



- (51) International Patent Classification:
B25J 19/00 (2006.01) *B25J 9/00* (2006.01)
- (21) International Application Number:
PCT/NL2014/050380
- (22) International Filing Date:
11 June 2014 (11.06.2014)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2010956 12 June 2013 (12.06.2013) NL
- (72) Inventor; and
- (71) Applicant : GENANI, Gaurav [IN/NL]; Prof. Oudemans-straat 55, NL-2628 KB Delft (NL).
- (74) Agent: HAAN, Raimond Johannes Gerardus; Arnold + Siedsma B.V., P.O. Box 18558, NL-2502 EN The Hague (NL).
- (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, 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))
- 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))

[Continued on next page]

(54) Title: DEVICE WITH IMPROVED ACTUATING MEANS AND METHOD FOR USE THEREOF

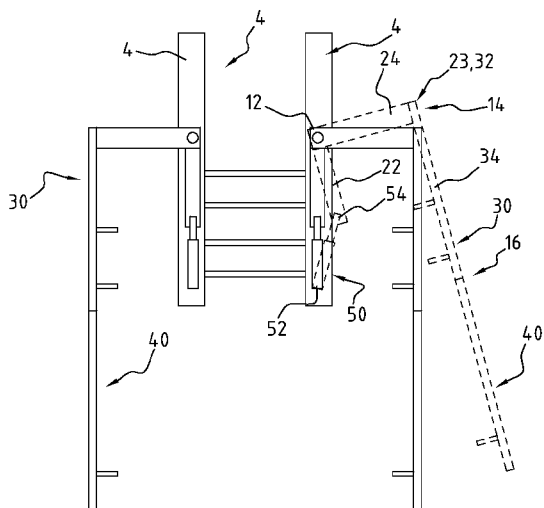


FIG. 1

(57) Abstract: The present invention relates to a device, comprising: a main body (2), an arm assembly (10) comprising: a first arm member (20), a first joint (12), a second arm member (30), a second joint (14), orientation control means for adjusting the orientation of the arm members and/ or joints of the arm assembly relative to the main body, one or more passive actuating means (50, 60, 70) for counterbalancing at least a part of the weight of the arm assembly, wherein an adjustable lever mechanism is arranged between the main body and the arm assembly, drive means (80) configured for adjusting the lever arm, one or more orientation sensors for determining the orientation of the arm members and/or joints of the arm assembly relative to the main body, and lever arm control means for adjusting the lever arm of the adjustable lever mechanism with the drive means. The invention further relates to a method of adjusting a lever arm of such a device.



(88) Date of publication of the international search report:
26 March 2015

INTERNATIONAL SEARCH REPORT

International application No PCT/NL2014/050380

A. CLASSIFICATION OF SUBJECT MATTER
 INV. B25J19/00 B25J9/00
 ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 B25J A61H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2007/080275 A1 (STACHOWSKI ERIC R [US] ET AL STACHOWSKI ERIC RONALD [US] ET AL) 12 April 2007 (2007-04-12) abstract; figures 3-8 paragraph [0049] paragraph [0054] paragraph [0058]	1,2,6,8, 10-14, 16,17
Y	US 6 539 333 B1 (METELSKI ANDRZEJ [CH]) 25 March 2003 (2003-03-25) abstract; figure 1 column 3, line 41 - line 51 column 3, line 66 - column 4, line 1 ----- -/--	1,2,6,8, 10-14, 16,17

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

19 January 2015

Date of mailing of the international search report

27/01/2015

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040,
 Fax: (+31-70) 340-3016

Authorized officer

Lumineau, Stéphane

INTERNATIONAL SEARCH REPORT

International application No PCT/NL2014/050380

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 2012 0130975 A (DAEWOO SHIPBUILDING & MARINE ENG. CO LTD) 4 December 2012 (2012-12-04) figure 6 -----	13, 14, 16
A	WO 2012/154580 A1 (EQUIPOIS INC [US]; SACKSTEDER ANTHONY D [US]) 15 November 2012 (2012-11-15) the whole document -----	1-17
A	DD 228 484 A1 (SACHSENRING AUTOMOBILWERKE [DD]) 16 October 1985 (1985-10-16) abstract; figure 1 page 4, last line - page 5, line 2 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/NL2014/050380

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007080275 A1	12-04-2007	US 2007080275 A1 WO 2007041685 A1	12-04-2007 12-04-2007

US 6539333 B1	25-03-2003	DE 20213340 U1 EP 1326115 A1 JP 4118692 B2 JP 2003246600 A US 6539333 B1	24-10-2002 09-07-2003 16-07-2008 02-09-2003 25-03-2003

KR 20120130975 A	04-12-2012	NONE	

WO 2012154580 A1	15-11-2012	US 2015001269 A1 WO 2012154580 A1	01-01-2015 15-11-2012

DD 228484 A1	16-10-1985	NONE	
