

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
15 February 2024 (15.02.2024)



(10) International Publication Number
WO 2024/035334 A1

(51) International Patent Classification:
H01L 21/68 (2006.01) *B25J 9/10* (2006.01)
H05K 13/04 (2006.01)

#04-01 Kallang Basin Industrial Estate, Singapore 339416 (SG).

(21) International Application Number:
PCT/SG2023/050370

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(22) International Filing Date:
26 May 2023 (26.05.2023)

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(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10202250724V 12 August 2022 (12.08.2022) SG
10202260477V 16 December 2022 (16.12.2022) SG

(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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA,

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(54) Title: COMPONENT PICK-AND-PLACE SYSTEM, DEVICE AND METHOD THEREOF

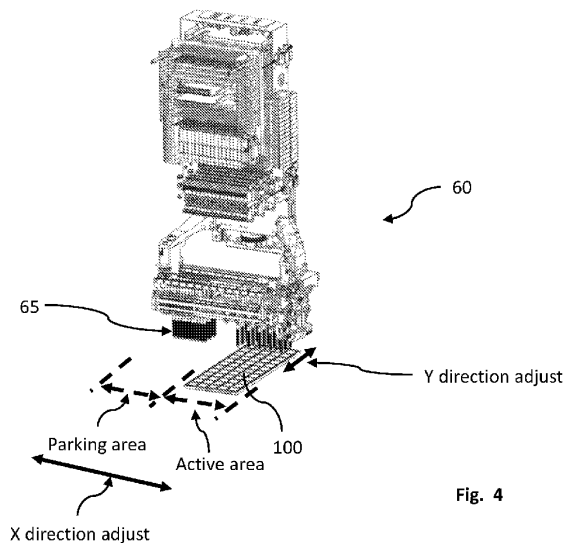


Fig. 4

(57) Abstract: There is a component pick-and-place system having a control unit, at least one transport line for transporting a plurality of component trays; and at least one transfer line for transferring a plurality of pick-and-place (PnP) devices. Each of the plurality of PnP devices has a control and valve unit, an automatic pitch conversion unit having at least one column/module and at least one row of pickup tips positional at a parking area and an active area. The automatic pitch conversion unit has a X-pitch conversion mechanism and a Y-pitch conversion mechanism. The X-pitch conversion mechanism has a first drive motor, a plurality of movement transfer elements for transferring rotary motions of the first drive motor to cause a pair of X-pitch bands to move in a linear direction, and a pair of engagement arms that are slidably engaged to the pair of X-pitch bands for sequentially engaging a column of pickup tips to move to a desired X-pitch position. The Y-pitch conversion mechanism has a second drive motor, a plurality of movement transfer elements

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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, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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))*
- *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))*

for transferring rotary movements of the second drive motor to a pair of Y-pitch arms to cause a pair of Y-pitch rods to move in a linear direction, and a pair of pickup tip holders slidably engaged to the pair of Y-pitch rods for simultaneously moving the plurality of rows of pickup tips to a desired Y-pitch position.