



- (51) International Patent Classification:
B25J 13/00 (2006.01) *B25J 19/00* (2006.01)
B25J 18/00 (2006.01)
- (21) International Application Number: PCT/IB2013/053791
- (22) International Filing Date: 10 May 2013 (10.05.2013)
- (25) Filing Language: Italian
- (26) Publication Language: English
- (30) Priority Data: TO2012A000425 11 May 2012 (11.05.2012) IT
- (71) Applicant: DALMEC S.P.A. [IT/IT]; Via Gramsci 2, I-38023 Cles (Trento) (IT).
- (72) Inventor: LORENZO, Giovanni; Via F. Filzi 90, I-38023 Cles (Trento) (IT).
- (74) Agents: FIORAVANTI, Corrado et al.; c/o Jacobacci & Partners S.p.A., Corso Emilia 8, I-10152 Torino (IT).

(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, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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, 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, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: A BALANCED PNEUMATIC MANIPULATOR

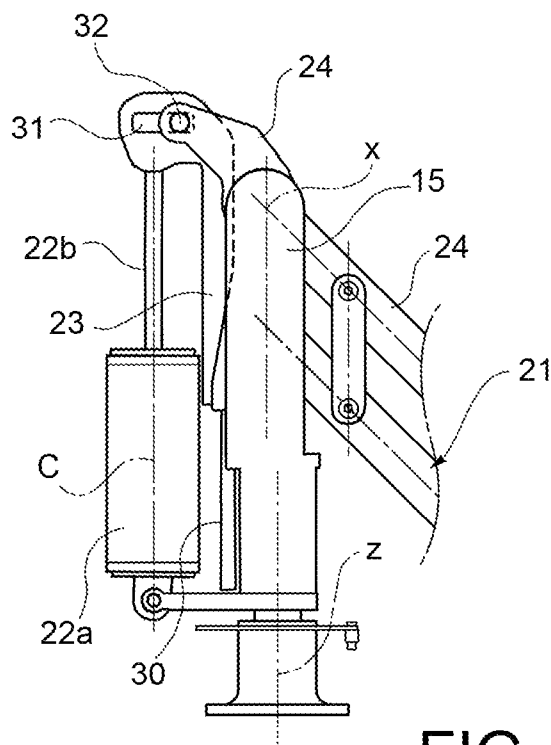


FIG. 7

(57) Abstract: The manipulator comprises a supporting device (11) having an assembly (13) rotatable about a vertical axis and an articulated parallelogram (21) with a swing arm (24). A pneumatic linear actuator (22), acts between the rotatable assembly (13) and the articulated parallelogram (21), for causing the arm (24) to rotate about a horizontal axis of oscillation. A slide (23) is connected to the actuator (22) and slidably mounted on the rotatable assembly (13) by means of a first vertical guide (30). The slide has a second horizontal guide (31) in which is engaged an element (32, 33) mounted on the swing arm (24).

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *of inventorship (Rule 4.17(iv))*

Published:

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