

[Continued on next page]

WO 2022/051373 A1

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, 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))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

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