



US00D933107S

(12) **United States Design Patent**  
**Mullins et al.**

(10) **Patent No.:** **US D933,107 S**  
(45) **Date of Patent:** **\*\* Oct. 12, 2021**

- (54) **FLUID END FOR A PUMPING SYSTEM**
- (71) Applicant: **Vulcan Industrial Holdings, LLC**,  
Houston, TX (US)
- (72) Inventors: **Chance Ray Mullins**, Spring, TX (US);  
**Steven Zachary Newberg**, Houston,  
TX (US); **Kyle Matthew Ellisor**, Katy,  
TX (US); **Jason David Smith**, Porter,  
TX (US); **Aric Martin Gillispie**,  
Houston, TX (US)
- (73) Assignee: **VULCAN INDUSTRIAL  
HOLDINGS, LLC**, Houston, TX (US)
- (\*\*) Term: **15 Years**
- (21) Appl. No.: **29/784,626**
- (22) Filed: **May 20, 2021**
- (51) **LOC (13) Cl.** ..... **15-04**
- (52) **U.S. Cl.**  
USPC ..... **D15/21; D15/7**
- (58) **Field of Classification Search**  
USPC ..... D15/5; D23/233, 237, 245, 259, 269,  
D23/235; D10/121; D12/218  
CPC ... B29C 44/1271; B29C 44/086; B60T 17/04;  
F16H 61/30; F16H 61/0267; F15B  
13/0817; F15B 13/0821; F15B 13/0839;  
F15B 13/0896; F16K 27/003; F16K  
37/00; F04B 47/00; F04B 41/06; F04B  
39/12; F04B 35/00; F04B 53/10; F04B  
53/02; E21B 44/06  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

- D687,125 S \* 7/2013 Hawes ..... D23/233
- 10,465,680 B1 \* 11/2019 Guerra ..... F04B 53/162
- D916,240 S \* 4/2021 Nowell ..... D23/233

- 2006/0002806 A1 \* 1/2006 Baxter ..... F04B 39/10  
417/539
  - 2011/0142701 A1 \* 6/2011 Small ..... F04B 53/16  
417/521
  - 2014/0260954 A1 \* 9/2014 Young ..... E21B 43/26  
92/169.4
  - 2015/0147194 A1 \* 5/2015 Foote ..... F04B 53/16  
417/53
  - 2017/0218993 A1 \* 8/2017 Freed ..... F04B 19/22
  - 2018/0202434 A1 \* 7/2018 Barnhouse, Jr. .... F04B 19/22
  - 2018/0354081 A1 \* 12/2018 Kalyani ..... F04B 39/123
- (Continued)

**OTHER PUBLICATIONS**

Covert Manufacturing, Inc., "Fluid End Block: Covert Manufac-  
turing", (site visited Jul. 30, 2021), covertmfg.com, URL:<http://  
www.covertmfg.com/our-capabilities/fluid-end-block/> (Year: 2021).\*

(Continued)

*Primary Examiner* — Calvin E Vansant  
*Assistant Examiner* — Mark T. Philipps  
(74) *Attorney, Agent, or Firm* — Hogan Lovells US LLP

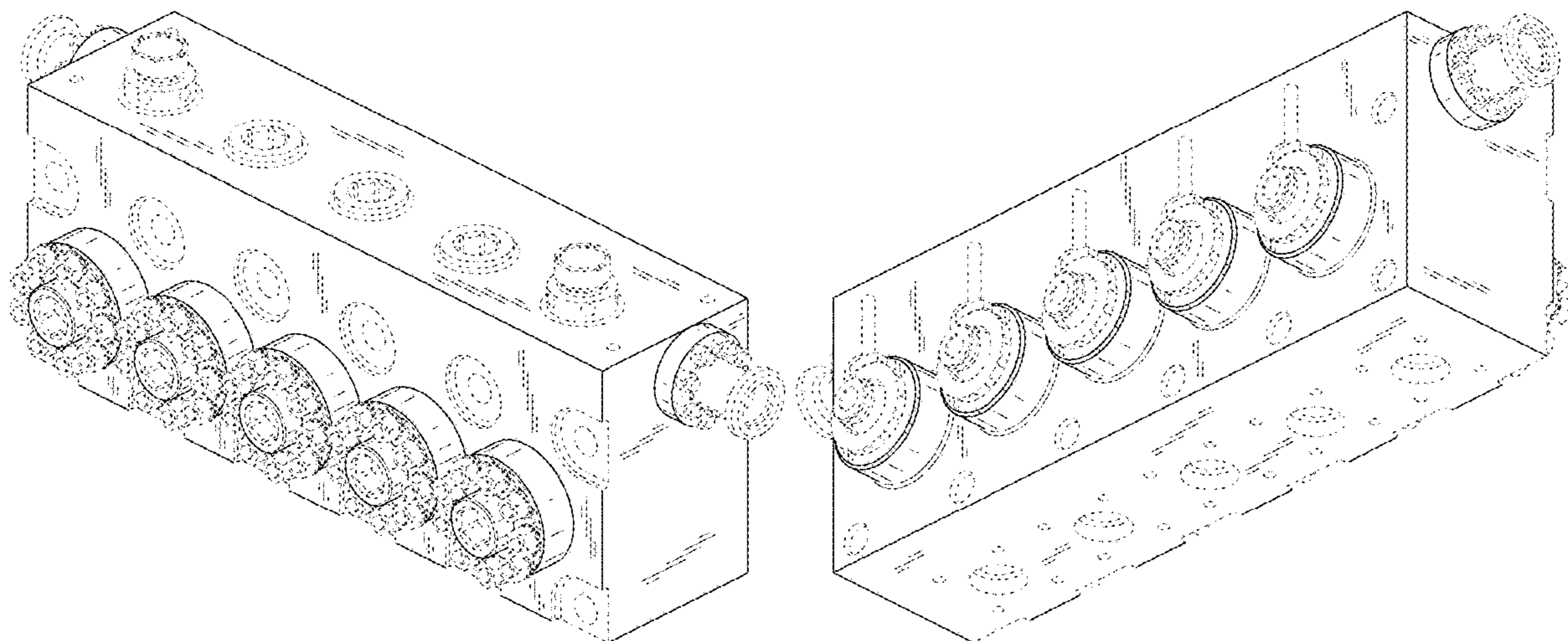
(57) **CLAIM**

The ornamental design for a fluid end for a pumping system,  
substantially as shown and described.

**DESCRIPTION**

FIG. 1 is a front perspective view of a fluid end;  
FIG. 2 is a back perspective view of the fluid end;  
FIG. 3 is a front view of the fluid end;  
FIG. 4 is a back view of the fluid end;  
FIG. 5 is a left side view of the fluid end;  
FIG. 6 is a right side view of the fluid end;  
FIG. 7 is a top view of the fluid end; and,  
FIG. 8 is a bottom view of the fluid end.  
The broken lines in the drawings depict portions of the fluid  
end for a pumping system that form no part of the claim.

**1 Claim, 7 Drawing Sheets**



(56)

**References Cited**

U.S. PATENT DOCUMENTS

2019/0011051 A1\* 1/2019 Yeung ..... F04B 53/10  
2019/0032685 A1\* 1/2019 Foster ..... F04B 1/053  
2019/0072089 A1\* 3/2019 Buckley ..... F04B 1/0461  
2019/0136842 A1\* 5/2019 Nowell ..... F04B 53/16  
2019/0145400 A1\* 5/2019 Graham ..... F04B 1/0538  
417/53  
2019/0154033 A1\* 5/2019 Brooks ..... F04B 53/1087  
2019/0242373 A1\* 8/2019 Wernig ..... F04B 53/16  
2021/0010470 A1\* 1/2021 Blume ..... F04B 1/0452  
2021/0040836 A1\* 2/2021 Baskin ..... E21B 4/003  
2021/0215154 A1\* 7/2021 Nowell ..... F04B 1/0408

OTHER PUBLICATIONS

Kerr Pumps, "the most advanced fluid ends", (site visited Aug. 5, 2021), Kerrpumps.com, URL:<<http://kerrpumps.com/fluidends>> (Year: 2021).\*

Shandong Baorun, 2250 Triplex Plunger Pump Fluid End Exchangeable with Spm, (site visited Aug. 5, 2021), made-in -china.com, URL:<<https://sdbaorun.en.made-in-china.com/product/wNixIDXYrshL/China-2250-Triplex-Plunger-Pump-Fluid-End-Exchangeable-with-Spm.html>> (Year: 2021).\*

\* cited by examiner

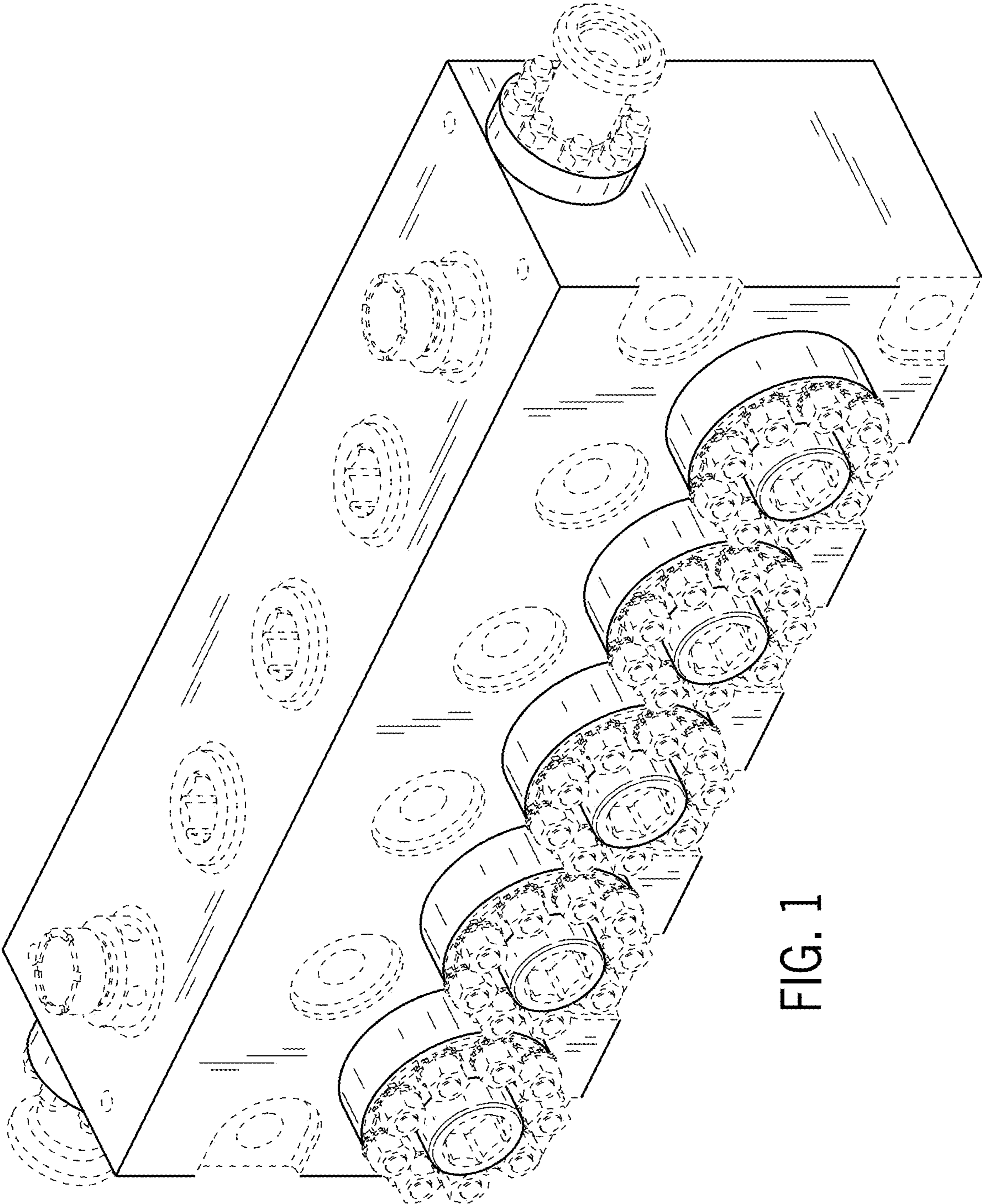


FIG. 1

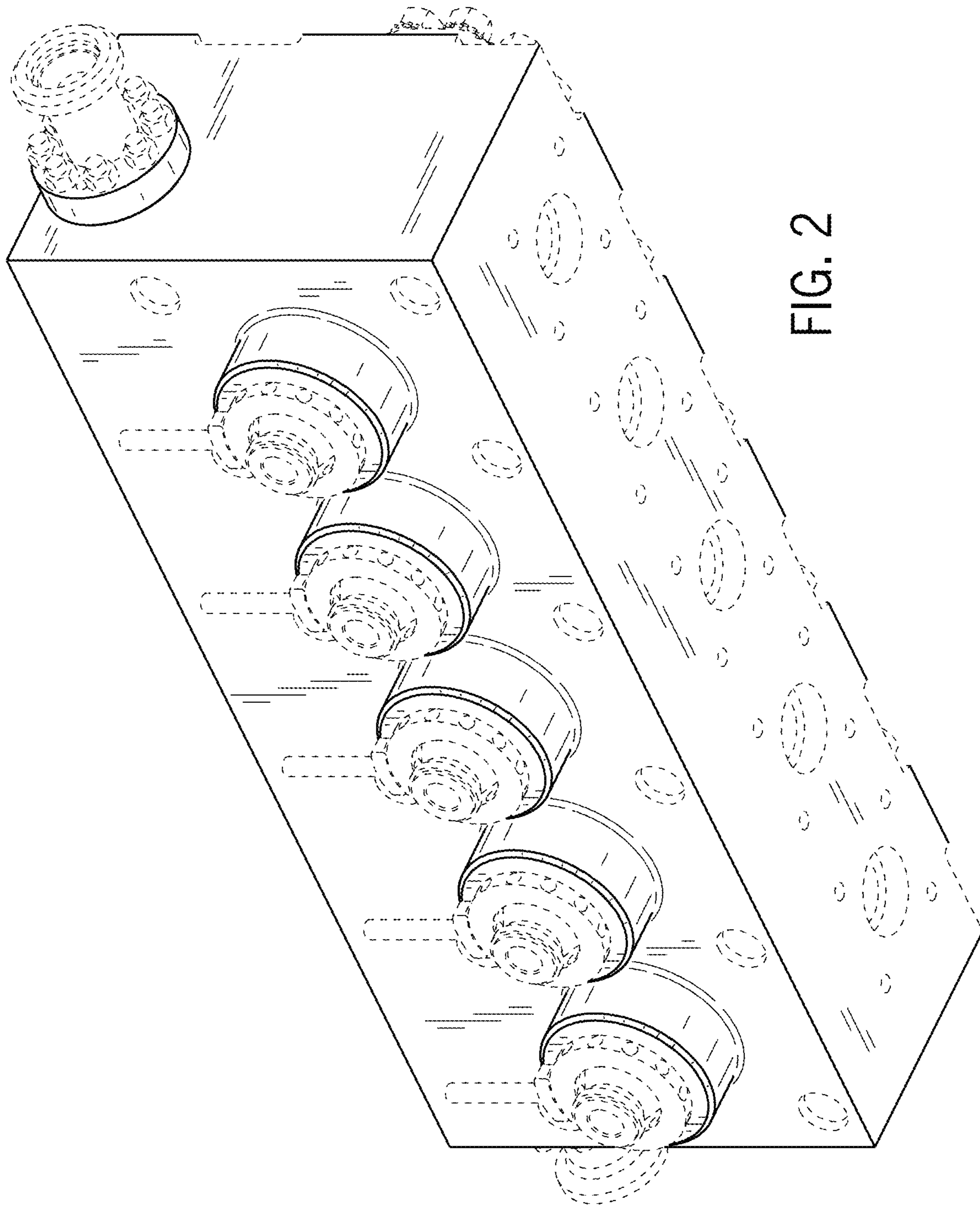


FIG. 2

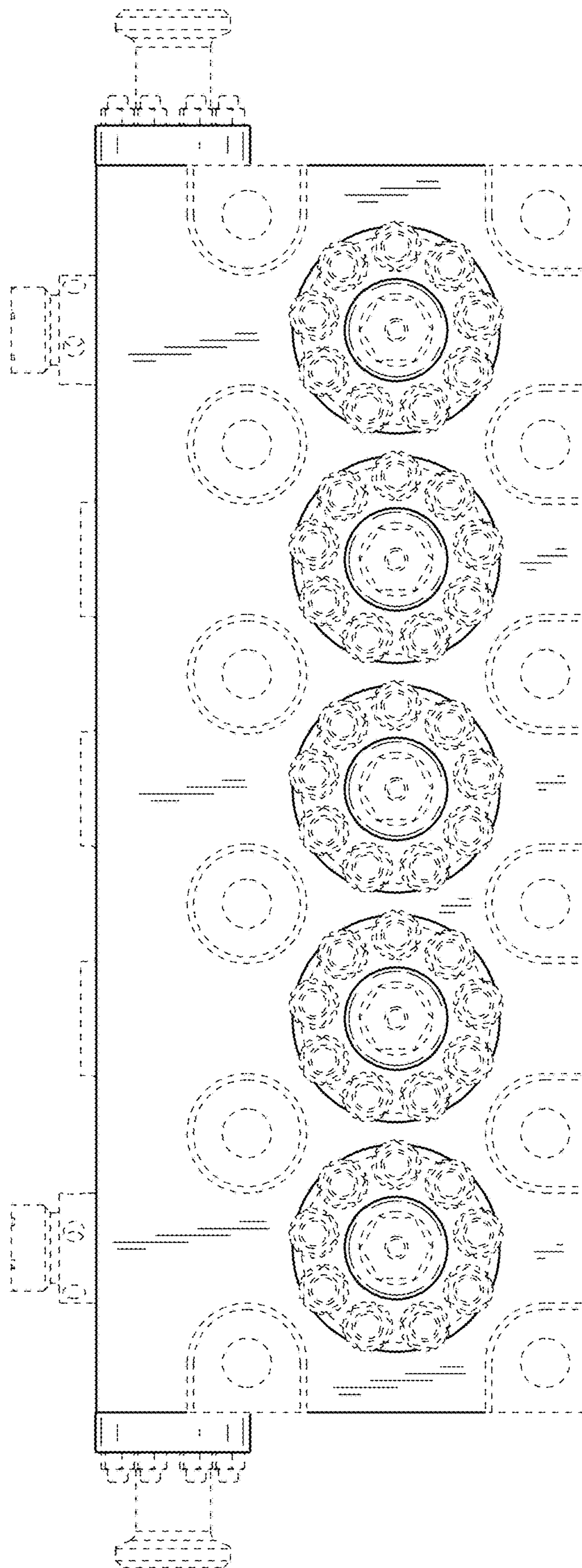


FIG. 3

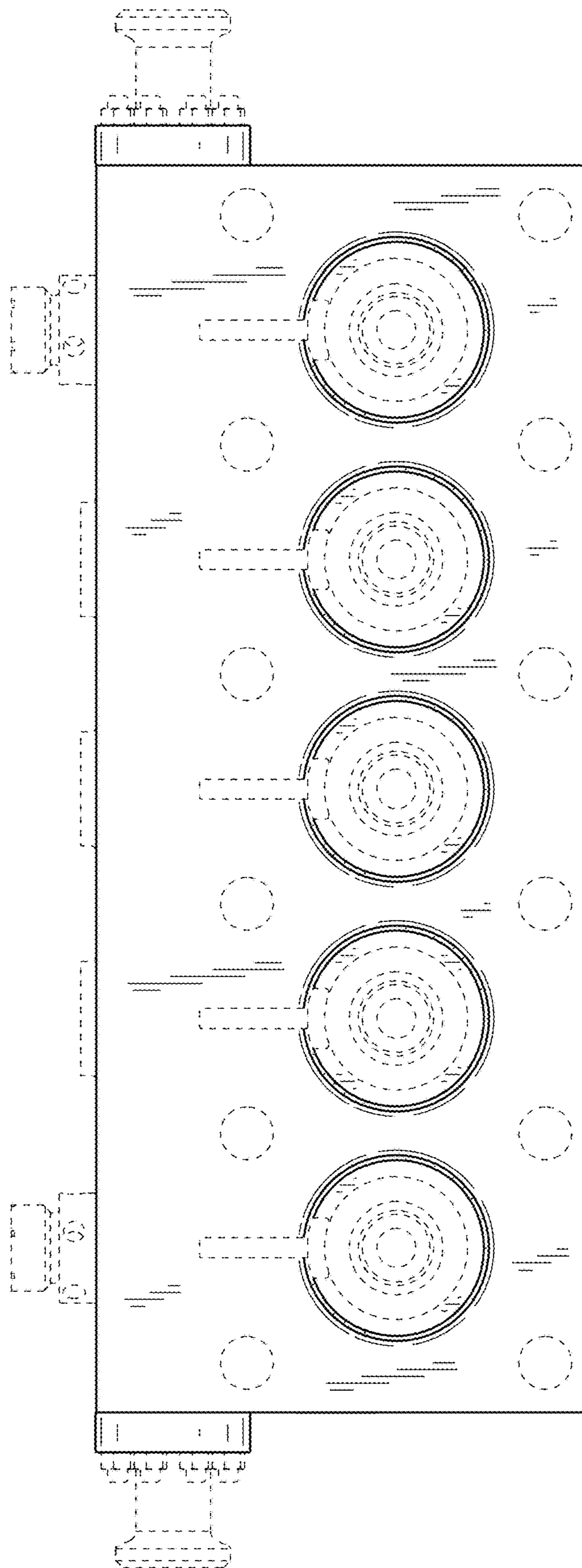


FIG. 4

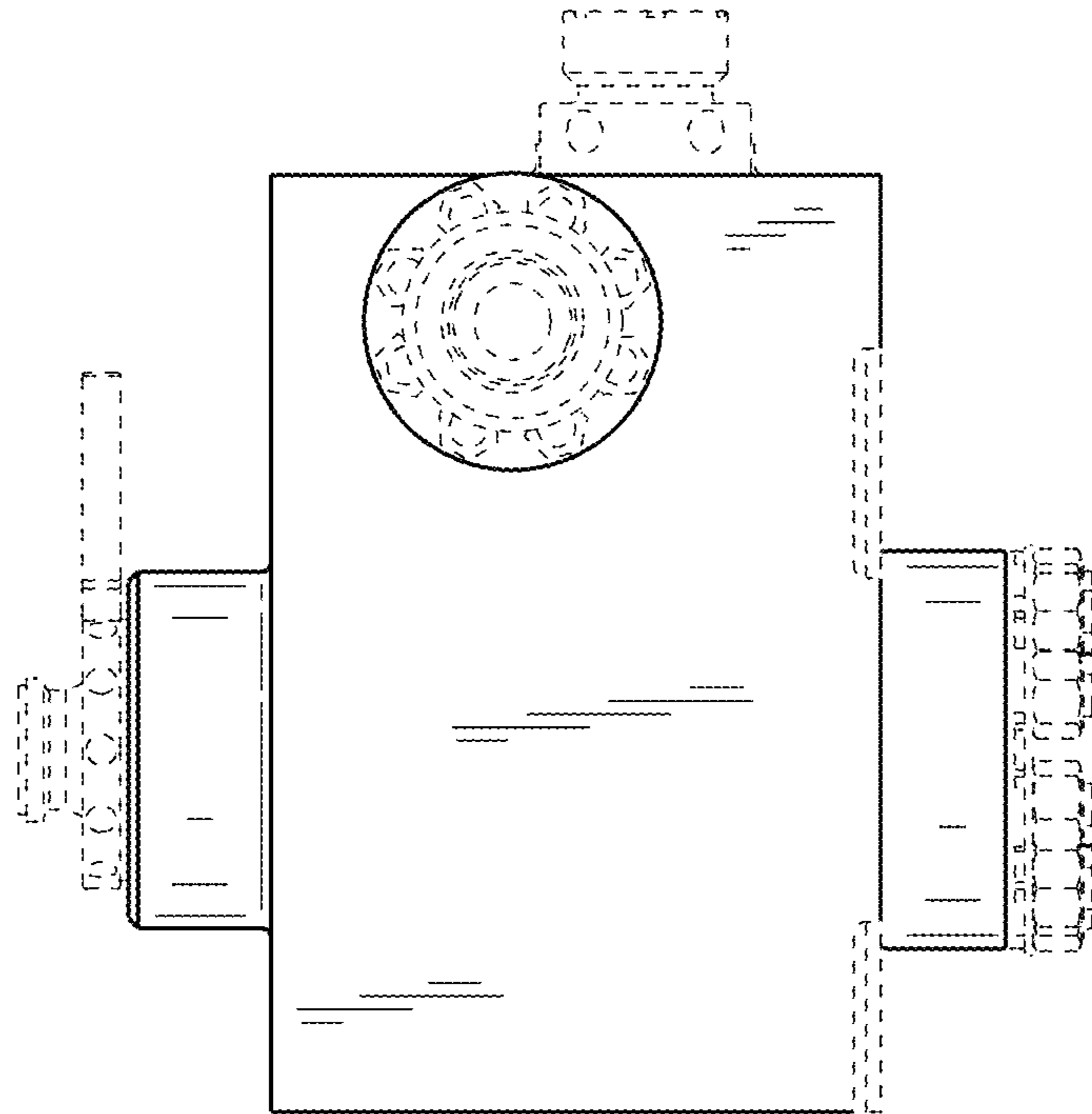


FIG. 5

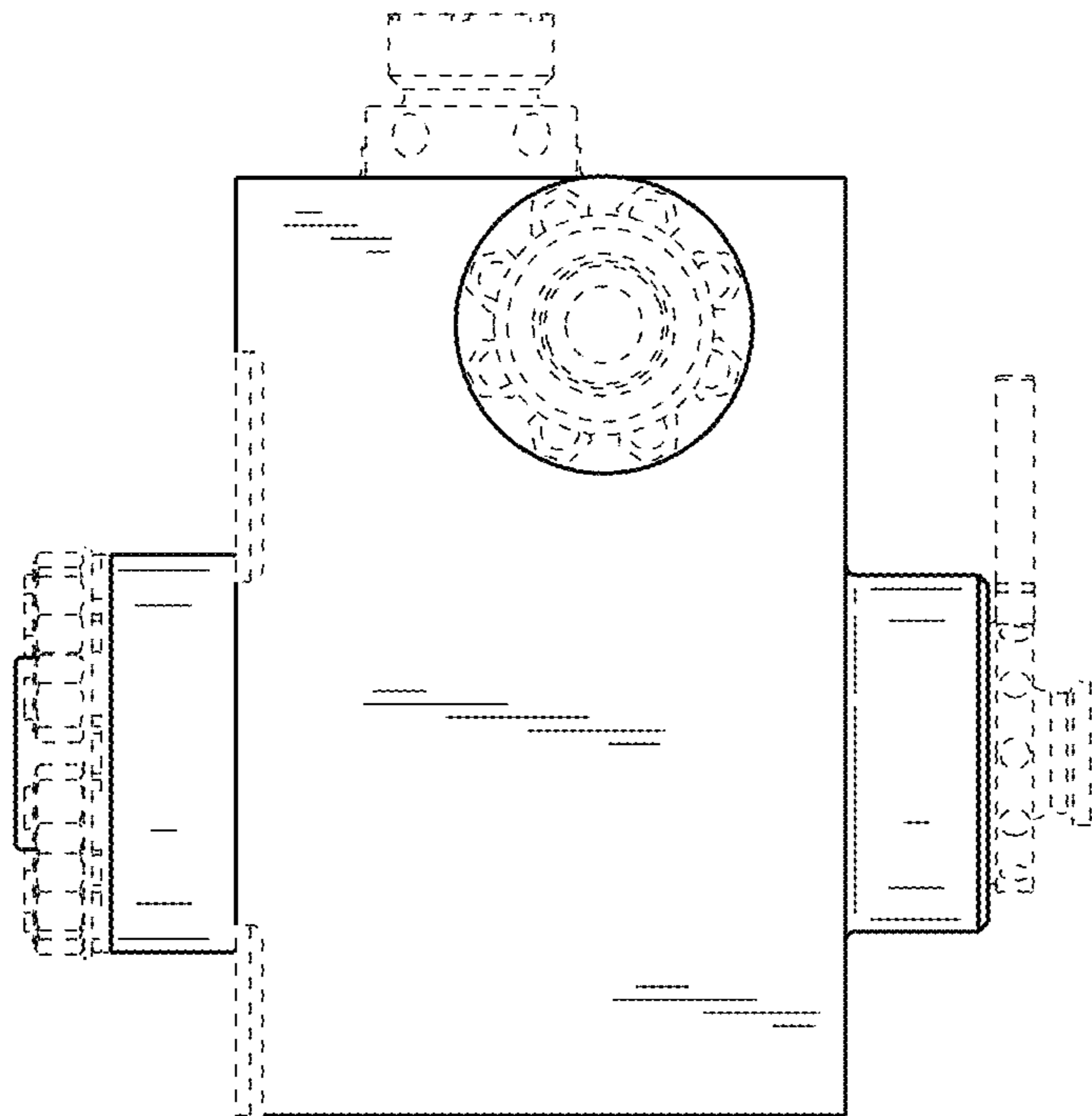


FIG. 6

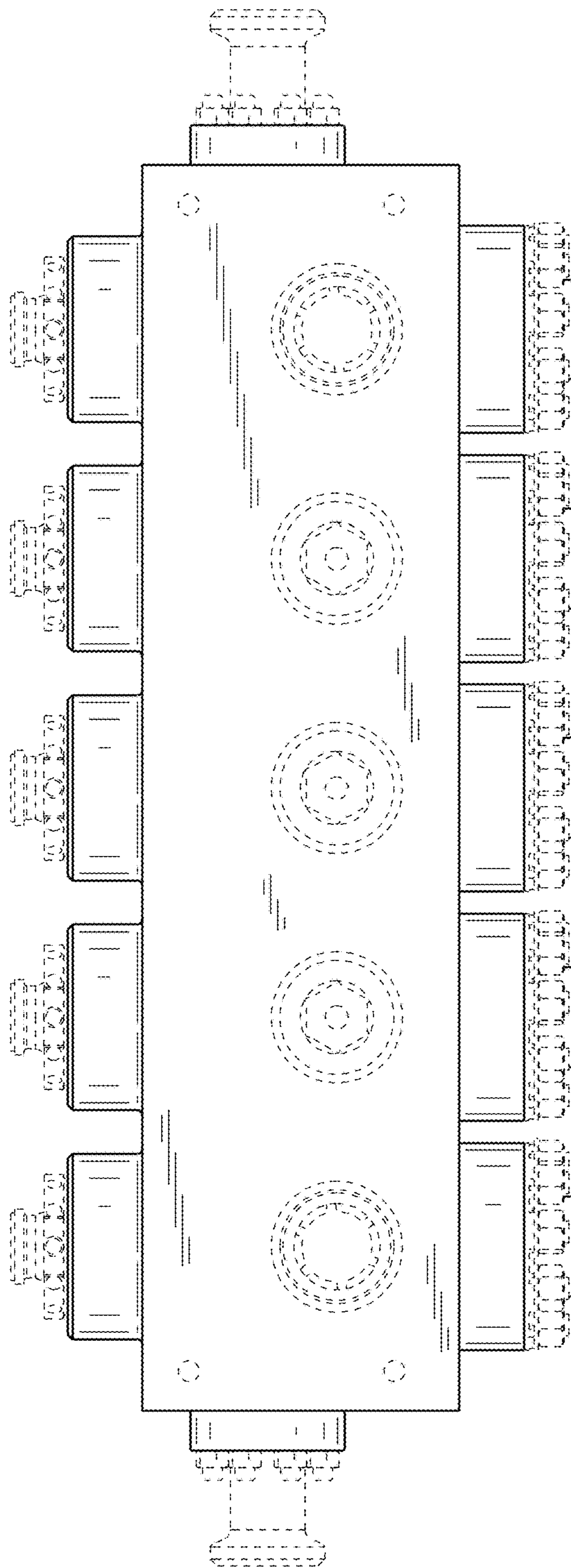


FIG. 7



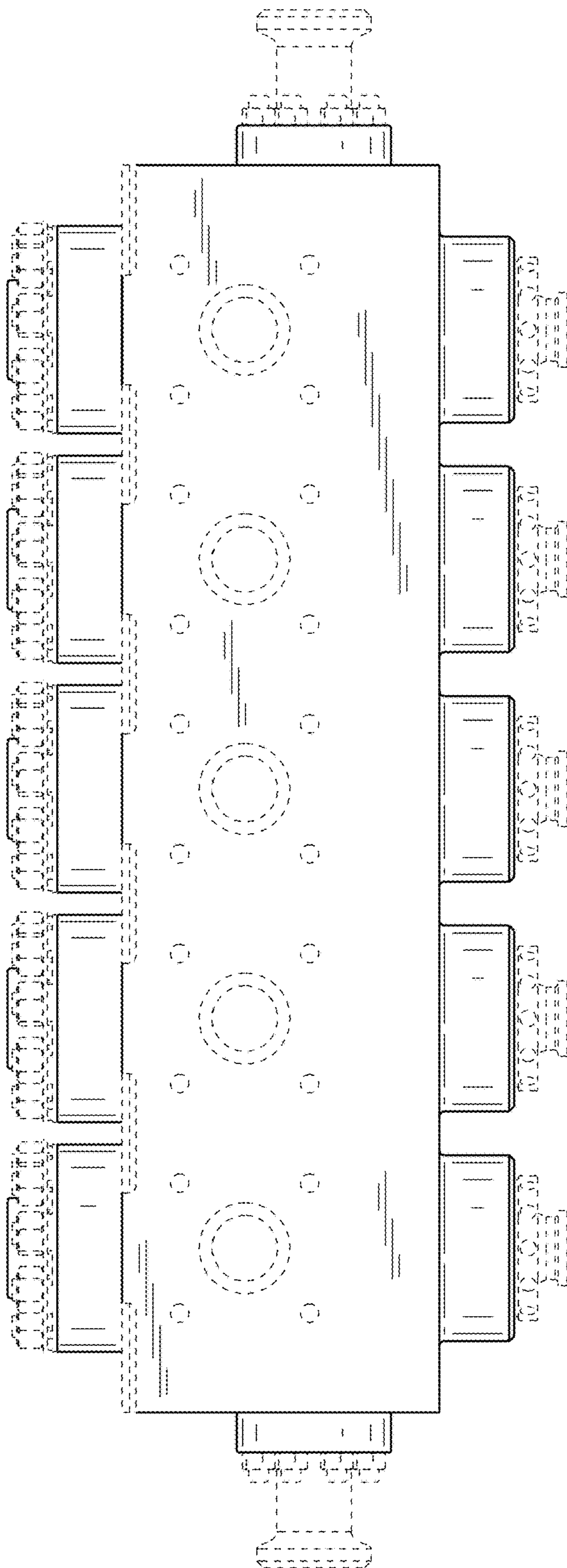


FIG. 8