

(12) **United States Design Patent** (10) **Patent No.:** **US D880,552 S**
Kawaguchi et al. (45) **Date of Patent:** **** Apr. 7, 2020**

(54) **MANIPULATOR FOR ROBOT** D846,614 S * 4/2019 Kawaguchi D15/199
D846,615 S * 4/2019 Kawaguchi D15/199
(71) Applicant: **MITSUBISHI ELECTRIC** D847,243 S * 4/2019 Kawaguchi D15/199
CORPORATION, Tokyo (JP) D847,244 S * 4/2019 Kawaguchi D15/199
D852,859 S * 7/2019 Kawaguchi D15/199
(72) Inventors: **Noboru Kawaguchi, Tokyo (JP);** 2004/0054424 A1 * 3/2004 Matsuda B25J 9/104
Tomoya Hattori, Tokyo (JP); Masaki 623/64
Haruna, Tokyo (JP); Koji Hirose, 2006/0158146 A1 * 7/2006 Tadano B25J 15/0004
Tokyo (JP); Ken Ueda, Tokyo (JP); 318/568.21
Shingo Kimura, Tokyo (JP) 2007/0236162 A1 * 10/2007 Kawabuchi B25J 9/102
318/568.16
(73) Assignee: **Mitsubishi Electric Corporation,** 2008/0127768 A1 * 6/2008 Shirai B25J 15/0009
Tokyo (JP) 74/490.05

(Continued)

(**) Term: **15 Years** *Primary Examiner* — Patricia A Palasik
(21) Appl. No.: **29/664,979** (74) *Attorney, Agent, or Firm* — Sutdebaker & Brackett
PC

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(51) **LOC (12) Cl.** **15-99**

(52) **U.S. Cl.** **D15/199**
USPC

(58) **Field of Classification Search**
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CPC B25J 15/10; B25J 15/086; B25J 15/0009;
Y10S 901/38; Y10S 901/39
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,447,403 A * 9/1995 Engler, Jr. B25J 15/0009
294/111
8,936,289 B1 * 1/2015 Kozlowski B25J 15/0009
294/106
9,814,604 B2 * 11/2017 Jury A61F 2/583
D812,122 S * 3/2018 Clerc D15/199
D846,613 S * 4/2019 Kawaguchi D15/199

(57) **CLAIM**

The ornamental design for a manipulator for robot, as shown and described.

DESCRIPTION

FIG. 1 is a front perspective view of the front, right, and top sides of a manipulator for robot showing a first embodiment of our new design;

FIG. 2 is a rear perspective view of the rear, left, and bottom sides thereof;

FIG. 3 is a front view thereof;

FIG. 4 is a rear view thereof;

FIG. 5 is a left side view thereof;

FIG. 6 is a right side view thereof;

FIG. 7 is a top plan view thereof;

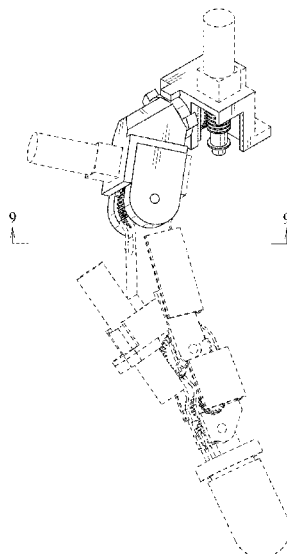
FIG. 8 is a bottom plan view thereof;

FIG. 9 is an enlarged view of a part 9; and,

FIG. 10 is an enlarged view of a part 10.

The broken lines in the drawings represent portions of the manipulator for robot and form no part of the claimed design.

1 Claim, 10 Drawing Sheets



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(56)	References Cited				2014/0103673	A1 *	4/2014	Nammoto		B25J 13/082
U.S. PATENT DOCUMENTS					2014/0107805	A1 *	4/2014	Varley		A61F 2/586
2009/0015026	A1 *	1/2009	Matsuda	 B25J 15/0009	2014/0132018	A1 *	5/2014	Claffee	.....	B25J 9/0015
				294/106						294/192
2009/0114054	A1 *	5/2009	Horiuchi	 B25J 9/102	2014/0159407	A1 *	6/2014	Neff	.....	B25J 15/0206
				74/490.05						294/213
2010/0005918	A1 *	1/2010	Mizuno	 B25J 9/102	2014/0197652	A1 *	7/2014	Wang	.....	B25J 15/0009
				74/490.03						294/185
2010/0116079	A1 *	5/2010	Ihrke	 B25J 9/1075	2014/0232124	A1 *	8/2014	Dan	.....	B25J 15/0009
				74/490.05						294/198
2010/0176615	A1 *	7/2010	Okuda	 A61F 2/583	2015/0216679	A1 *	8/2015	Lipsey	.....	A61F 2/582
				294/106						623/24
2010/0259057	A1 *	10/2010	Madhani	 B25J 9/1045	2015/0230941	A1 *	8/2015	Jury	.....	A61F 2/583
				294/106						623/64
2011/0040408	A1 *	2/2011	De La Rosa	Tames B25J 9/1045	2015/0257903	A1 *	9/2015	Perry	.....	A61F 2/70
				700/258						623/24
2011/0257765	A1 *	10/2011	Evans	 A61F 2/54	2016/0008146	A1 *	1/2016	Nagatsuka	.....	B25J 15/0009
				623/24						623/64
2012/0068486	A1 *	3/2012	Kim	 B25J 15/0009	2016/0263748	A1 *	9/2016	Nagatsuka	.....	B25J 15/0009
				294/213	2016/0278872	A1 *	9/2016	Gombert	.....	B25J 15/028
2012/0205932	A1 *	8/2012	Nammoto	 B25J 15/10	2017/0151679	A1 *	6/2017	Wong	.....	B25J 15/10
				294/213	2018/0140441	A1 *	5/2018	Poirters	.....	A61F 2/54
2014/0007730	A1 *	1/2014	DeLouis	 B25J 15/0009	2018/0272541	A1 *	9/2018	Salisbury	.....	B25J 13/085
				74/490.03	2018/0311827	A1 *	11/2018	Bicchi	.....	B25J 15/0009
					* cited by examiner					

* cited by examiner

FIG. 1

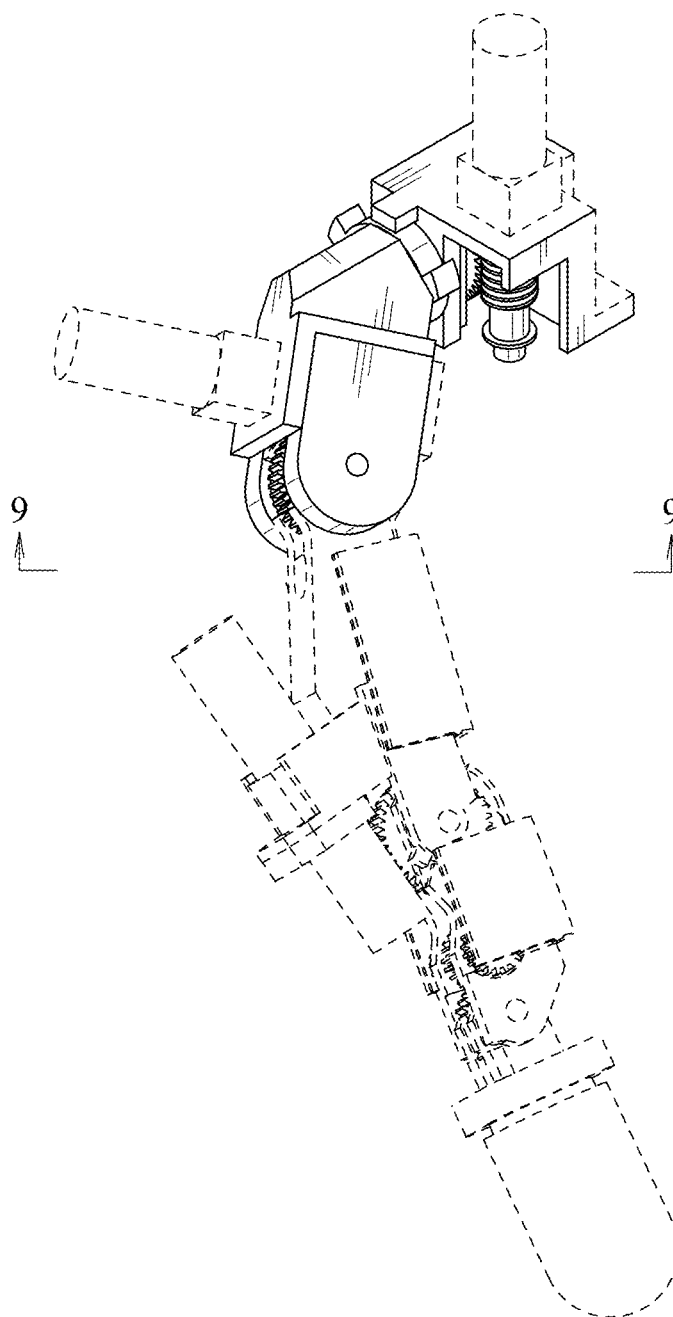


FIG. 2

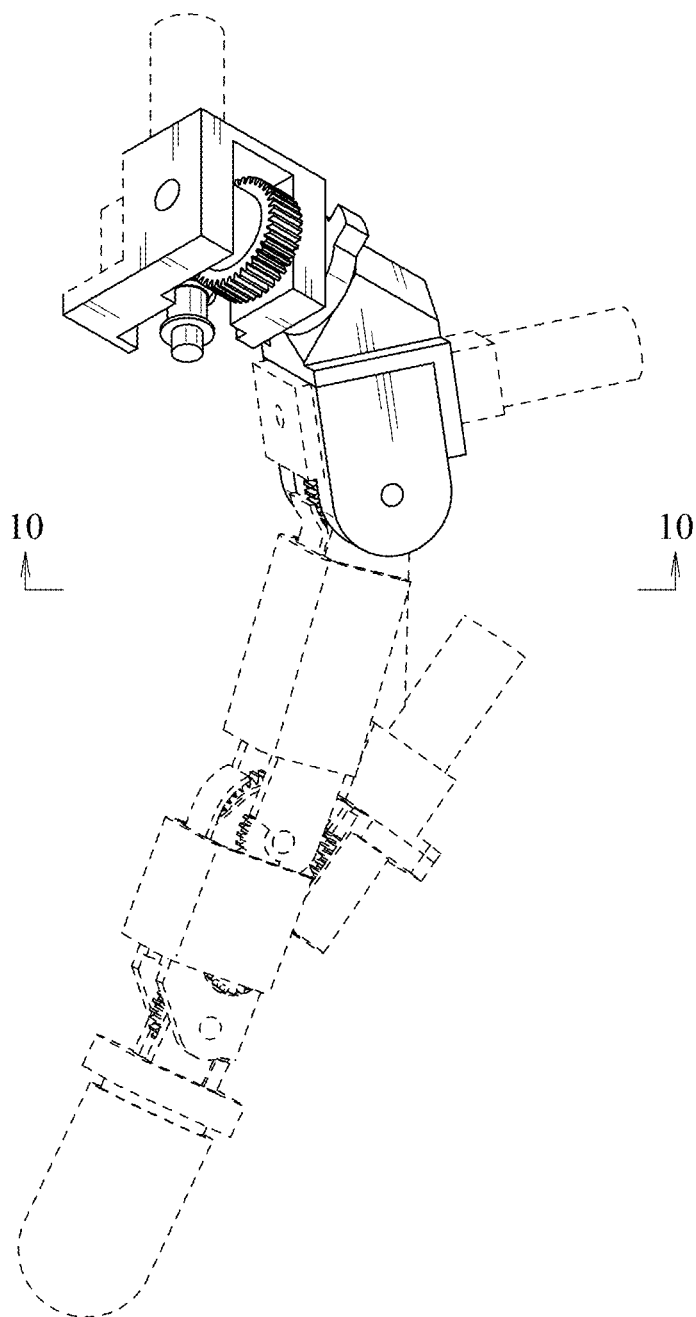


FIG. 3

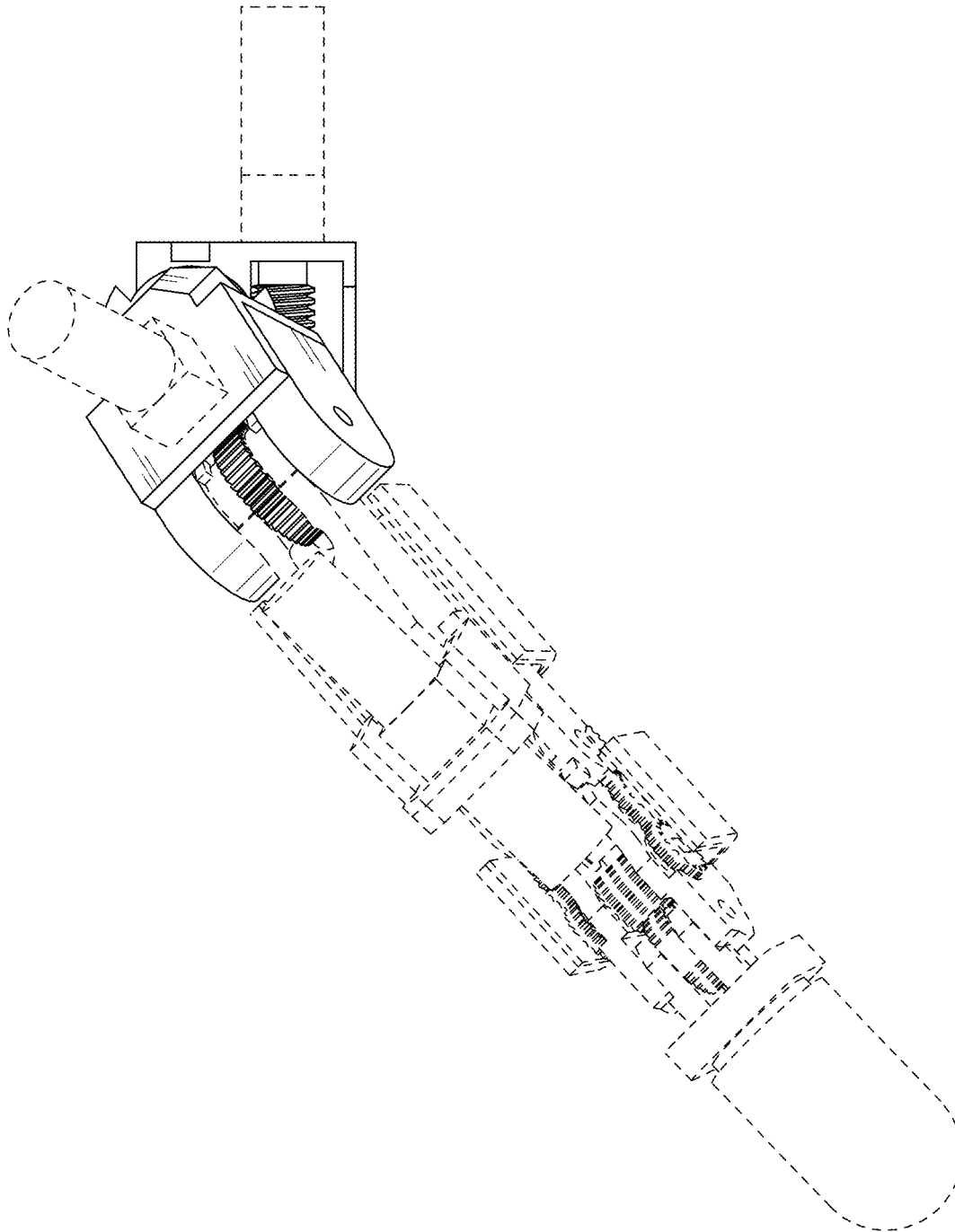


FIG. 4

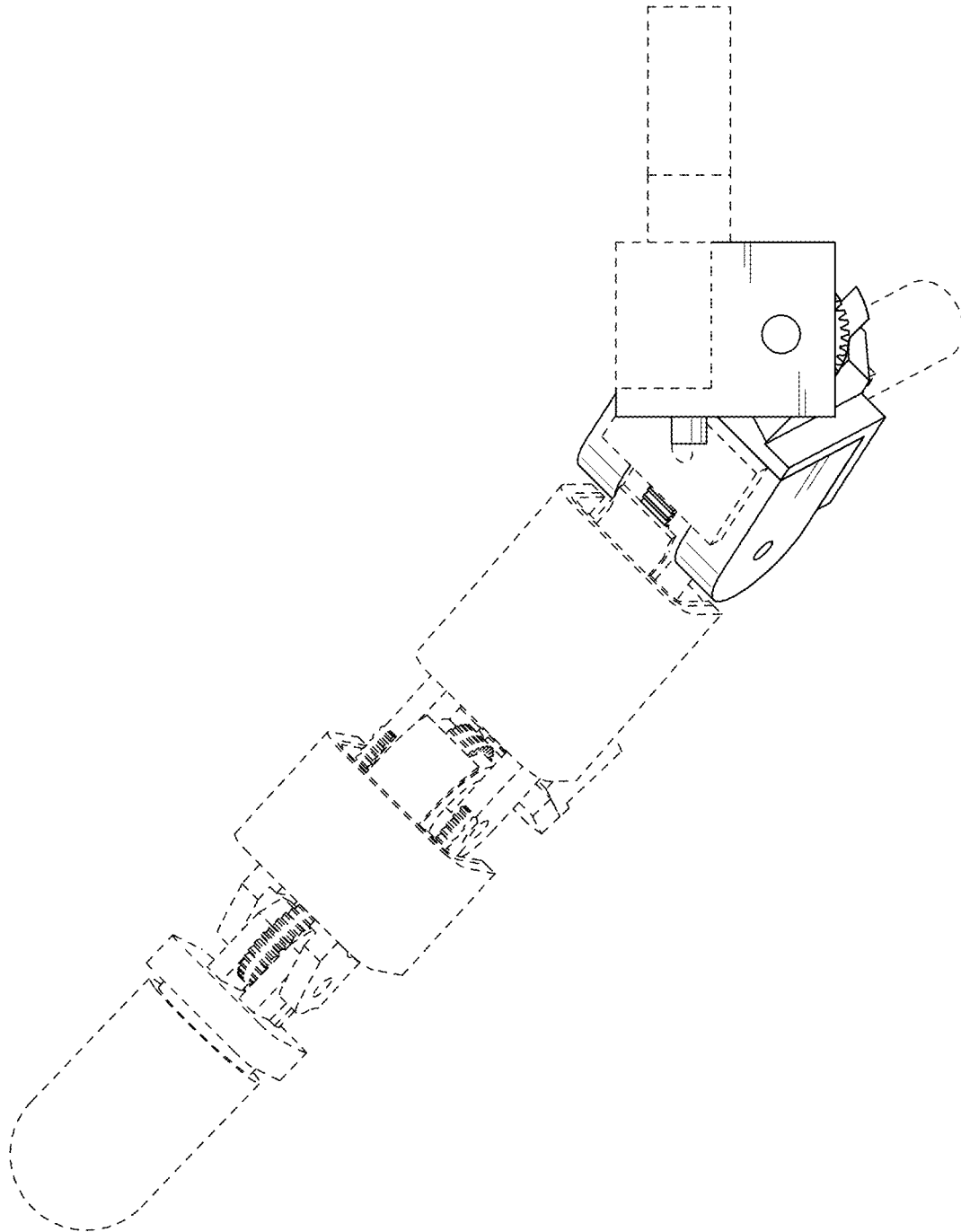


FIG. 5

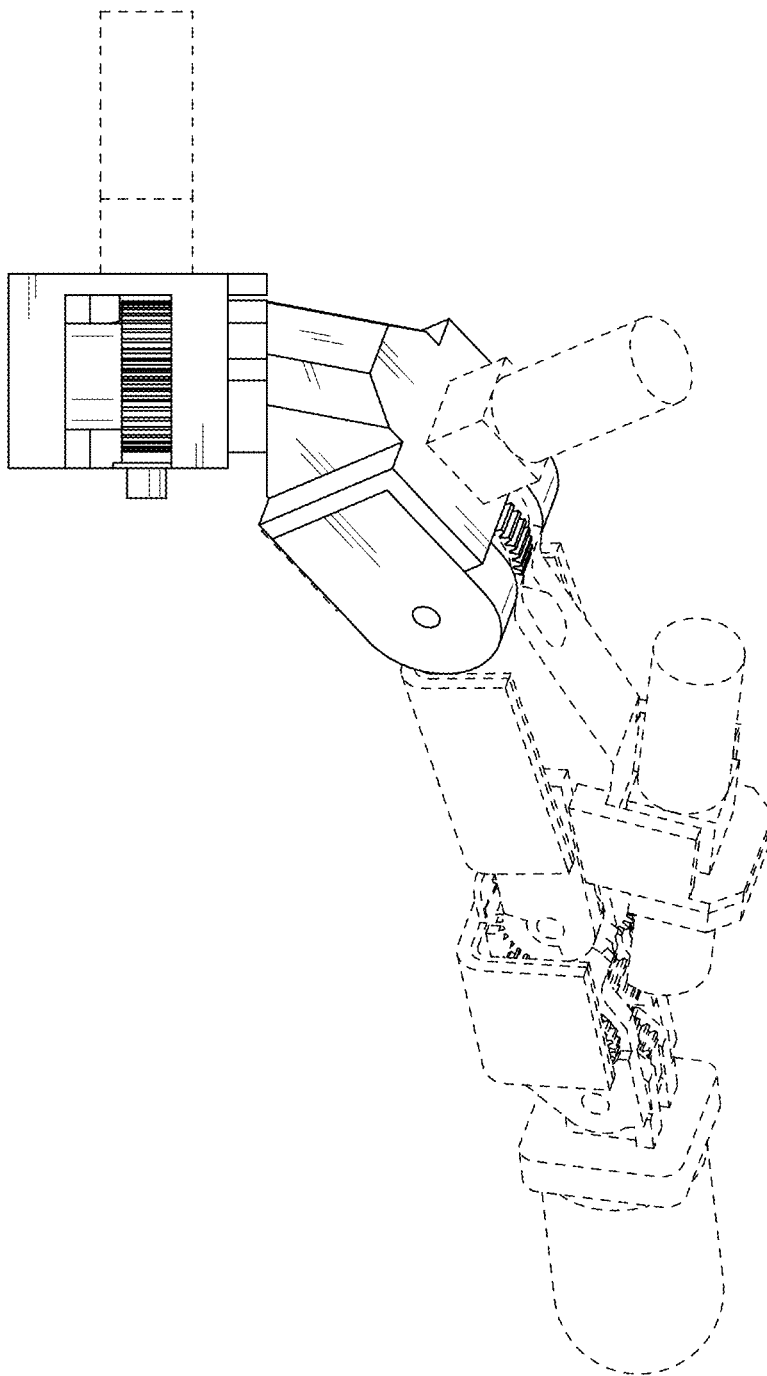


FIG. 6

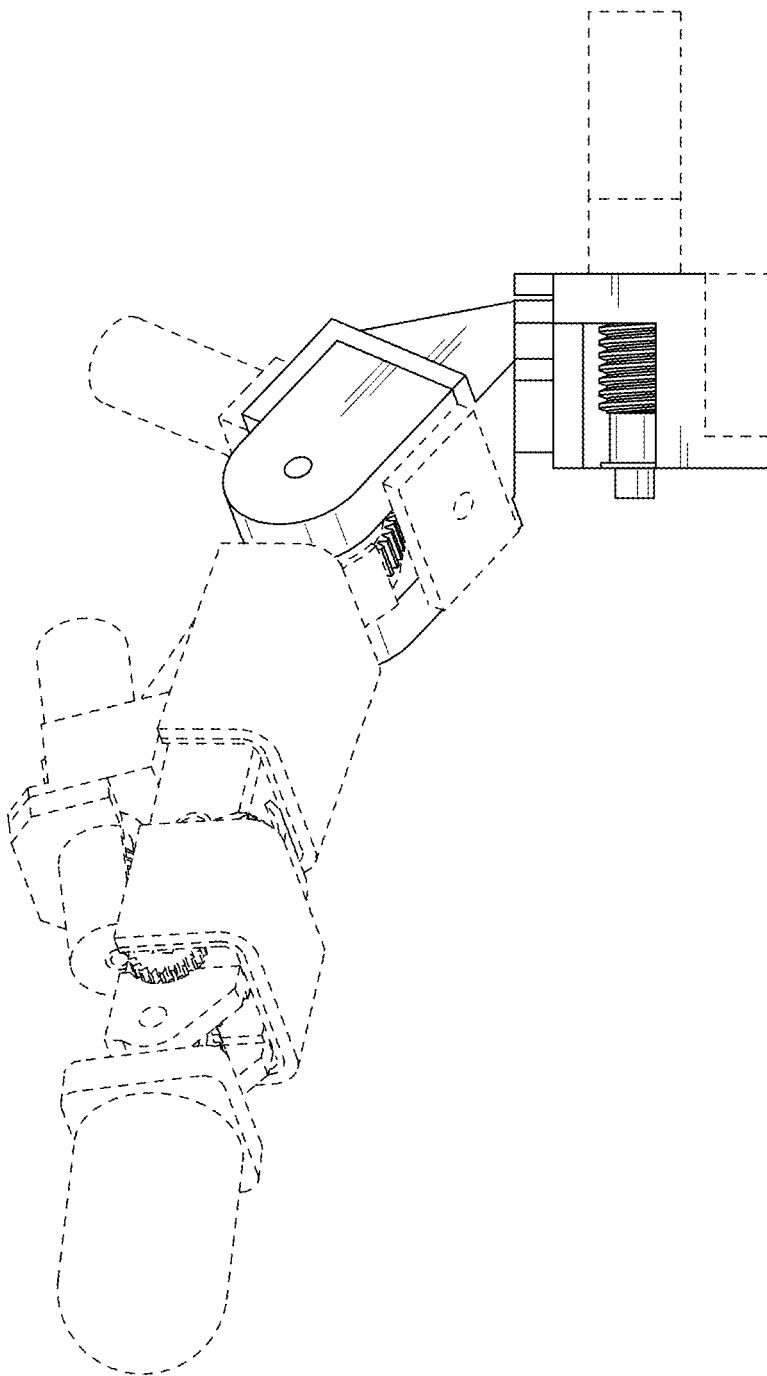


FIG. 7

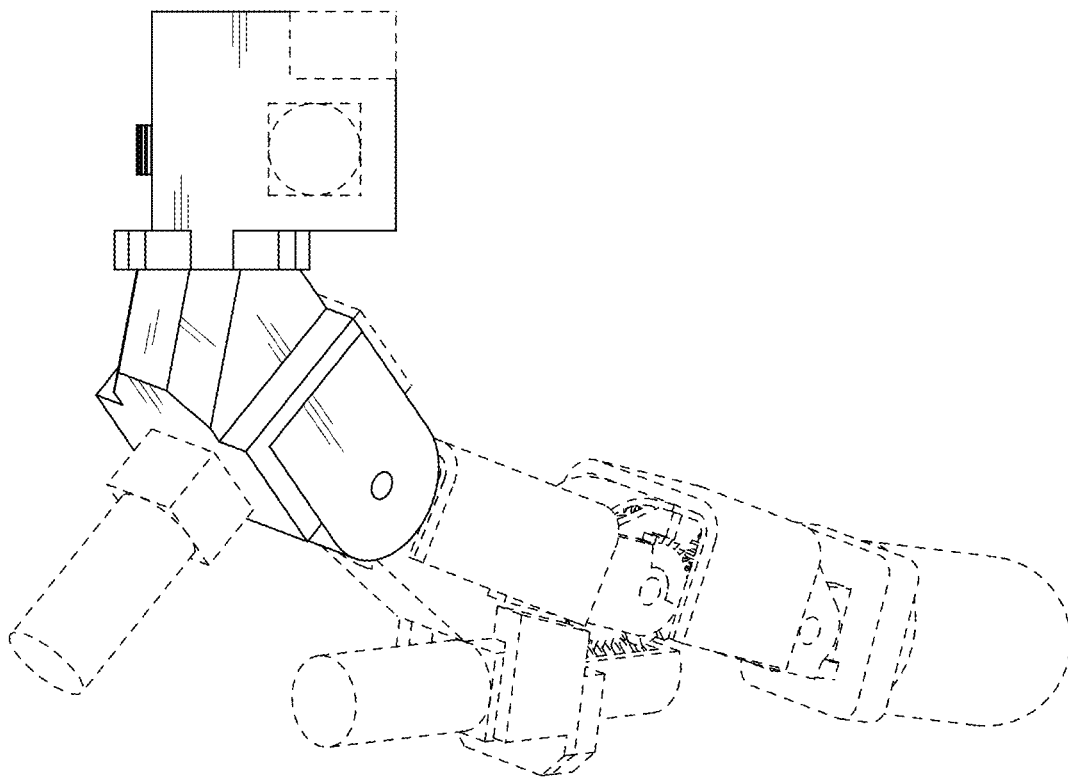


FIG. 8

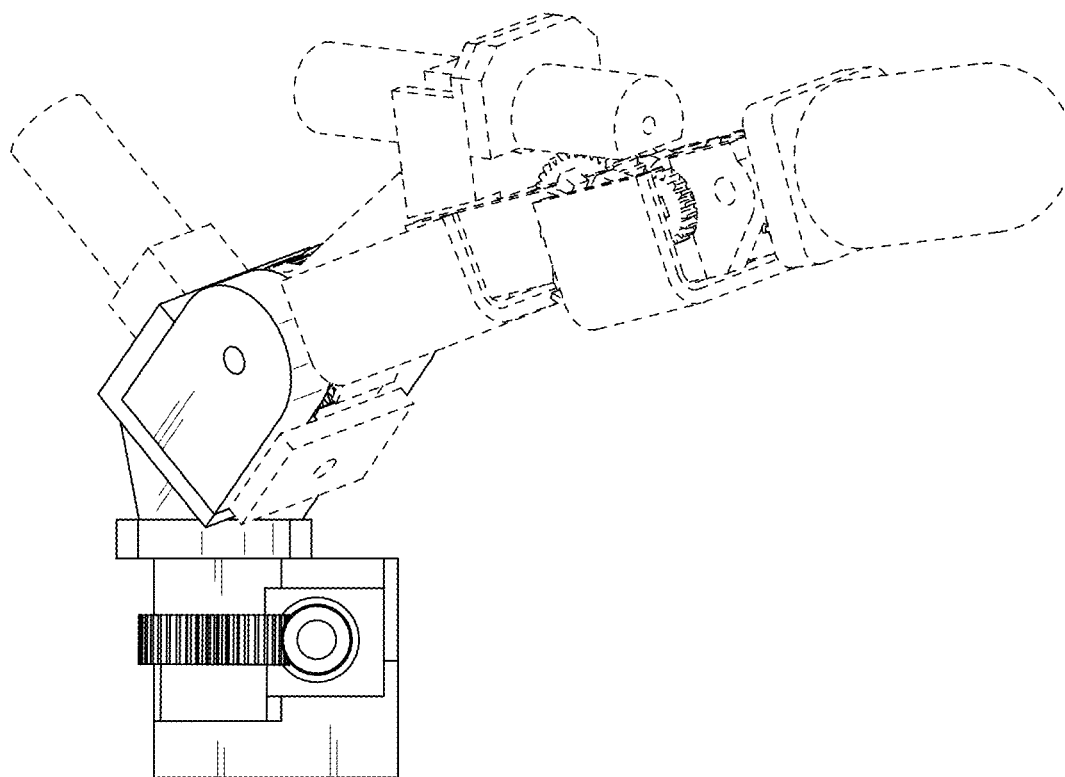


FIG. 9

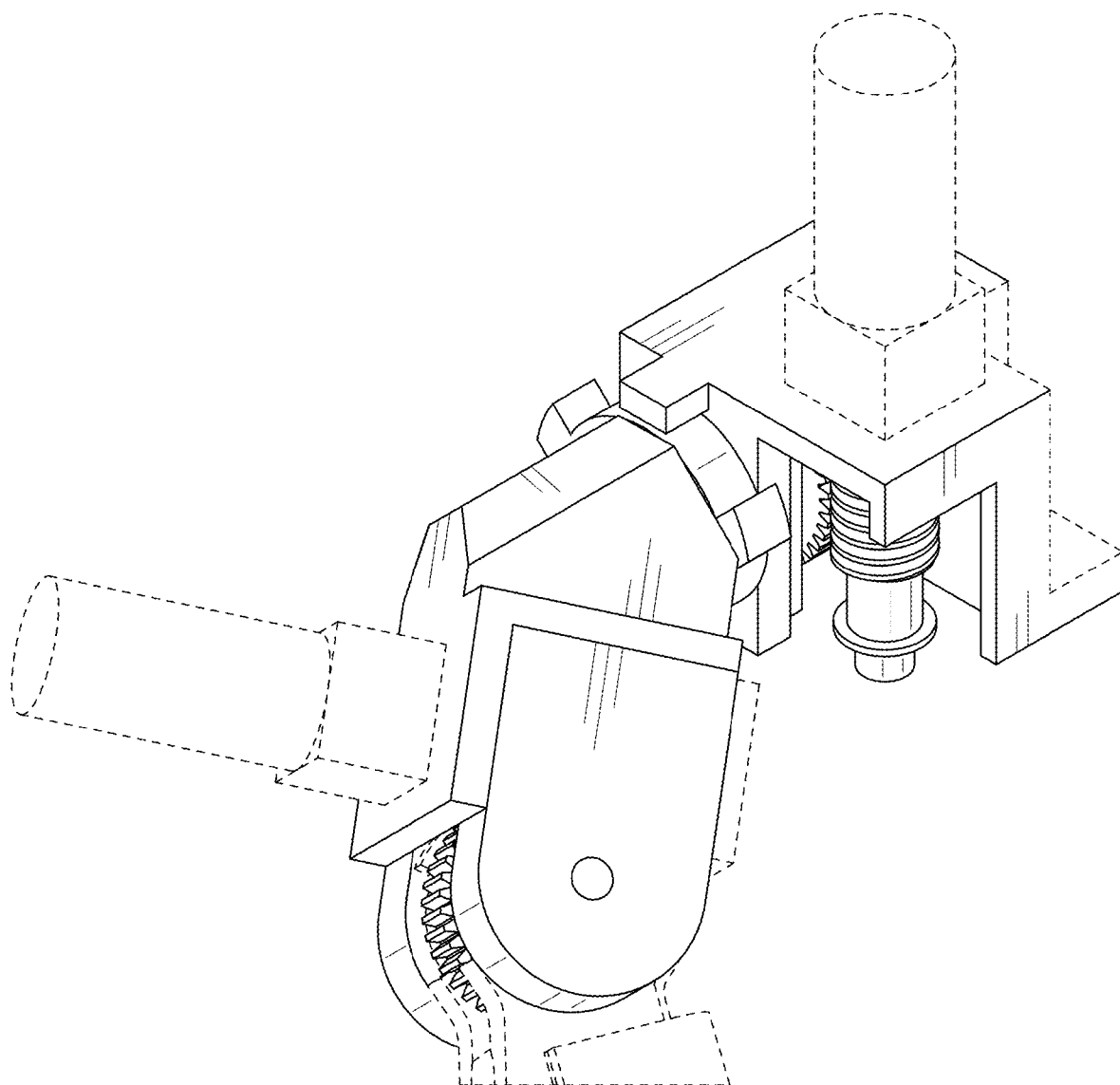


FIG. 10

