

US00D862643S

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

(10) **Patent No.:** **US D862,643 S**

(45) **Date of Patent:** **** Oct. 8, 2019**

- (54) **FLOW CONTROL APPARATUS**
- (71) Applicant: **HILL-ROM SERVICES PTE. LTD.**,
Singapore (SG)
- (72) Inventors: **Pratheep Kumar Mahalingam**,
Singapore (SG); **Nookarajesh Varma Sangadi**,
Singapore (SG); **Suresha Venkataraya**,
Singapore (SG); **Cong Jiang**, Singapore (SG); **Joel Preetham Fernandes**,
Singapore (SG); **Chau Chong Ye**, Singapore (SG); **Siew Ying Koh**,
Singapore (SG)

- 4,945,946 A * 8/1990 Gangloff F04B 39/1033
137/516.11
- D330,250 S * 10/1992 Dye D24/129
- D340,941 S * 11/1993 Smith D15/29
- D340,942 S * 11/1993 Smith D15/29
- 5,617,913 A 4/1997 DeGregoria et al.
- D437,411 S * 2/2001 Maeji D24/127
- D441,089 S * 4/2001 Bhullar D10/81
- D481,946 S * 11/2003 Nicholson D24/224
- 6,939,397 B2 9/2005 Nelsen et al.
- D516,182 S * 2/2006 Buttgen D23/249
- D536,067 S * 1/2007 Grether D23/249
- D577,807 S * 9/2008 Kenyon D23/379
- D577,816 S * 9/2008 Ungar D24/110.1

(Continued)

- (73) Assignee: **HILL-ROM SERVICES PTE. LTD.**,
Singapore (SG)

Primary Examiner — David G Muller

Assistant Examiner — Nathan M Johnston

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

(74) *Attorney, Agent, or Firm* — Barnes & Thornburg
LLP

- (21) Appl. No.: **29/594,867**

- (22) Filed: **Feb. 23, 2017**

- (51) **LOC (12) Cl.** **23-01**

(57) **CLAIM**

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

The ornamental design for a flow control apparatus, as shown and described.

- USPC **D23/233**

- (58) **Field of Classification Search**

DESCRIPTION

- USPC D24/129, 110–110.6; D23/233–250, 259,
D23/262, 263; 137/118.04, 498, 516.11,
137/597, 602, 533.11, 625.46, 270, 887,
137/876, 599.11, 10, 12, 15.18, 100, 14.2,
137/505.11, 625.27, 625.4, 315.18, 486,
137/487.5, 599.05, 601.14, 554, 630.12,
137/398, 545, 547, 549, 505, 505.42,
137/116.3; 251/285, 129.15, 129.01, 250,
251/309

FIG. 1 is a side perspective view of a flow control apparatus in accordance with our design, as viewed from a top front corner thereof;

FIG. 2 is a front elevation view thereof;

FIG. 3 is a rear elevation view thereof;

FIG. 4 is a bottom plan view thereof;

FIG. 5 is a top plan view thereof;

FIG. 6 is a right side elevation view thereof; and,

FIG. 7 is a left side elevation view thereof.

The broken lines shown in the figures depict environmental subject matter and form no part of the claimed design.

- CPC B29C 2945/76083; B29C 2945/76545;
B29C 2045/2872; B29C 2945/76277

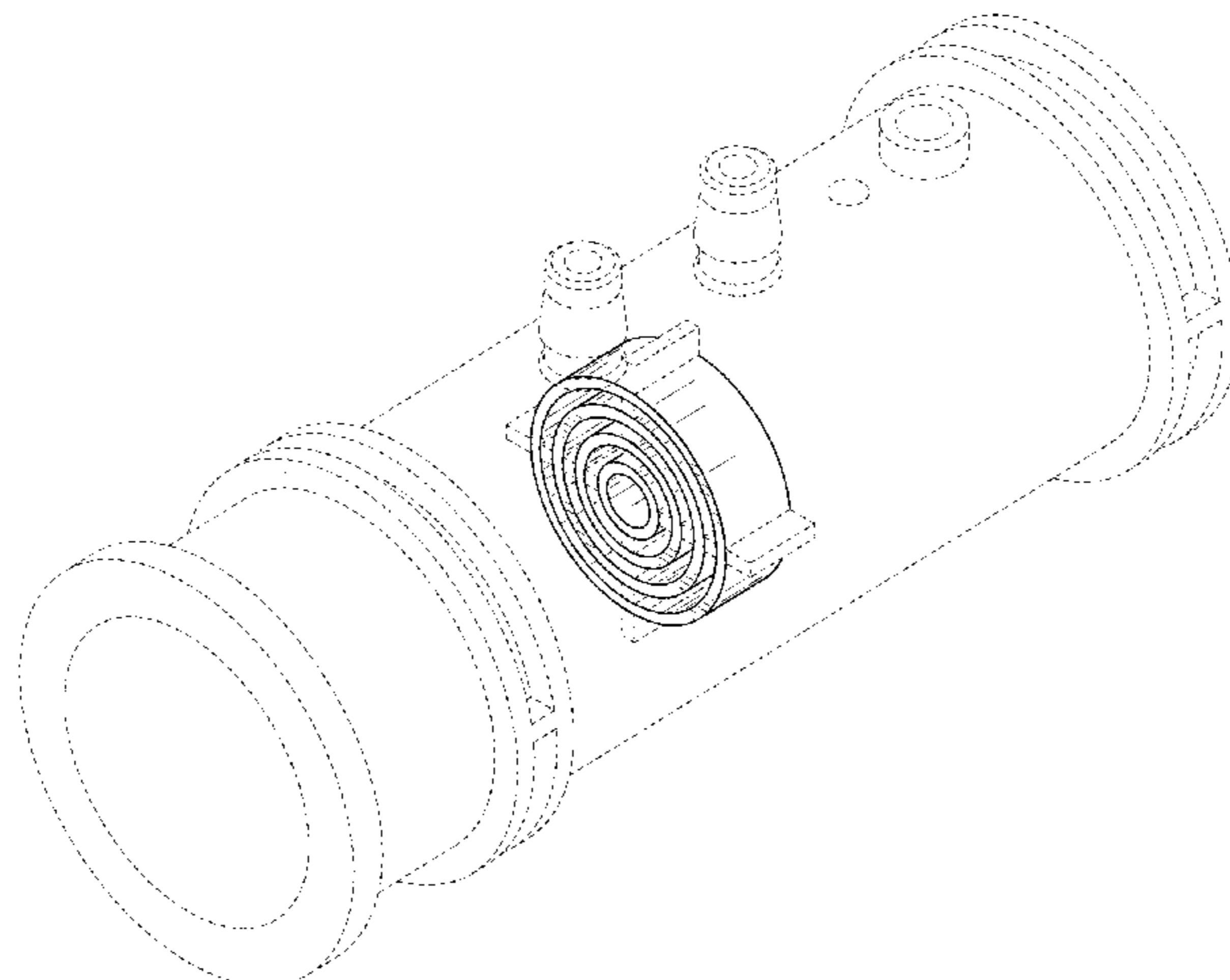
See application file for complete search history.

- (56) **References Cited**

U.S. PATENT DOCUMENTS

- D273,804 S * 5/1984 Fueloep D13/102
- 4,852,608 A * 8/1989 Bennitt F04B 39/1053
137/516.13

1 Claim, 5 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

7,469,716 B2 * 12/2008 Parrino A61M 39/223
 137/556
 D584,801 S * 1/2009 Grether D23/249
 D585,968 S * 2/2009 Elkins D23/259
 D589,597 S * 3/2009 Bloch D23/249
 D591,403 S * 4/2009 Grether D23/249
 D604,834 S * 11/2009 Ungar D24/110.1
 D615,186 S * 5/2010 Ross D24/107
 D619,700 S * 7/2010 Kenyon D24/110
 D620,556 S * 7/2010 Hillhouse D23/235
 D629,120 S * 12/2010 Lafond D24/224
 D630,721 S * 1/2011 Kenyon D23/379
 D635,246 S * 3/2011 Striebig D24/110
 D645,950 S * 9/2011 Kenyon D23/379
 D657,043 S * 4/2012 Lulla D24/110
 D684,695 S * 6/2013 Green D24/143

D693,923 S * 11/2013 Hernandez D24/129
 8,695,599 B2 4/2014 Friberg et al.
 8,985,148 B2 * 3/2015 Chang F16K 11/076
 137/597
 D769,384 S * 10/2016 Altemus, Jr. D21/753
 D787,937 S * 5/2017 Messenger D23/249
 9,713,438 B2 7/2017 Allum et al.
 D803,414 S * 11/2017 Tate D24/224
 D827,765 S * 9/2018 Ward D23/207
 D833,004 S * 11/2018 Leonard D24/127
 D837,397 S * 1/2019 Vellutato, Jr. G01N 1/2273
 D24/216
 2002/0002997 A1 * 1/2002 Steinruck F04B 39/1033
 137/516.11
 2010/0319796 A1 * 12/2010 Whitaker F16K 11/085
 137/625.46
 2011/0186142 A1 * 8/2011 Klein F16K 43/00
 137/15.18

* cited by examiner

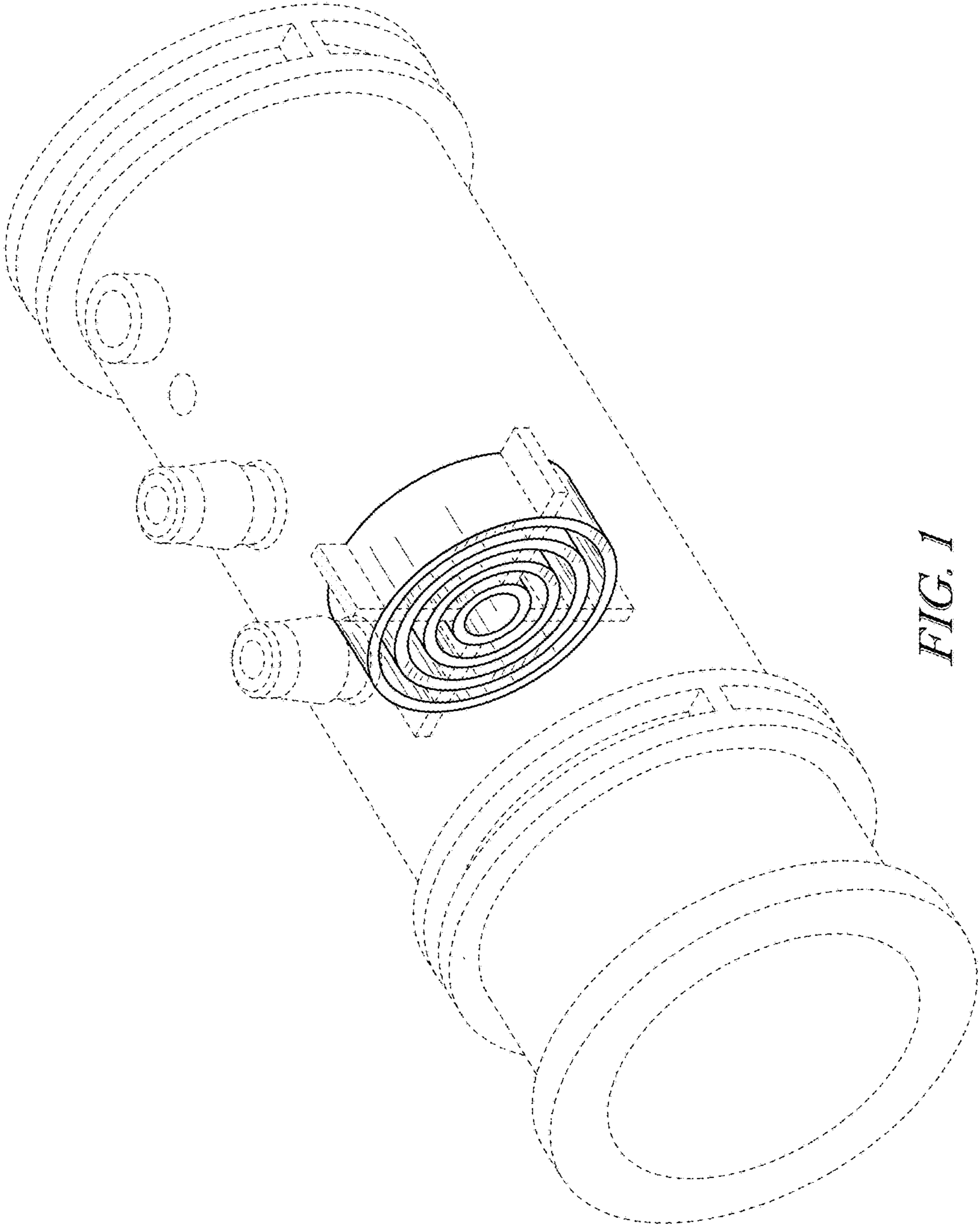


FIG. 1

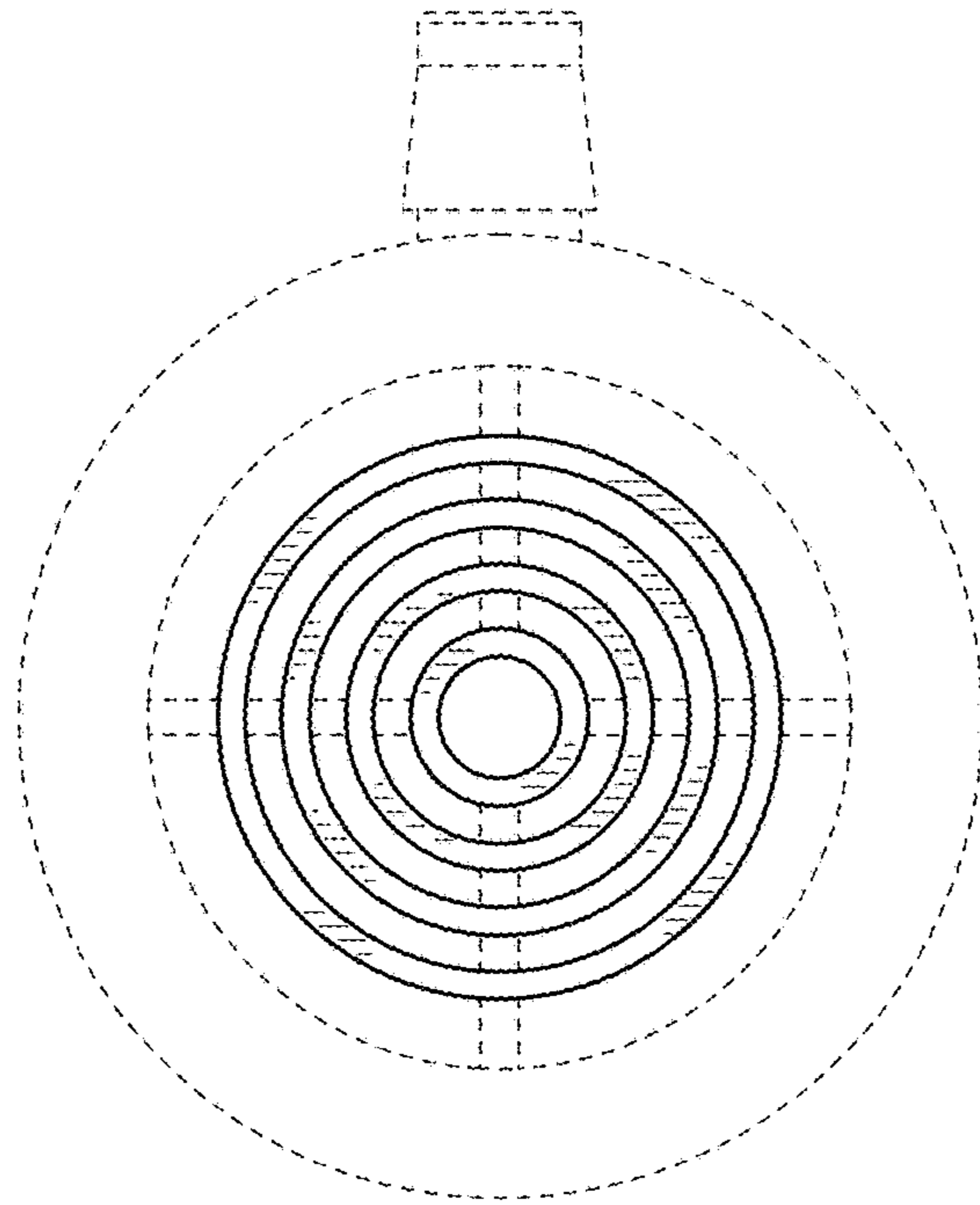


FIG. 2

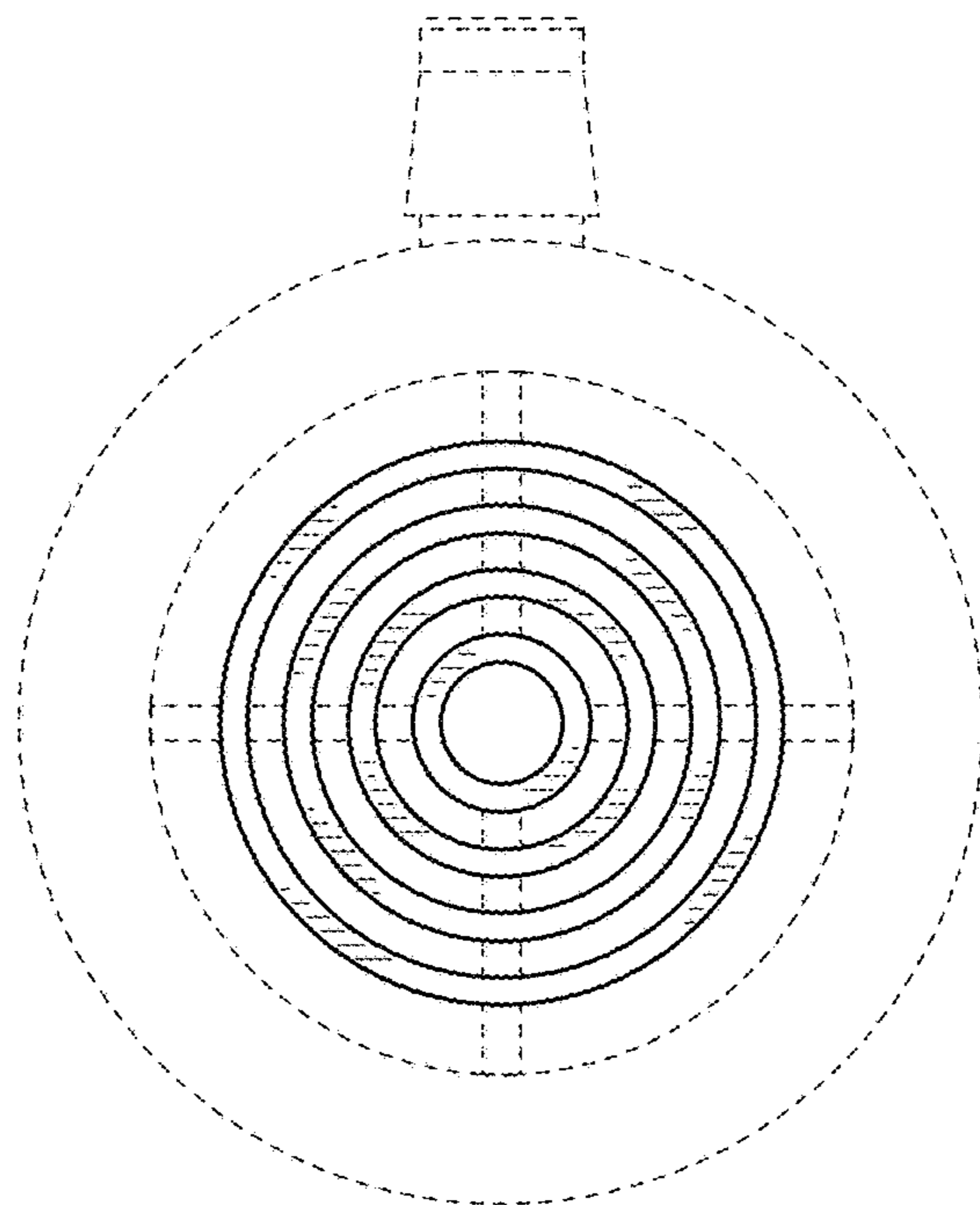


FIG. 3

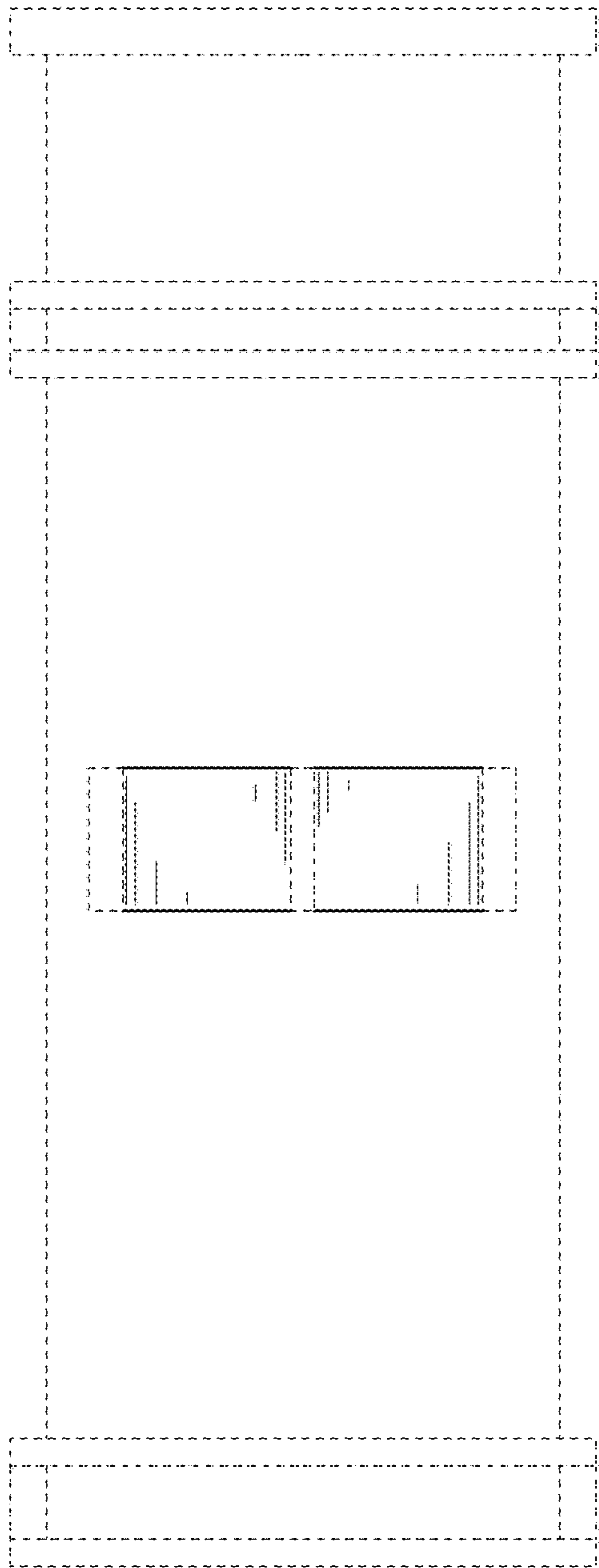


FIG. 4

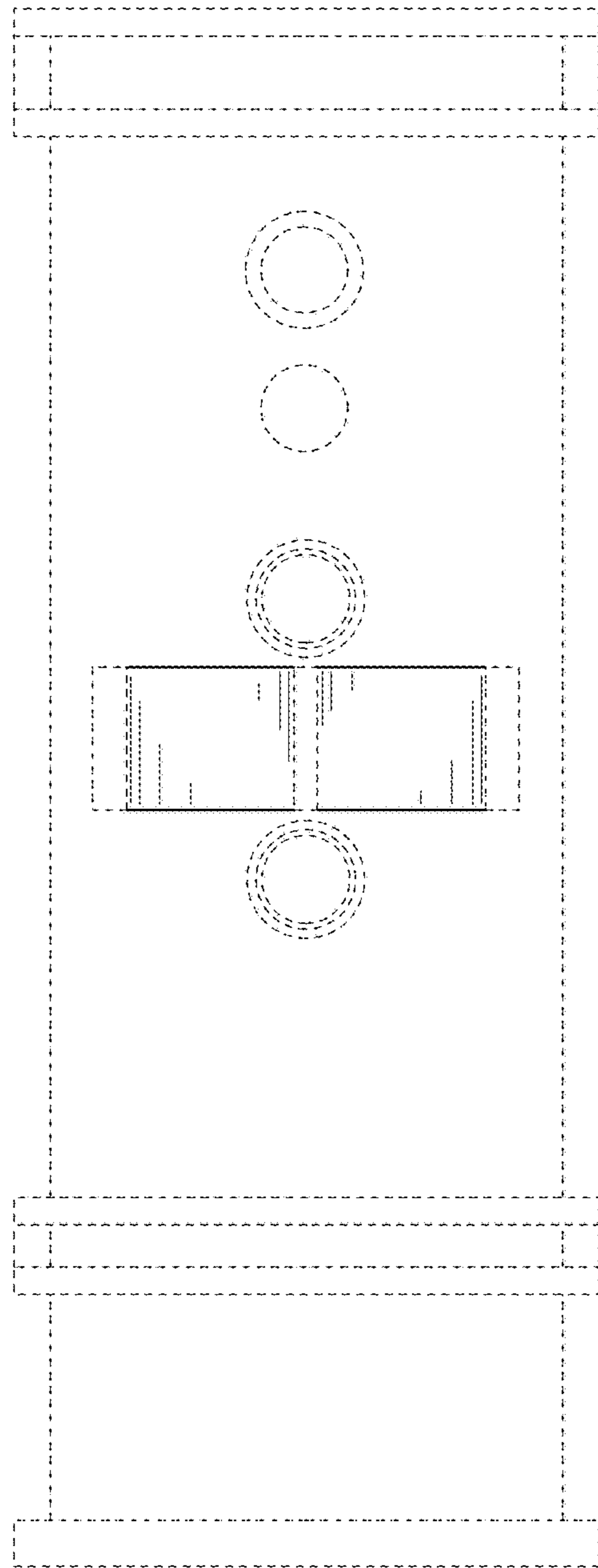


FIG. 5

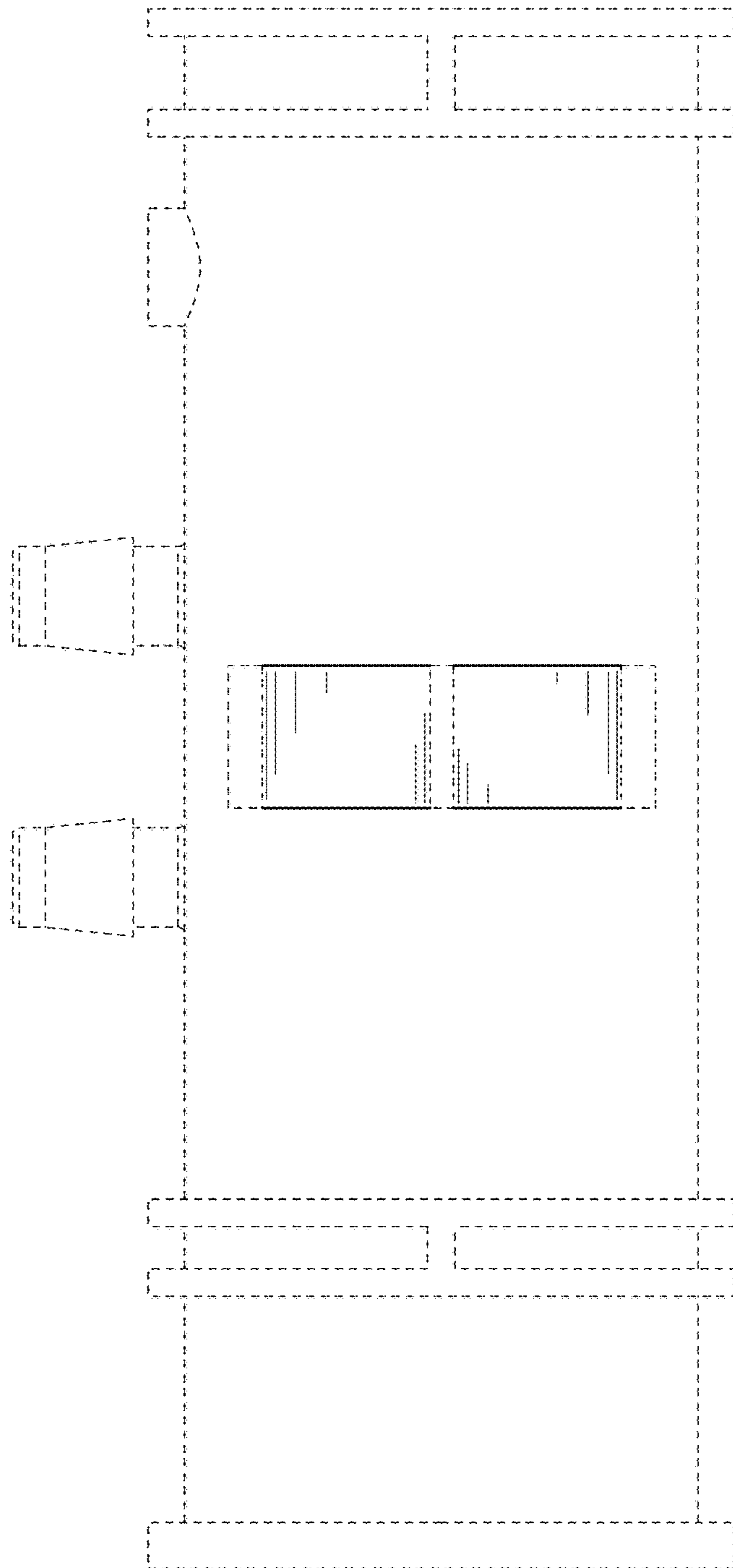


FIG. 6

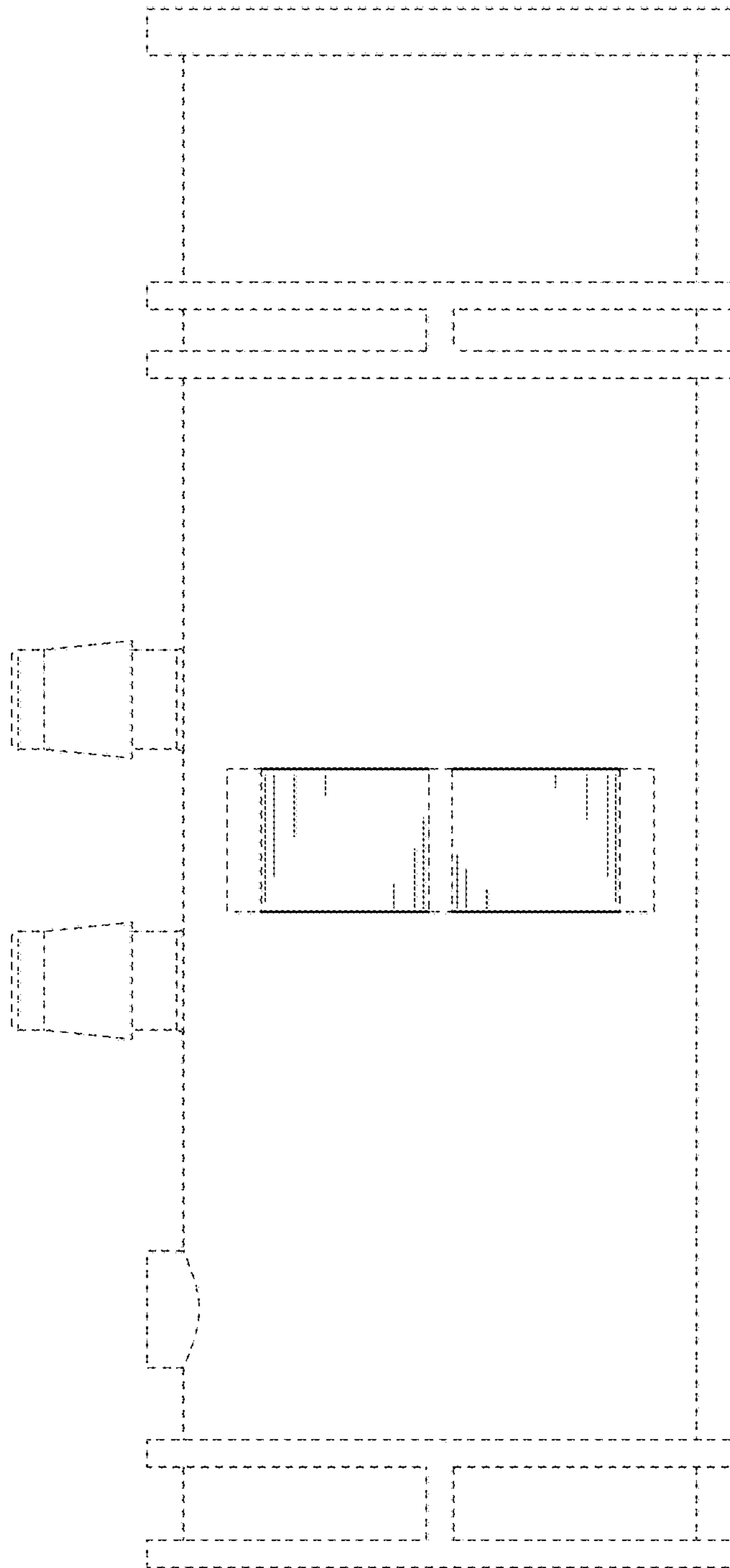


FIG. 7