



US00D852859S

(12) **United States Design Patent** (10) **Patent No.:** **US D852,859 S**
Kawaguchi et al. (45) **Date of Patent:** **** Jul. 2, 2019**

(54) **MANIPULATOR FOR ROBOT**

(71) Applicant: **MITSUBISHI ELECTRIC CORPORATION**, Tokyo (JP)

(72) Inventors: **Noboru Kawaguchi**, Tokyo (JP); **Hidetaka Yamauchi**, Tokyo (JP); **Tomoya Hattori**, Tokyo (JP); **Koji Hirose**, Tokyo (JP)

(73) Assignee: **Mitsubishi Electric Corporation**, Tokyo (JP)

(**) Term: **15 Years**

(21) Appl. No.: **29/633,286**

(22) Filed: **Jan. 12, 2018**

(30) **Foreign Application Priority Data**

Jul. 18, 2017 (JP) 2017-015414
 Jul. 18, 2017 (JP) 2017-015416

(51) **LOC (11) Cl.** **15-99**

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

(58) **Field of Classification Search**
 USPC D15/199; D21/369, 578-583, 621, 622
 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

2004/0054424 A1 * 3/2004 Matsuda B25J 9/104
 623/64

2006/0158146 A1 * 7/2006 Tadano B25J 15/0004
 318/568.21

2007/0236162 A1 * 10/2007 Kawabuchi B25J 9/102
 318/568.16

2008/0127768 A1 * 6/2008 Shirai B25J 15/0009
 74/490.05

2009/0015026 A1 * 1/2009 Matsuda B25J 15/0009
 294/106

2009/0114054 A1 * 5/2009 Horiuchi B25J 9/102
 74/490.05

(Continued)

Primary Examiner — Patricia A Palasik
 (74) *Attorney, Agent, or Firm* — Studebaker & Brackett
 PC

(57) **CLAIM**

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

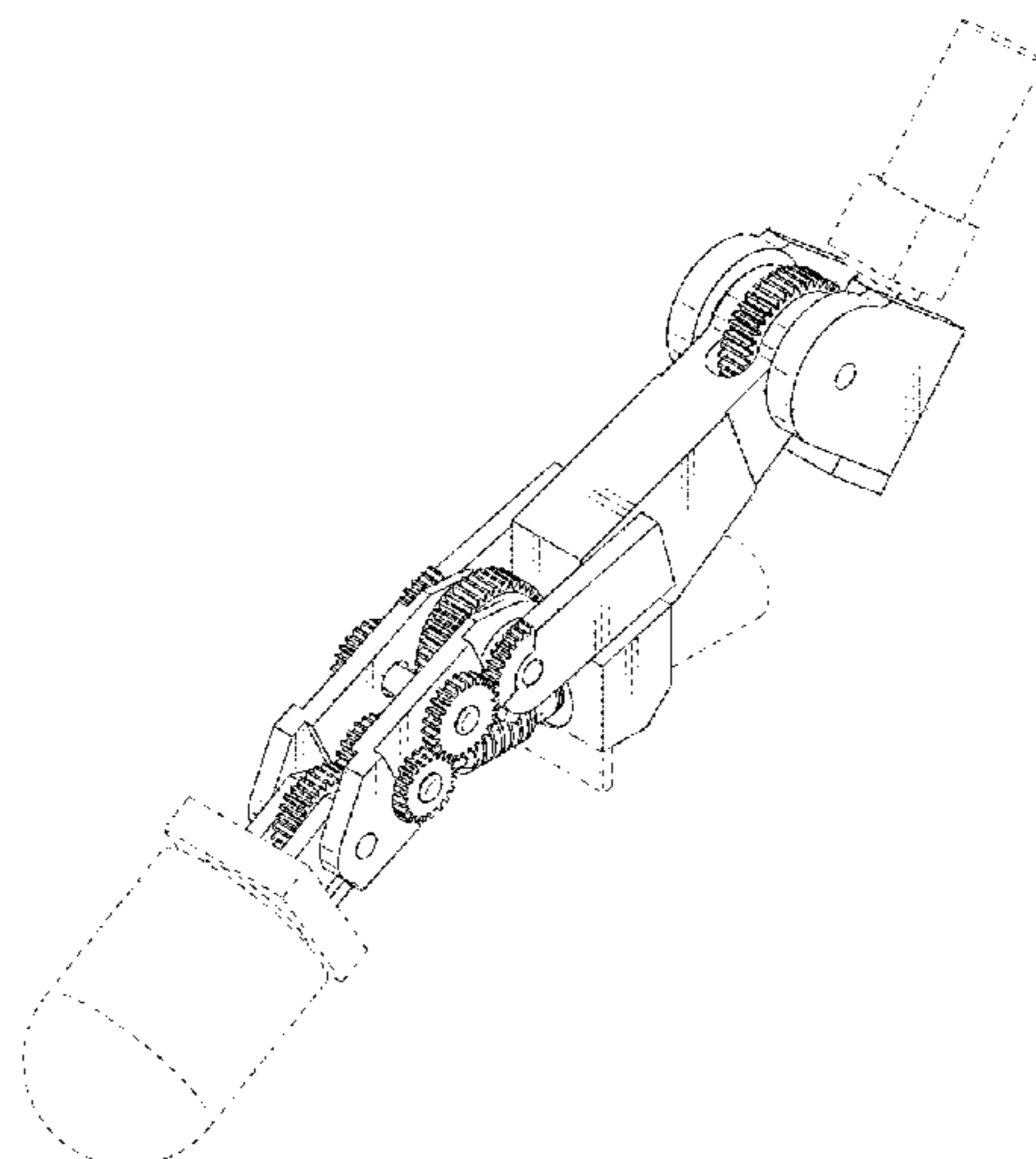
DESCRIPTION

FIG. 1 is a front perspective view of the front, left, and top sides of a manipulator for robot showing our new design; FIG. 2 is a rear perspective view of the rear, right, 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; and, FIG. 9 is a front view showing a state where a hinge angle is changed.

The broken lines shown represent unclaimed subject matter of the manipulator for robot or environments and form no part of the claimed design.

The dash-dot lines represent the boundary between the claimed design and unclaimed design and form no part of the claimed design.

1 Claim, 7 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

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

* cited by examiner

Fig. 1

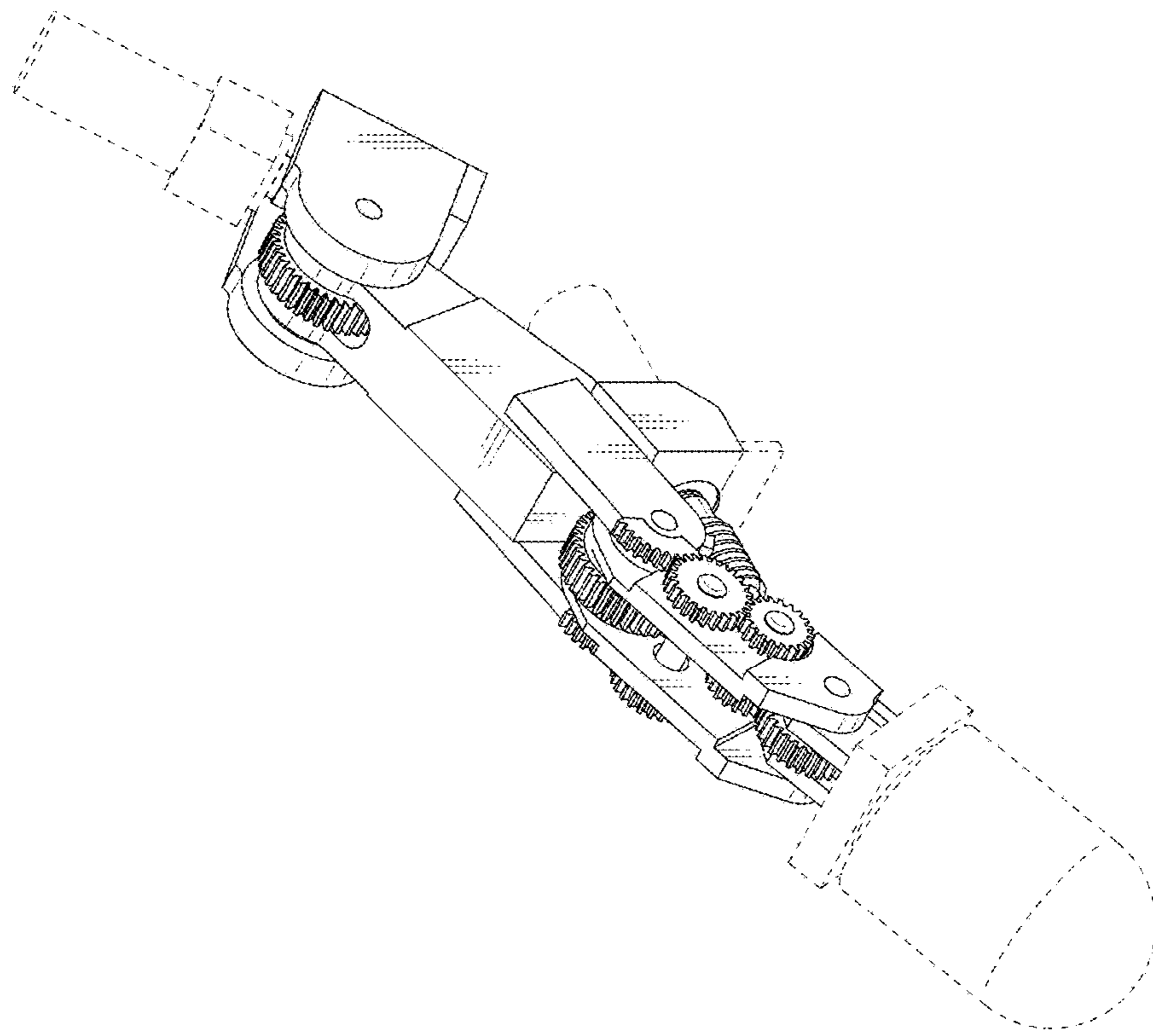


Fig. 2

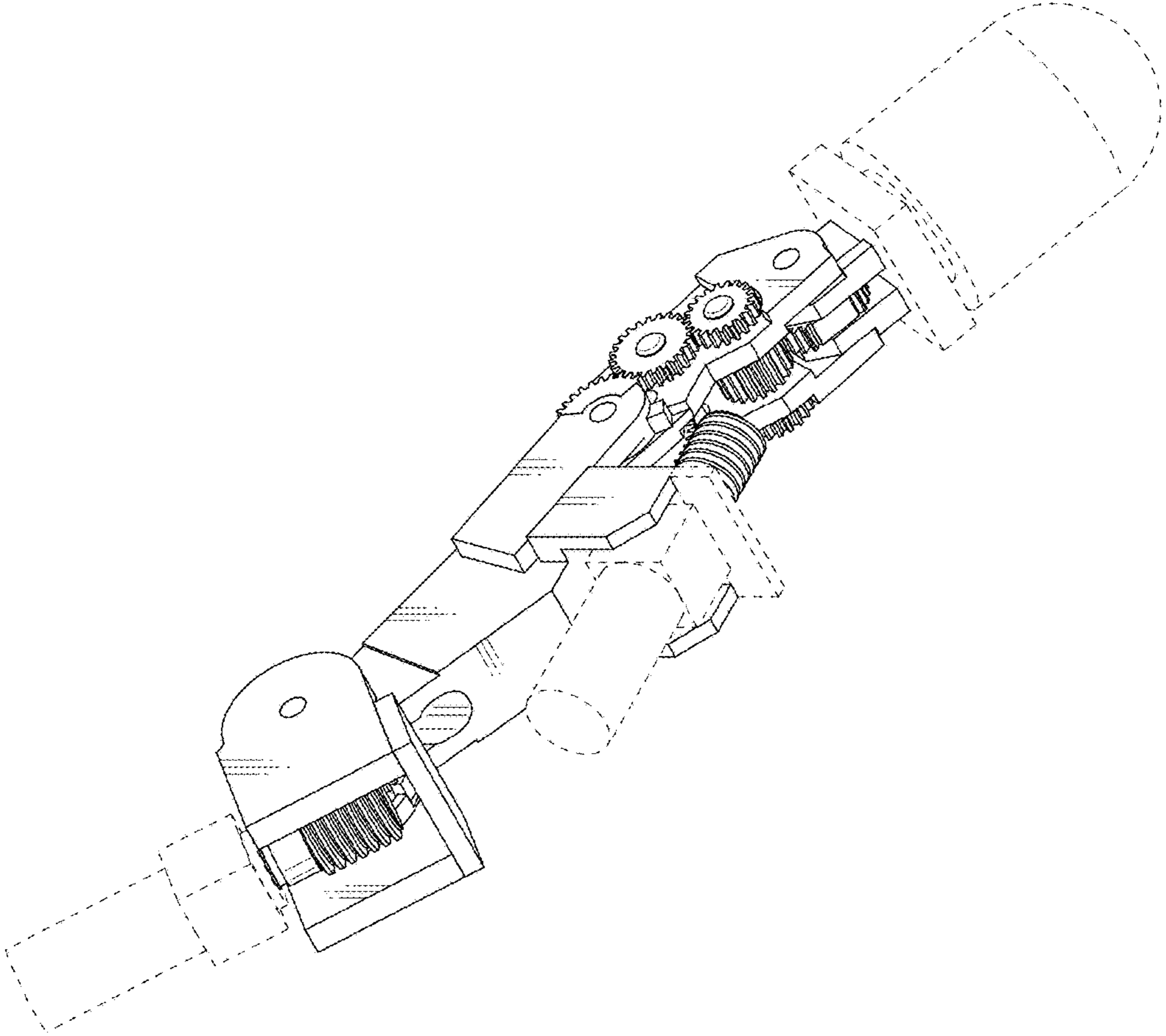


Fig. 3

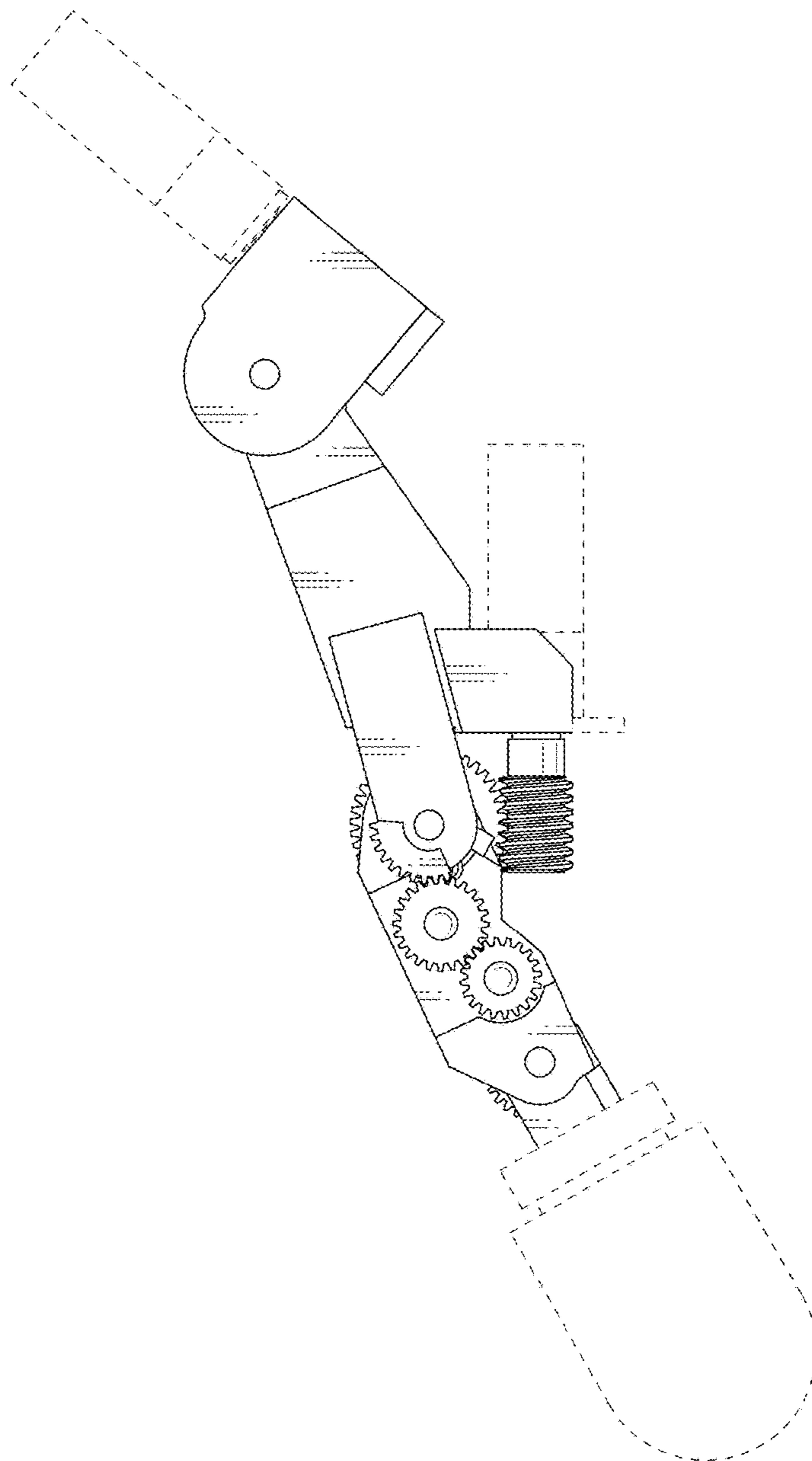


Fig. 4

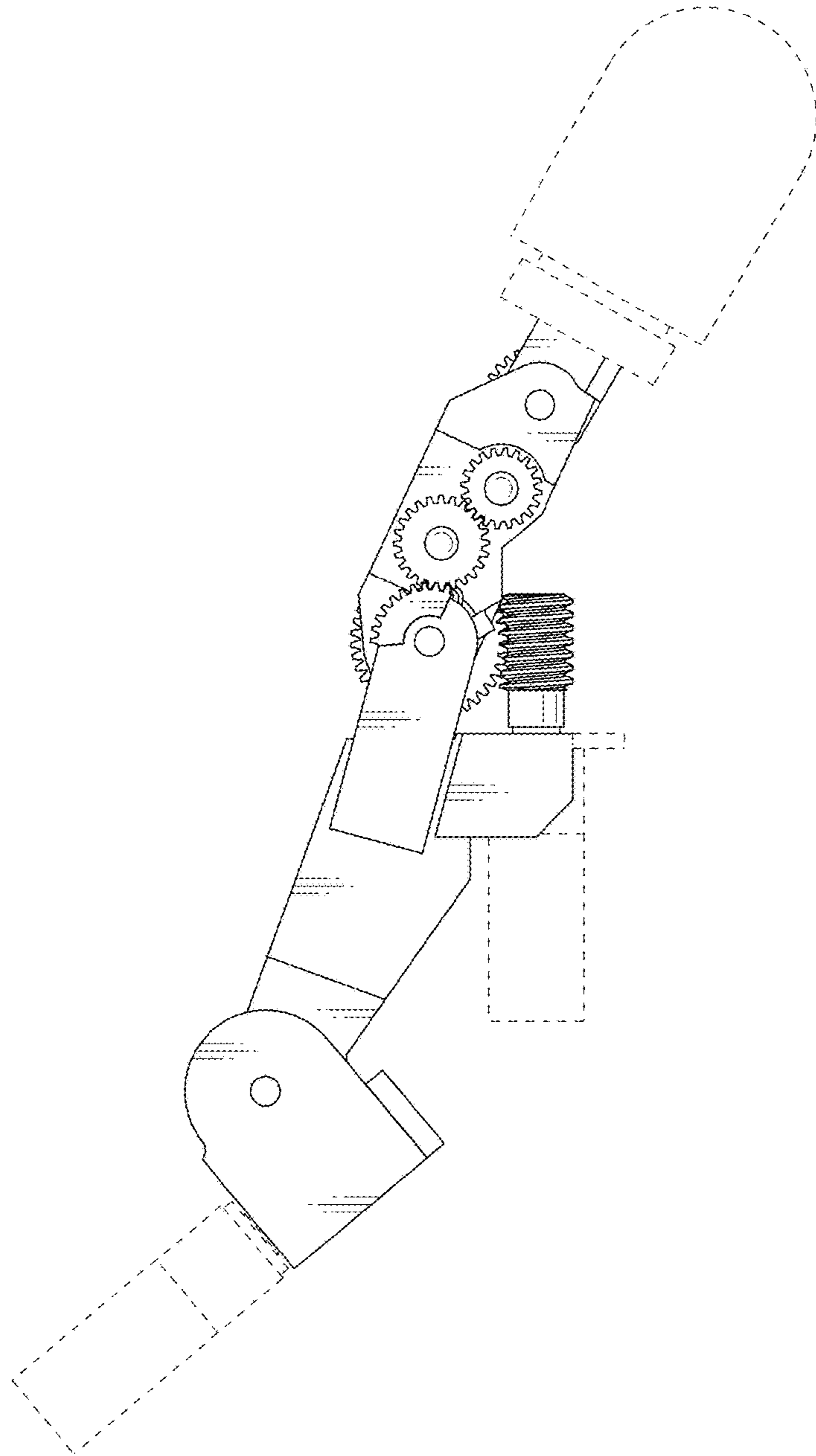


Fig. 6

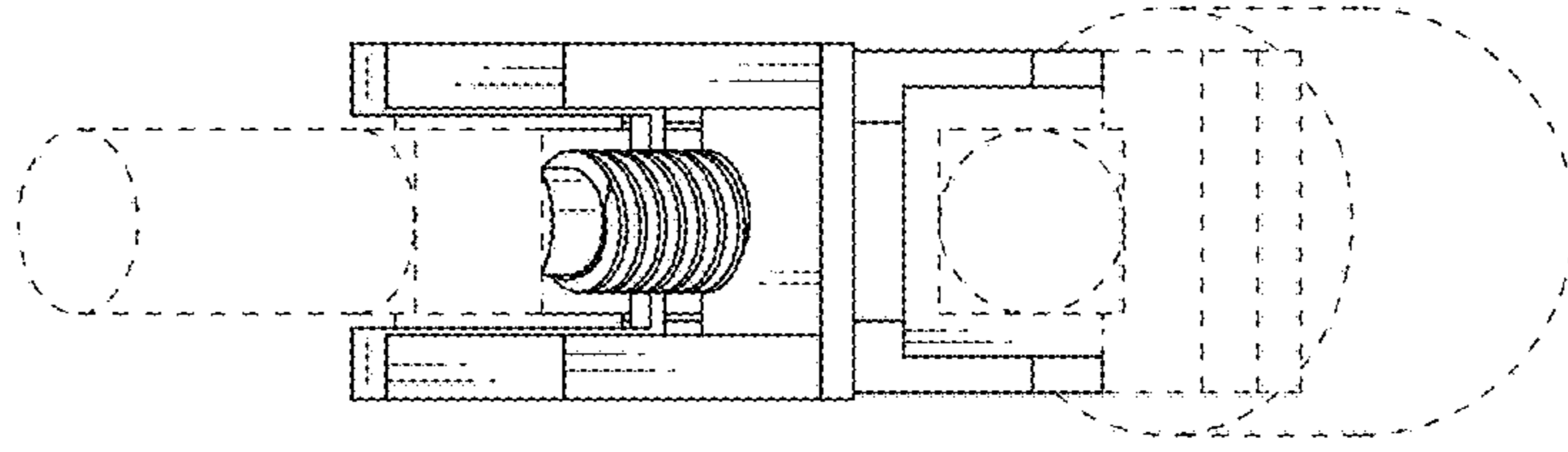


Fig. 5

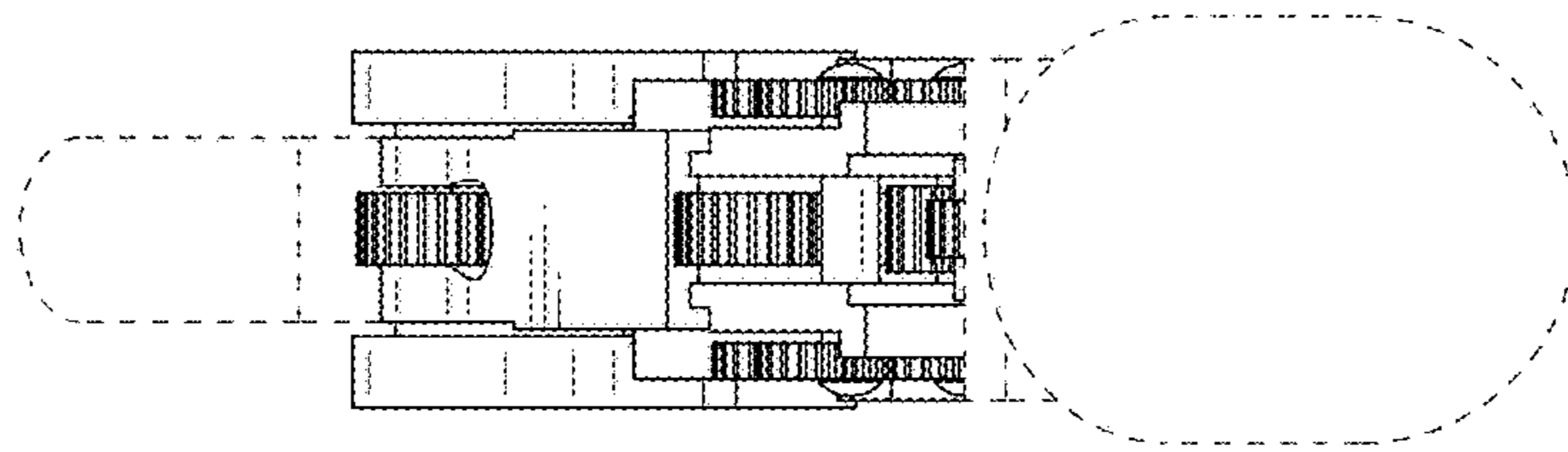


Fig. 7

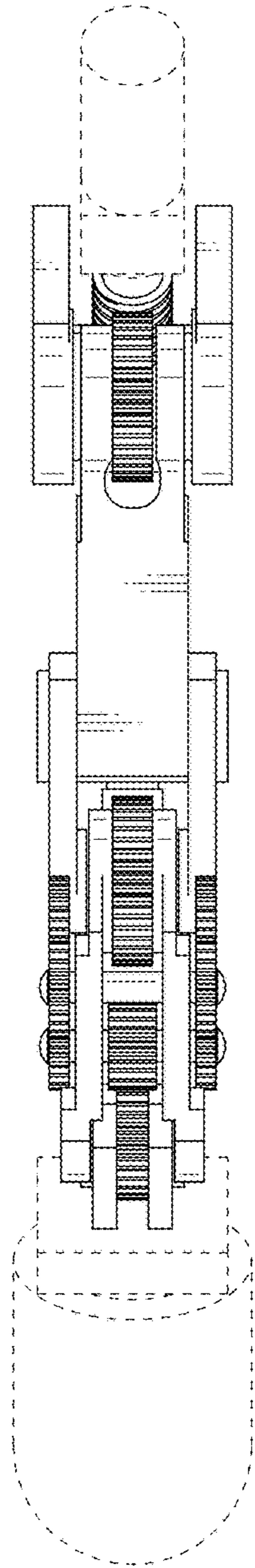


Fig. 8

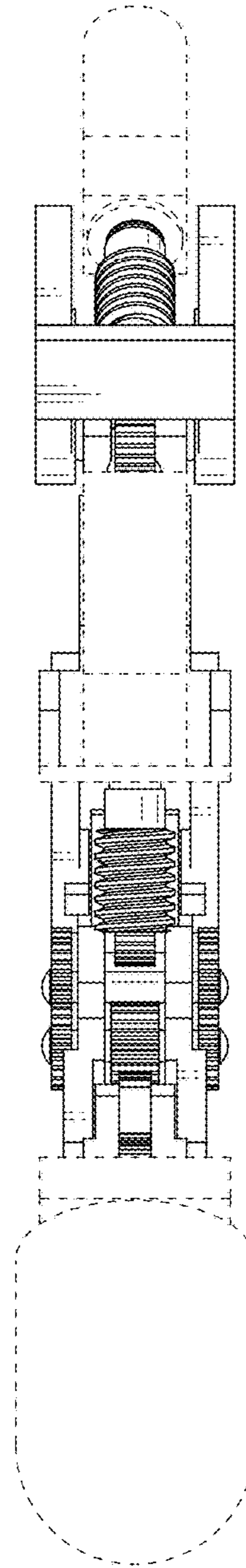


Fig. 9

