



(51) International Patent Classification:

B25J 9/16 (2006.01)

(21) International Application Number:

PCT/US2014/028965

(22) International Filing Date:

14 March 2014 (14.03.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/798,047 15 March 2013 (15.03.2013) US

61/940,827 17 February 2014 (17.02.2014) US

(71) Applicant: PAR SYSTEMS, INC. [US/US]; 707 County Road E West, Shoreview, MN 55126 (US).

(72) Inventor: JUNG, Thomas, E.; 20585 Rowan Avenue, Welch, MN 55089 (US).

(74) Agents: KOEHLER, Steven, M. et al.; Westman, Champ-
lin & Koehler, P.A., 900 Second Avenue South, Suite
1400, Minneapolis, MN 55402-3319 (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,
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))

(88) Date of publication of the international search report:

20 November 2014

(54) Title: MULTI-AXIS CONFIGURABLE FIXTURE

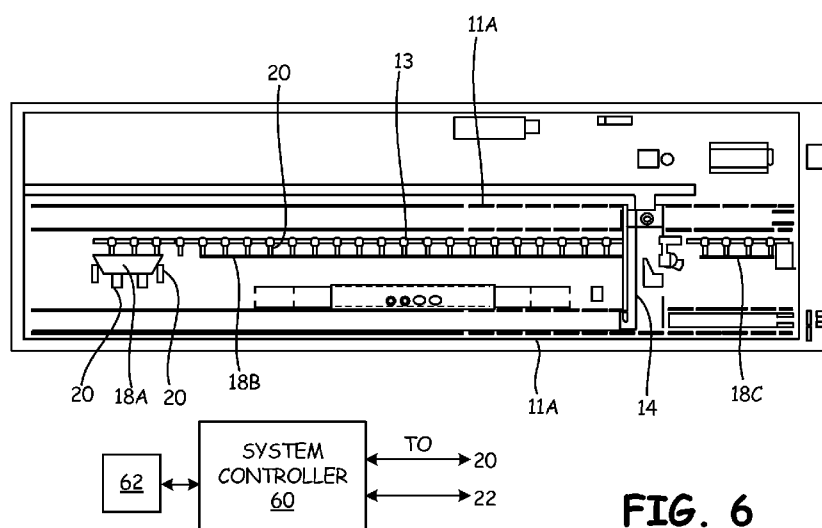


FIG. 6

(57) Abstract: A holding assembly (17) and a method of holding a workpiece are provided. The assembly (17) and method include a plurality of multi-degree of freedom robotic devices (20), each device (20) having a workpiece engaging device (22) to hold a workpiece wherein and each robotic device (20) is configured to move the corresponding workpiece engaging device (22) to a desired position based on the workpiece to be held. A controller (60) is operably connected to each of the freedom robotic devices (20) to control each of multi-degree of freedom robotic devices (20) so as to move the corresponding workpiece engaging device (22) to a desired position based on the workpiece to be held.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/028965

A. CLASSIFICATION OF SUBJECT MATTER
INV. B25J9/16
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 G05B

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, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2005/009691 A1 (FANUC ROBOTICS AMERICA INC [US]; JHAVERI NISHANT [US]; MISRA RANGANATH) 3 February 2005 (2005-02-03) page 2, line 6 - page 3, line 16 page 5, line 4 - page 7, line 3 -----	1,3-8, 10,12-16
X	WO 92/17312 A1 (GMFANUC ROBOTICS CORP [US]) 15 October 1992 (1992-10-15) page 23, line 25 - page 33, line 17 page 36, line 5 - line 34 -----	1-3,6, 8-12, 15-18
X	EP 2 221 151 A2 (BOEING CO [US]) 25 August 2010 (2010-08-25) paragraphs [0031] - [0040], [0092], [0096], [0102] - [0108], [0127] ----- -/--	1,2, 6-11, 15-18



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

23 September 2014

Date of mailing of the international search report

06/10/2014

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

Prokopiou, Platon

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/028965

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 018 940 A2 (FANUC LTD [JP]) 28 January 2009 (2009-01-28) paragraphs [0021] - [0035] -----	1,2,6, 10,11,15
A	WO 2011/017652 A2 (PAR SYSTEMS INC [US]; MARRINAN THOMAS E [US]; DE JOUY COME RENE-BAZIN) 10 February 2011 (2011-02-10) paragraphs [0040] - [0042], [0066], [0067] -----	1-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/028965

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 2005009691	A1	03-02-2005	CN	1839018 A		27-09-2006
			EP	1648664 A1		26-04-2006
			JP	2006528082 A		14-12-2006
			US	2005036879 A1		17-02-2005
			WO	2005009691 A1		03-02-2005

WO 9217312	A1	15-10-1992	CA	2106580 C		07-02-1995
			DE	4290927 C2		27-04-2000
			DE	4290927 T1		13-01-1994
			JP	2573547 B2		22-01-1997
			JP	H06510951 A		08-12-1994
			US	5239739 A		31-08-1993
			WO	9217312 A1		15-10-1992

EP 2221151	A2	25-08-2010	CN	101898301 A		01-12-2010
			EP	2221151 A2		25-08-2010
			JP	2010194710 A		09-09-2010
			US	2010217437 A1		26-08-2010

EP 2018940	A2	28-01-2009	CN	101352807 A		28-01-2009
			EP	2018940 A2		28-01-2009
			JP	4249789 B2		08-04-2009
			JP	2009023072 A		05-02-2009
			US	2009025199 A1		29-01-2009

WO 2011017652	A2	10-02-2011	CA	2770503 A1		10-02-2011
			CN	102549511 A		04-07-2012
			JP	2013500876 A		10-01-2013
			US	2011037212 A1		17-02-2011
			US	2011037213 A1		17-02-2011
			WO	2011017652 A2		10-02-2011
