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(12) **United States Design Patent** (10) **Patent No.:** **US D883,864 S**
Baillie et al. (45) **Date of Patent:** **** May 12, 2020**

(54) **AXLE ASSEMBLY**

FOREIGN PATENT DOCUMENTS

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CN 2719716 Y 8/2005
CN 102139629 A 8/2011

(Continued)

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OTHER PUBLICATIONS

English language abstract for KR101338796B1 extracted from
espacenet.com database on Oct. 8, 2018, 1 page.

(Continued)

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

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(21) Appl. No.: **29/647,187**

(57) **CLAIM**

The ornamental design for an axle assembly, as shown and
described.

(22) Filed: **May 10, 2018**

(51) **LOC (12) Cl.** **12-16**

(52) **U.S. Cl.**

USPC **D12/159**

(58) **Field of Classification Search**

USPC D12/159–160

CPC B60K 17/36; B60W 2300/12

See application file for complete search history.

DESCRIPTION

FIG. 1 is a top front perspective view of an embodiment of
an axle assembly;

FIG. 2 is a top rear perspective view of the axle assembly of
FIG. 1;

FIG. 3 is a bottom front perspective view of the axle
assembly of FIG. 1;

FIG. 4 is a bottom rear perspective view of the axle assembly
of FIG. 2;

FIG. 5 is a top plan view of the axle assembly of FIG. 2;

FIG. 6 is a bottom plan view of the axle assembly of FIG.
2;

FIG. 7 is a right side elevational view of the axle assembly
of FIG. 2;

FIG. 8 is a left side elevational view of the axle assembly of
FIG. 2;

FIG. 9 is a rear elevational view of the axle assembly of FIG.
1; and,

FIG. 10 is a front elevational view of the axle assembly of
FIG. 1.

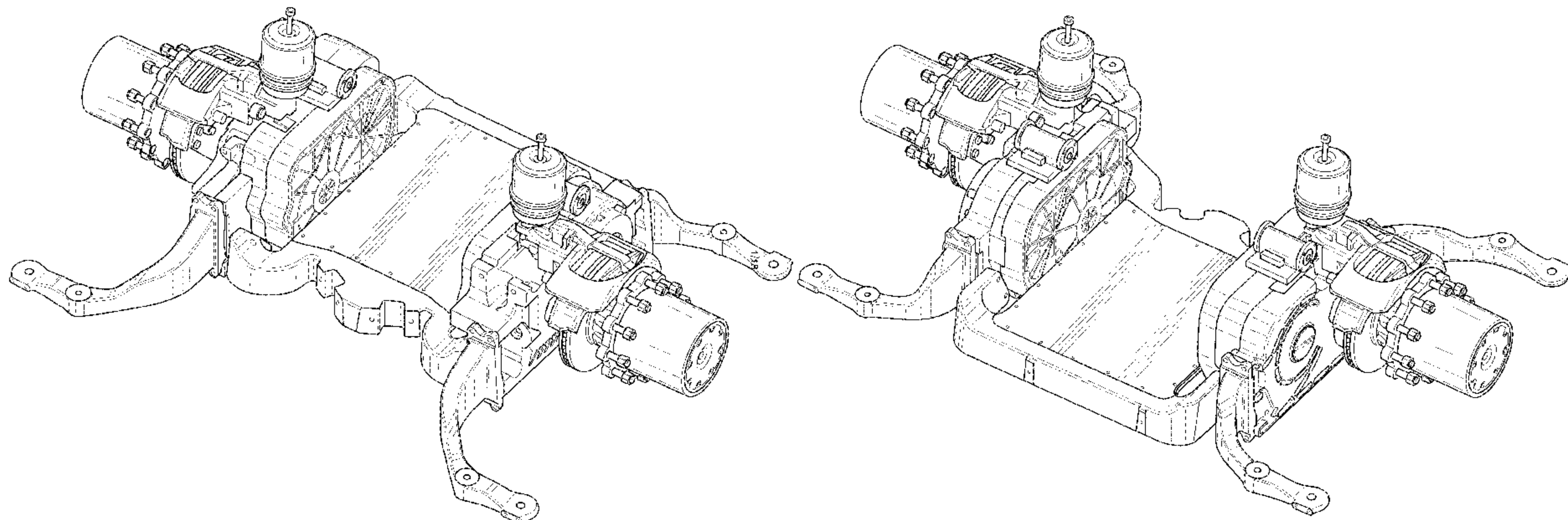
(56) **References Cited**

U.S. PATENT DOCUMENTS

3,799,284 A	3/1974	Hender
4,431,073 A	2/1984	Nagao et al.
5,181,473 A	1/1993	Petit et al.
5,878,830 A	3/1999	Ruppert et al.
6,260,645 B1	7/2001	Pawlowski et al.
6,276,474 B1	8/2001	Ruppert et al.
6,328,123 B1	12/2001	Niemann et al.
6,405,656 B1	6/2002	Lopez Gomez et al.
6,540,632 B1	4/2003	Wendl et al.
6,722,459 B1	4/2004	Wendl et al.
6,904,988 B2	6/2005	Harrup et al.
7,083,015 B2	8/2006	Ruppert et al.

(Continued)

1 Claim, 9 Drawing Sheets



(56)

References Cited

OTHER PUBLICATIONS

U.S. PATENT DOCUMENTS

7,165,640	B2	1/2007	Laurent et al.	
7,169,077	B2	1/2007	Laurent et al.	
7,350,606	B2	4/2008	Brill et al.	
7,527,114	B2	5/2009	Wendl et al.	
7,866,423	B2	1/2011	Ruppert et al.	
7,980,364	B2	7/2011	Ueno	
8,424,625	B2	4/2013	Ishii	
8,640,801	B2	2/2014	Hennings et al.	
8,640,812	B2	2/2014	Bindl	
9,403,429	B2	8/2016	Baumgartner et al.	
9,604,531	B2	3/2017	Tamura et al.	
9,630,482	B2	4/2017	Raymond	
9,711,105	B2	7/2017	Ochiai et al.	
9,771,105	B2	9/2017	Tamura et al.	
D814,979	S *	4/2018	Cantuern	D12/160
D845,182	S *	4/2019	Sagawa	D12/160
2004/0007406	A1	1/2004	Laurent et al.	
2009/0173033	A1 *	7/2009	Baxter, Jr.	A63J 1/00 52/646
2011/0094807	A1	4/2011	Pruitt et al.	
2014/0011620	A1	1/2014	Munster et al.	
2014/0284121	A1	9/2014	Baek et al.	
2014/0288739	A1	9/2014	Braun et al.	

FOREIGN PATENT DOCUMENTS

CN	104709308	A	6/2015
CN	102717695	B	9/2015
CN	105034789	A	11/2015
CN	103832440	B	6/2016
CN	105799480	A	7/2016
CN	205905749	U	1/2017
CN	105150862	B	9/2017
CN	104986032	B	10/2017
CN	107284214	A	10/2017
CN	207088967	U	3/2018
DE	1227783	B	10/1966
DE	2253223	A1	5/1973
DE	10129152	B4	9/2007
EP	0079455	A1	5/1983
EP	1329352	B1	12/2008
GB	2548975	A	10/2017
KR	101338796	B1	12/2013
WO	2007119577	A1	10/2007
WO	2014013084	A1	1/2014
WO	2017081032	A1	5/2017
WO	2017172788	A1	10/2017

International Search Report for Application No. PCT/US2018/041876 dated Sep. 25, 2018, 1 page.

English language abstract for CN2719716Y extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN104709308A extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN103832440B extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN105799480A extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN205905749U extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN105150862B extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN107284214A extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN104986032B extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN207088967U extracted from espacenet.com database on Jul. 12, 2018, 1 page.

Computer-generated English language translation for DE1227783B extracted from espacenet.com database on Jul. 12, 2018, 9 pages.

English language abstract for DE10129152B4 extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for EP1329352B1 extracted from espacenet.com database on Aug. 9, 2018, 1 page.

English language abstract for WO2007119577A1 extracted from espacenet.com database on Jul. 12, 2018, 2 pages.

English language abstract for WO2014013084A1 extracted from espacenet.com database on Jul. 12, 2018, 2 pages.

English language abstract for WO2017081032A1 extracted from espacenet.com database on Jul. 12, 2018, 1 page.

English language abstract for CN102139629A extracted from espacenet.com database on Jan. 2, 2019, 1 page.

English language abstract for CN102717695B extracted from espacenet.com database on Jan. 2, 2019, 1 page.

English language abstract for CN105034789A extracted from espacenet.com database on Jan. 3, 2019, 2 pages.

English language abstract for DE2253223A1 extracted from espacenet.com database on Jan. 2, 2019, 1 page.

English language abstract for EP0079455A1 extracted from espacenet.com database on Jan. 2, 2019, 1 page.

* cited by examiner

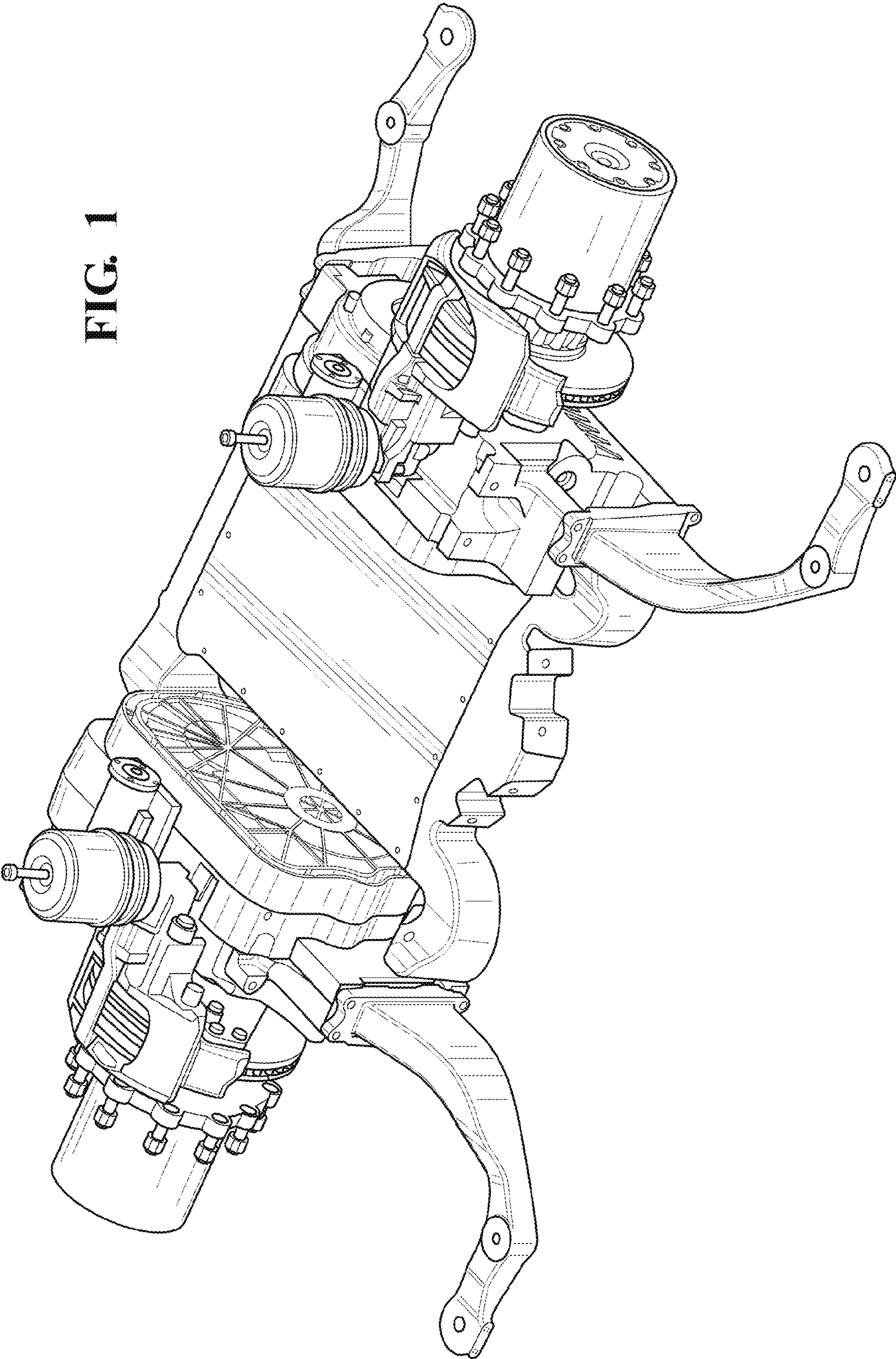
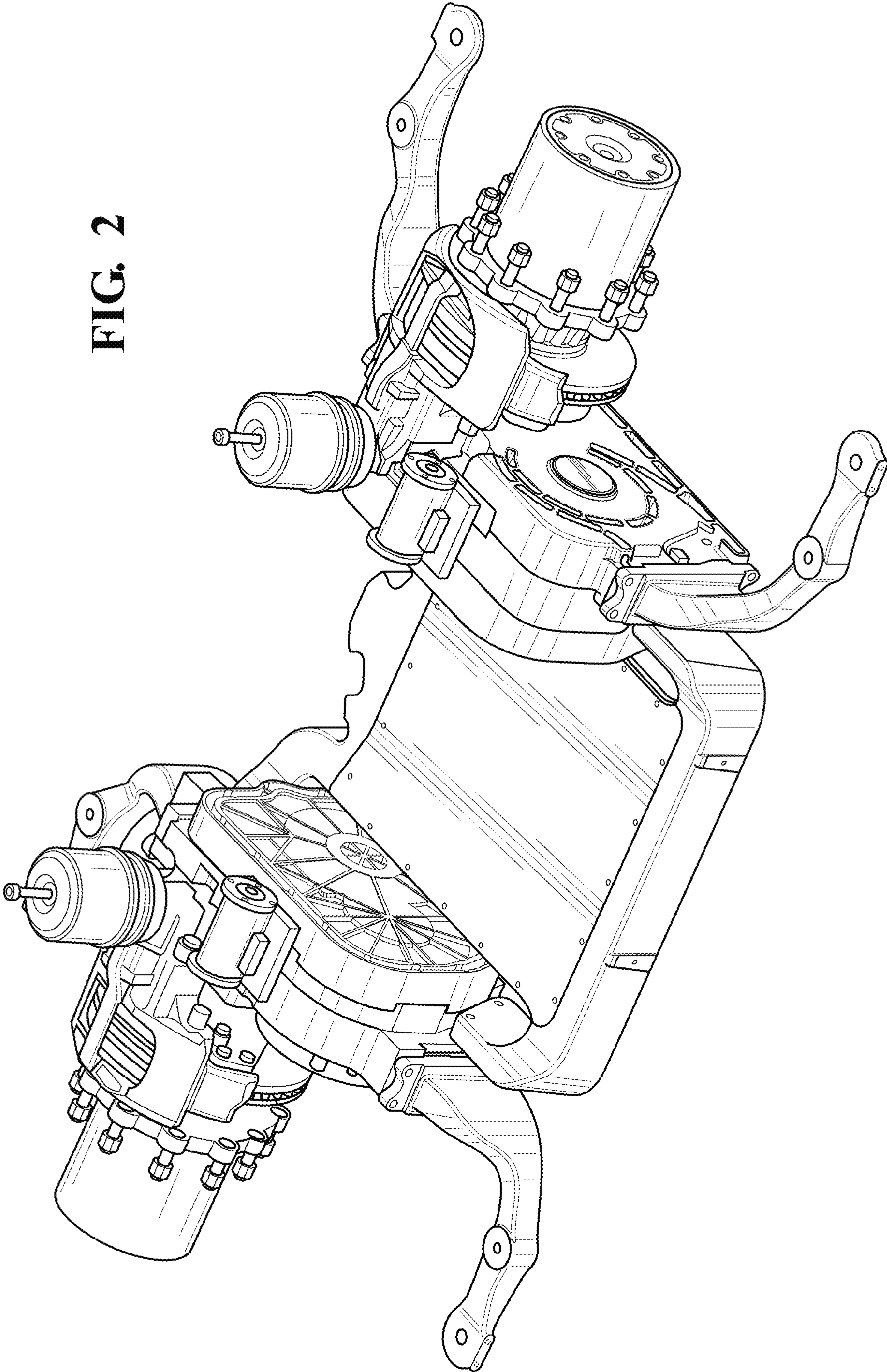


FIG. 1

FIG. 2



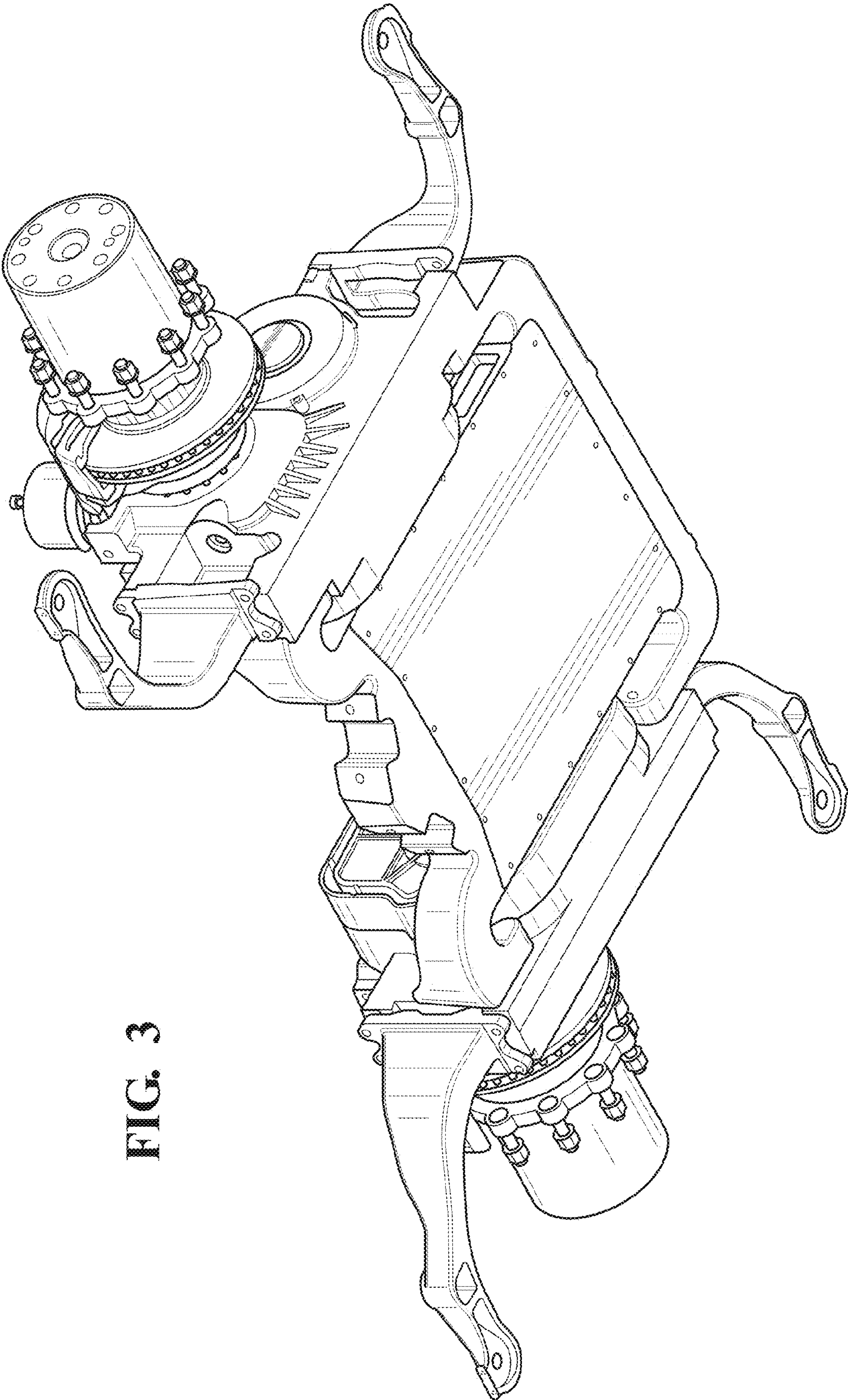


FIG. 3

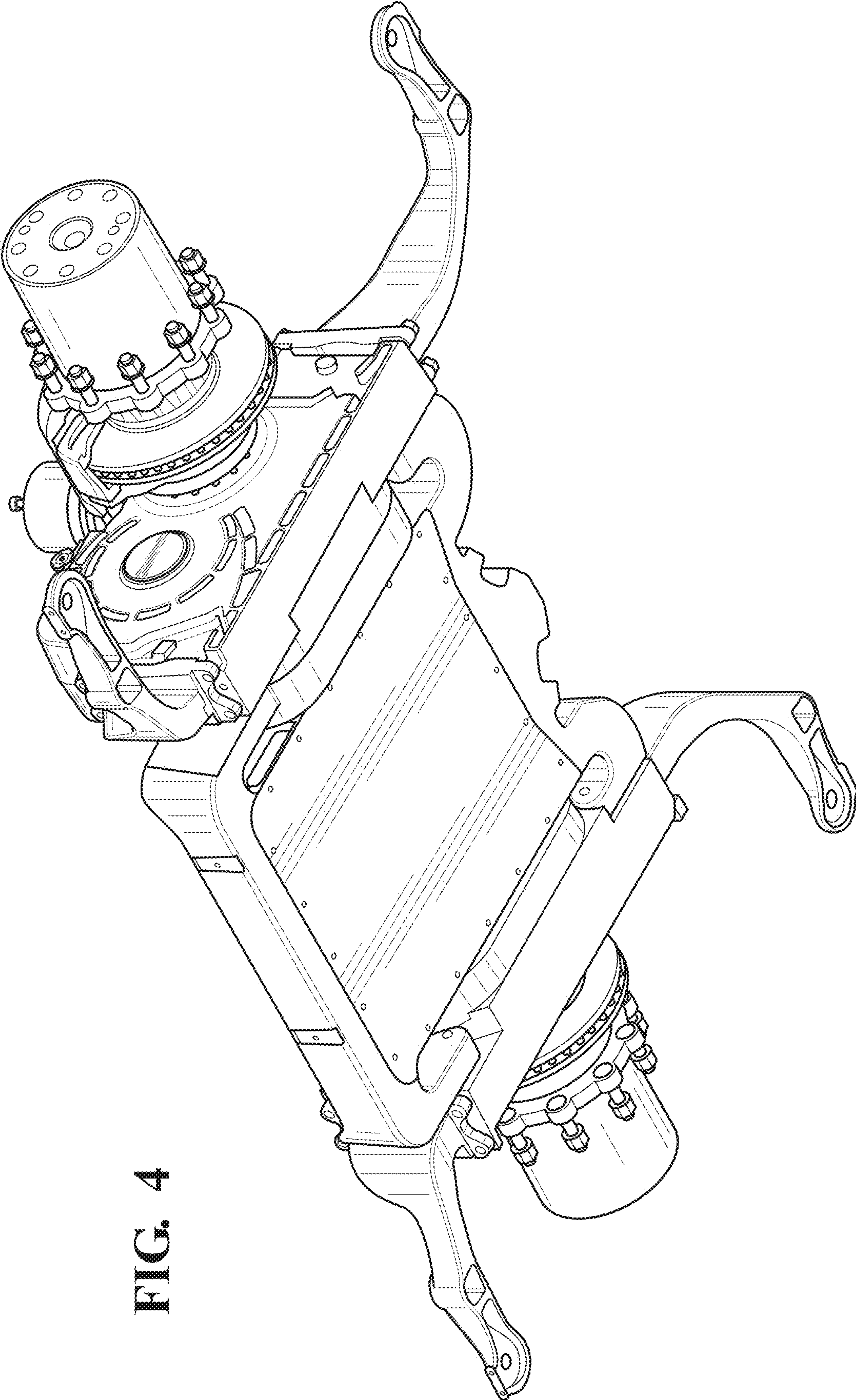


FIG. 4

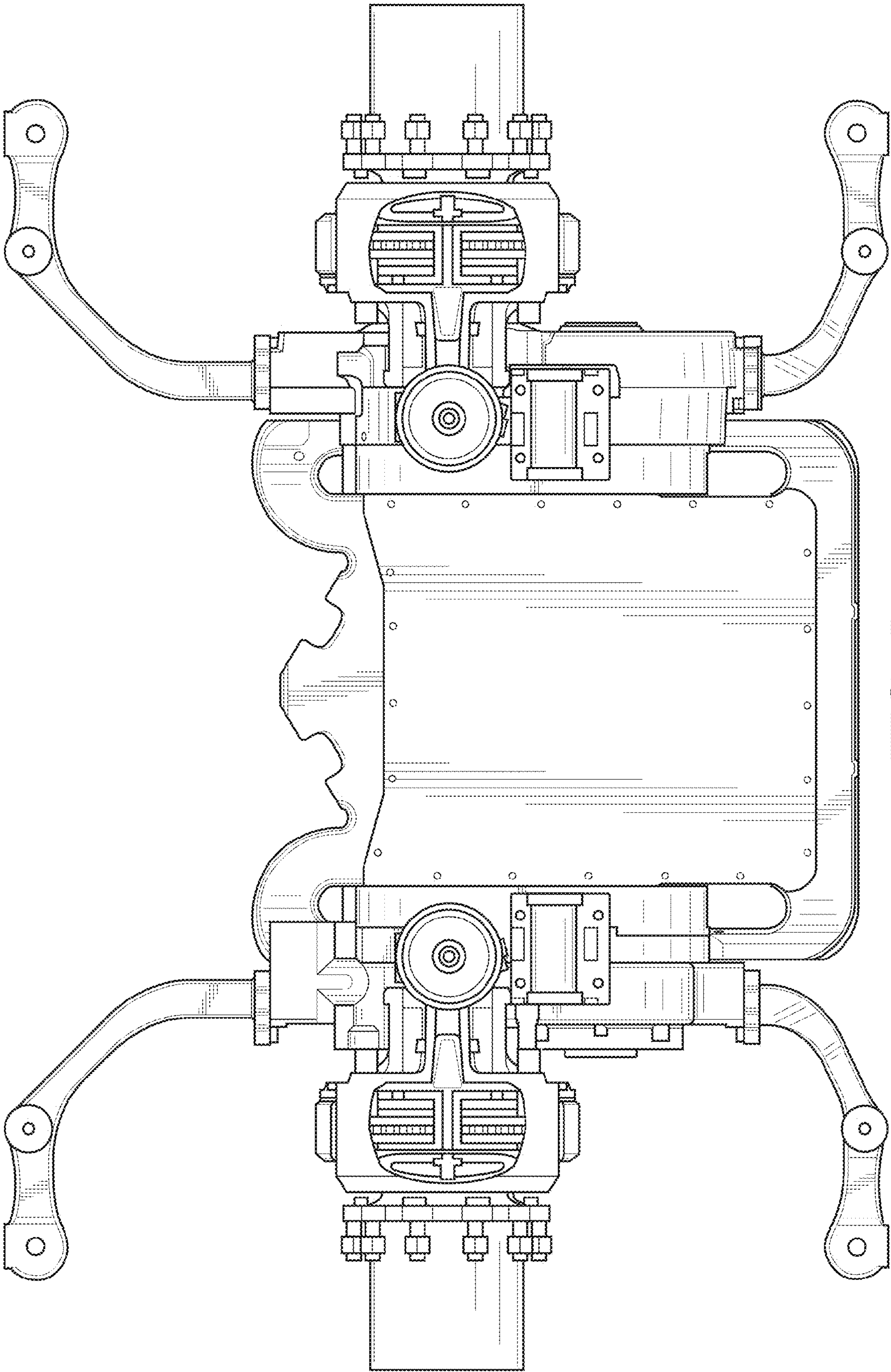


FIG. 5

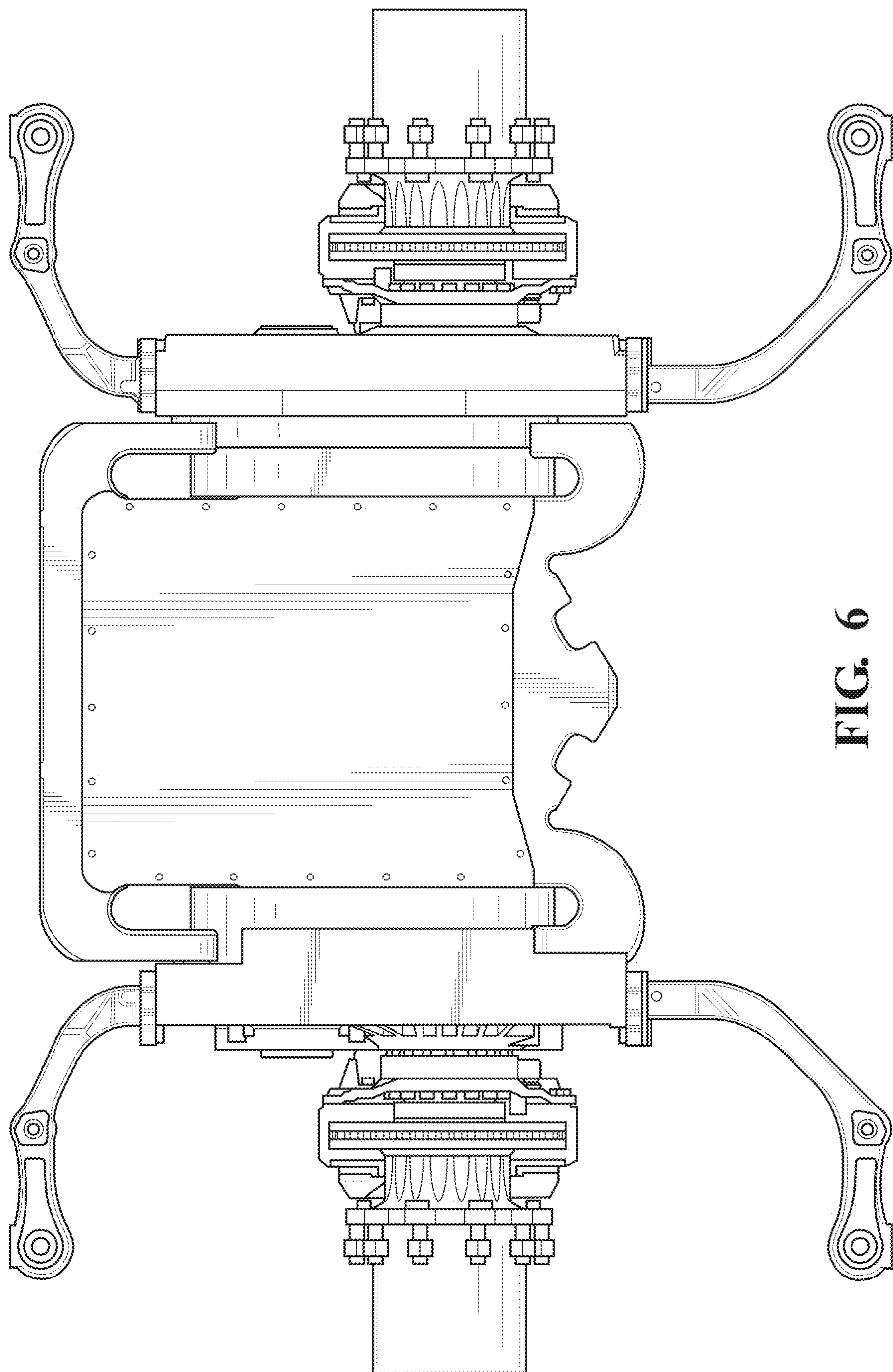


FIG. 6

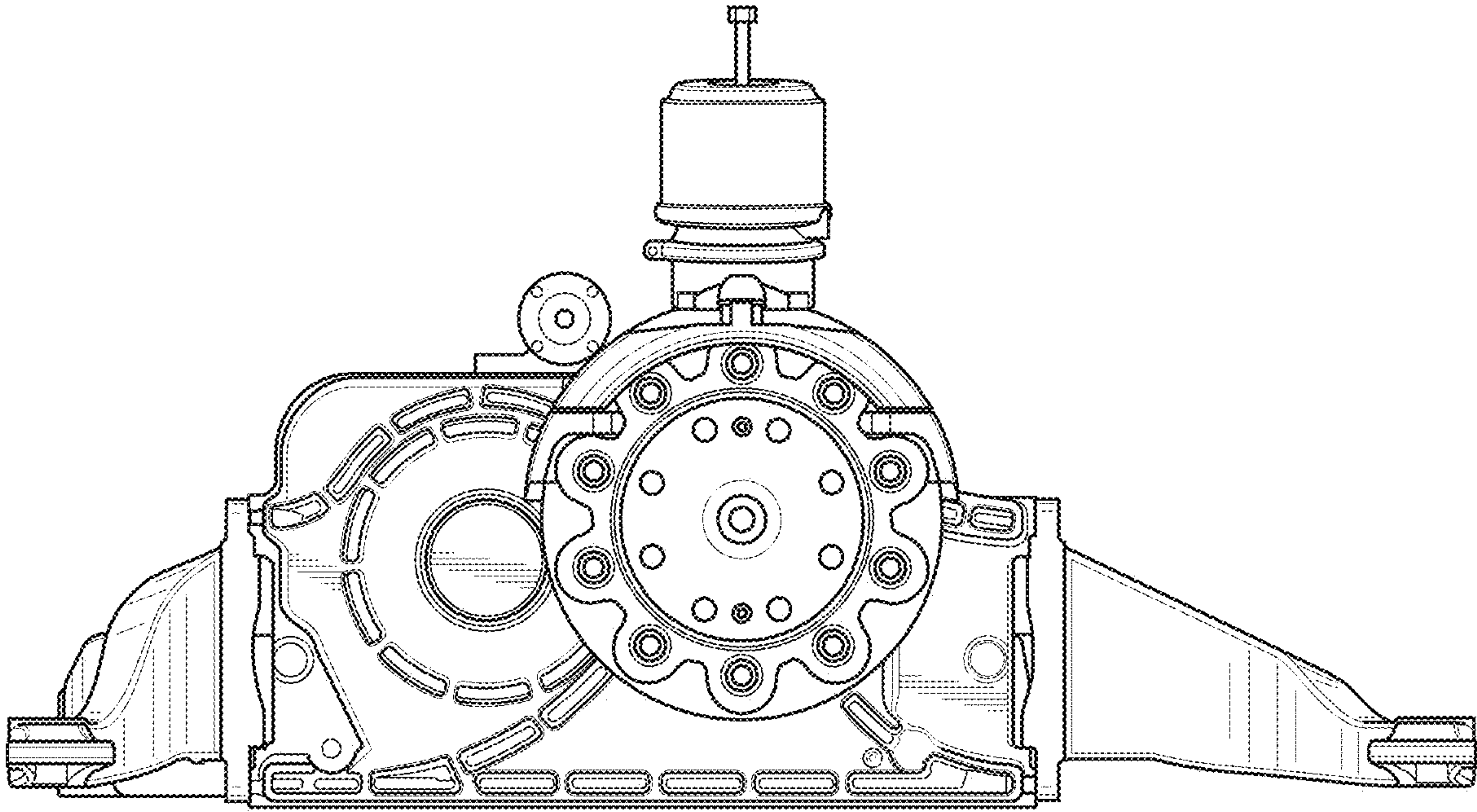


FIG. 7

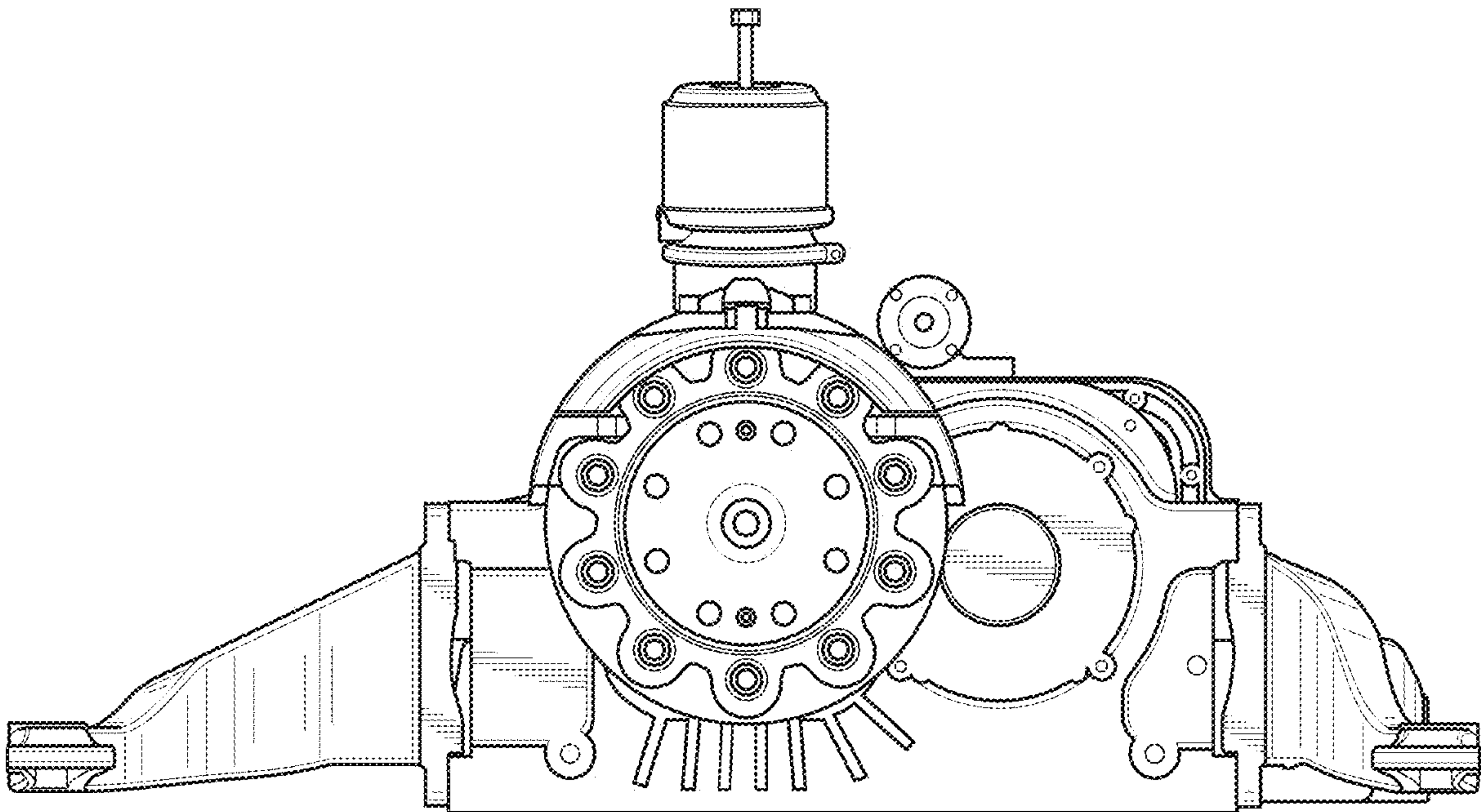


FIG. 8

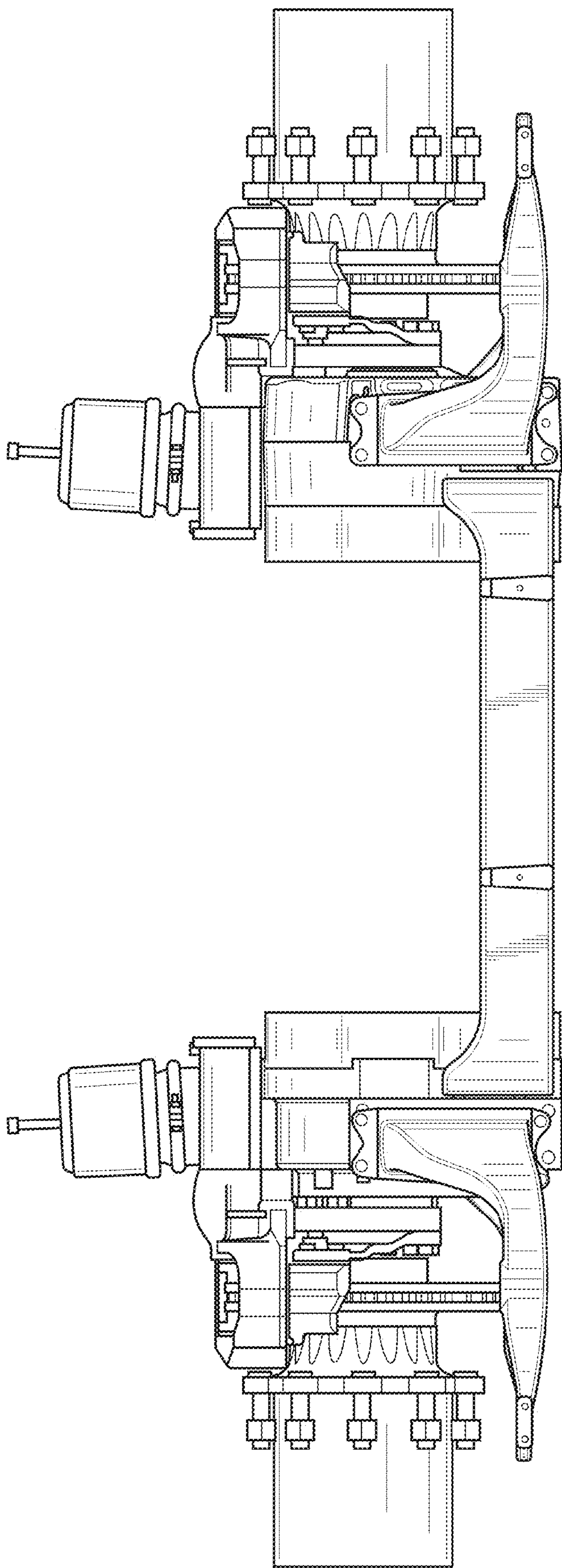


FIG. 9

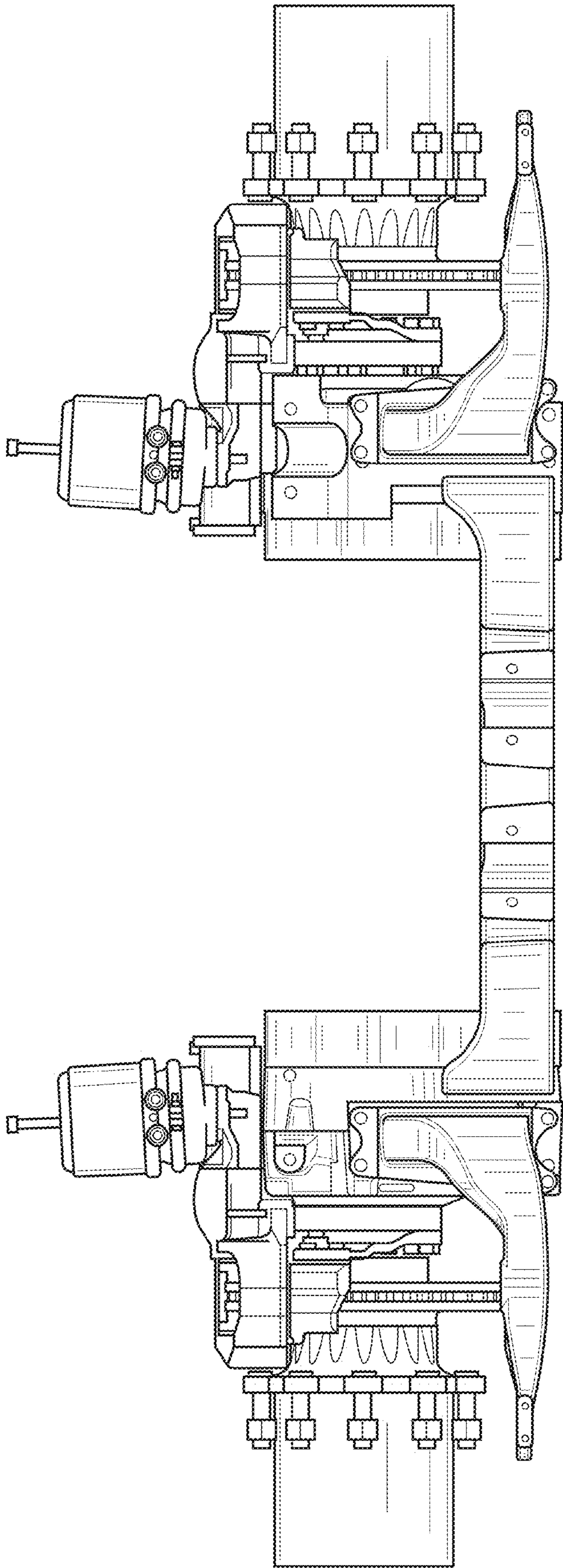


FIG. 10