



US00D905842S

(12) **United States Design Patent** (10) **Patent No.:** **US D905,842 S**
Rahn et al. (45) **Date of Patent:** **** Dec. 22, 2020**

(54) **FILTER CARTRIDGE**

D405,157 S * 2/1999 Hayes D23/209
5,888,442 A 3/1999 Kometani et al.
5,895,574 A 4/1999 Friedmann et al.

(71) Applicant: **Donaldson Company, Inc.**,
Minneapolis, MN (US)

(Continued)

(72) Inventors: **Hubert J. Rahn**, Maple Grove, MN
(US); **David J. Burton**, Minneapolis,
MN (US)

FOREIGN PATENT DOCUMENTS

DE 20 2006 020 287 3/2008
DE 20 2008 017 059 U1 5/2010

(Continued)

(73) Assignee: **Donaldson Company, Inc.**,
Minneapolis, MN (US)

OTHER PUBLICATIONS

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

International Search Report and Written Opinion for PCT/US2012/
000452 dated Jun. 17, 2016.

(21) Appl. No.: **29/653,489**

Primary Examiner — Sheryl Lane

(22) Filed: **Jun. 15, 2018**

Assistant Examiner — Calvin E Vansant

(51) **LOC (12) Cl.** **23-04**

(74) *Attorney, Agent, or Firm* — Merchant & Gould P.C.

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

(57) **CLAIM**

USPC **D23/365**

The ornamental design for a filter cartridge, as shown and
described.

(58) **Field of Classification Search**

DESCRIPTION

USPC D23/209, 358, 355, 364, 365, 386–393
CPC F24F 13/0218; F24F 13/06; F24F 13/062;
F24F 2013/0608; F24F 2221/14; B64D
33/02; B64D 2033/0246; F02C 7/05;
B01D 46/0002; B01D 45/16

See application file for complete search history.

FIG. 1 is a perspective view of our new design for a filter
cartridge, being shown generally toward an inlet end, and
toward a cartridge side.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,925,561 A 5/1990 Ishii et al.
5,049,326 A 9/1991 Matsumoto et al.
D356,852 S * 3/1995 Janik D23/209
5,562,825 A 10/1996 Yamada et al.
5,613,992 A 3/1997 Engel
5,772,883 A 6/1998 Rothman et al.
D396,098 S 7/1998 Gillingham et al.
5,792,247 A 8/1998 Gillingham et al.
D398,046 S 9/1998 Gillingham et al.
D399,944 S 10/1998 Gillingham et al.
5,820,646 A 10/1998 Gillingham et al.

FIG. 2 is a first side elevational view of the filter cartridge
of FIG. 1.

FIG. 3 is a second side elevational view of the cartridge of
FIG. 1, the view of FIG. 3 generally being toward an
opposite side to that viewable in FIG. 2.

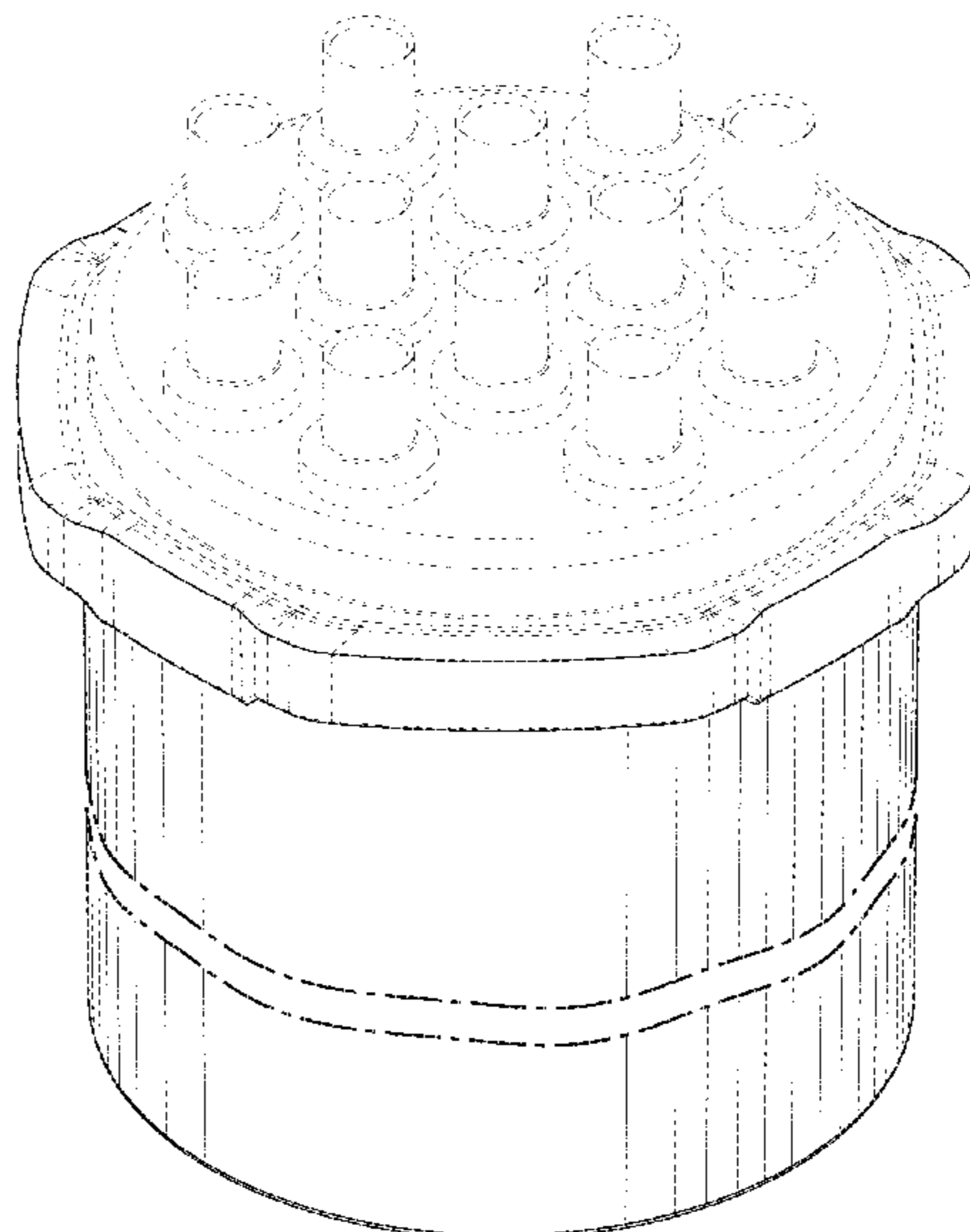
FIG. 4 is third side elevational view taken generally toward
the right side of the view of FIG. 2.

FIG. 5 is a fourth side elevational view of the filter cartridge
of FIG. 1, taken generally opposite the view of FIG. 4.

FIG. 6 is an inlet end plan view of the cartridge of FIG. 1,
and taken toward the top of FIG. 1; and,

FIG. 7 is an outlet end plan view of the cartridge of FIG. 1;
the end viewable being opposite FIG. 6.

1 Claim, 7 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,902,364 A 5/1999 Tokar et al.
 6,039,778 A 3/2000 Coulonvaux
 D428,128 S 7/2000 Gillingham et al.
 6,179,890 B1 1/2001 Ramos et al.
 D437,401 S 2/2001 Ramos et al.
 6,190,432 B1 2/2001 Gieseke et al.
 6,210,469 B1 4/2001 Tokar
 6,235,195 B1 5/2001 Tokar
 6,293,984 B1 9/2001 Oda
 6,350,296 B1 2/2002 Warner
 D479,300 S * 9/2003 Janik D23/209
 6,673,136 B2 1/2004 Gillingham
 7,070,641 B1 7/2006 Gunderson
 7,247,183 B2 7/2007 Connor et al.
 7,625,419 B2 12/2009 Nelson et al.
 D638,517 S * 5/2011 Greenway-Balnar D23/209
 8,012,227 B2 9/2011 Greif
 8,518,139 B2 8/2013 Jessberger
 8,685,130 B2 4/2014 Nelson et al.
 8,728,193 B2 5/2014 Flagstad et al.
 D732,172 S * 6/2015 Okazaki B01D 46/10
 D24/162
 9,242,199 B2 1/2016 Nelson et al.
 9,308,482 B2 4/2016 Kaiser
 9,320,997 B2 4/2016 Campbell et al.
 9,446,339 B2 9/2016 Rieger et al.
 9,463,404 B2 10/2016 Rieger et al.
 9,555,730 B1 1/2017 Flagstad et al.
 9,579,596 B2 2/2017 Rieger et al.
 D791,276 S * 7/2017 Sharratt D23/209
 D810,786 S 2/2018 Chen
 D810,859 S * 2/2018 Lu D23/209
 10,029,202 B2 7/2018 Nelson et al.
 10,053,210 B2 8/2018 Necci
 D835,778 S * 12/2018 Mozzicato D24/121
 D867,568 S * 11/2019 Gleixner D23/365
 2002/0124734 A1 9/2002 Spannbauer
 2003/0217534 A1 11/2003 Krisko
 2004/0187689 A1 9/2004 Sporre et al.

2004/0194441 A1 10/2004 Kirsch
 2005/0016138 A1 1/2005 Sheidler
 2005/0130508 A1 6/2005 Yeh
 2007/0289265 A1 12/2007 Coulonvaux
 2008/0209869 A1 9/2008 Rother
 2008/0282890 A1 11/2008 Rocklitz et al.
 2009/0056293 A1 3/2009 Styles
 2009/0127211 A1 5/2009 Rocklitz et al.
 2010/0032365 A1 2/2010 Moe et al.
 2010/0258493 A1 10/2010 Kindkeppel
 2011/0308214 A1 12/2011 Jessberger
 2013/0019576 A1 1/2013 Krisko
 2014/0208705 A1 7/2014 Krull
 2014/0251895 A1 9/2014 Wagner
 2014/0260143 A1 9/2014 Kaiser
 2014/0290194 A1 10/2014 Karlheinz et al.
 2014/0318091 A1 10/2014 Rieger et al.
 2014/0318092 A1 10/2014 Rieger
 2015/0013289 A1 1/2015 Hasenfratz et al.
 2015/0013291 A1 1/2015 Neef
 2016/0305375 A1 10/2016 Finn
 2017/0001134 A1 1/2017 Rieger et al.
 2017/0175685 A1 6/2017 Metzger
 2017/0234277 A1 8/2017 Flagstad et al.
 2018/0345196 A1 * 12/2018 Campbell B01D 46/10

FOREIGN PATENT DOCUMENTS

DE 10 2009 009 066 8/2010
 WO WO 97/40918 A1 11/1997
 WO WO 03/047722 A2 6/2003
 WO WO 03/084641 A2 10/2003
 WO WO 2004/007054 A1 1/2004
 WO WO 2004/082795 A2 9/2004
 WO WO 2005/077487 A2 8/2005
 WO WO 2005/094655 10/2005
 WO WO 2008/106375 9/2008
 WO WO 2009/033040 3/2009
 WO WO 2016/034657 3/2016
 WO WO 2016/077377 A1 5/2016
 WO WO 2019/046614 7/2019

* cited by examiner

FIG. 1

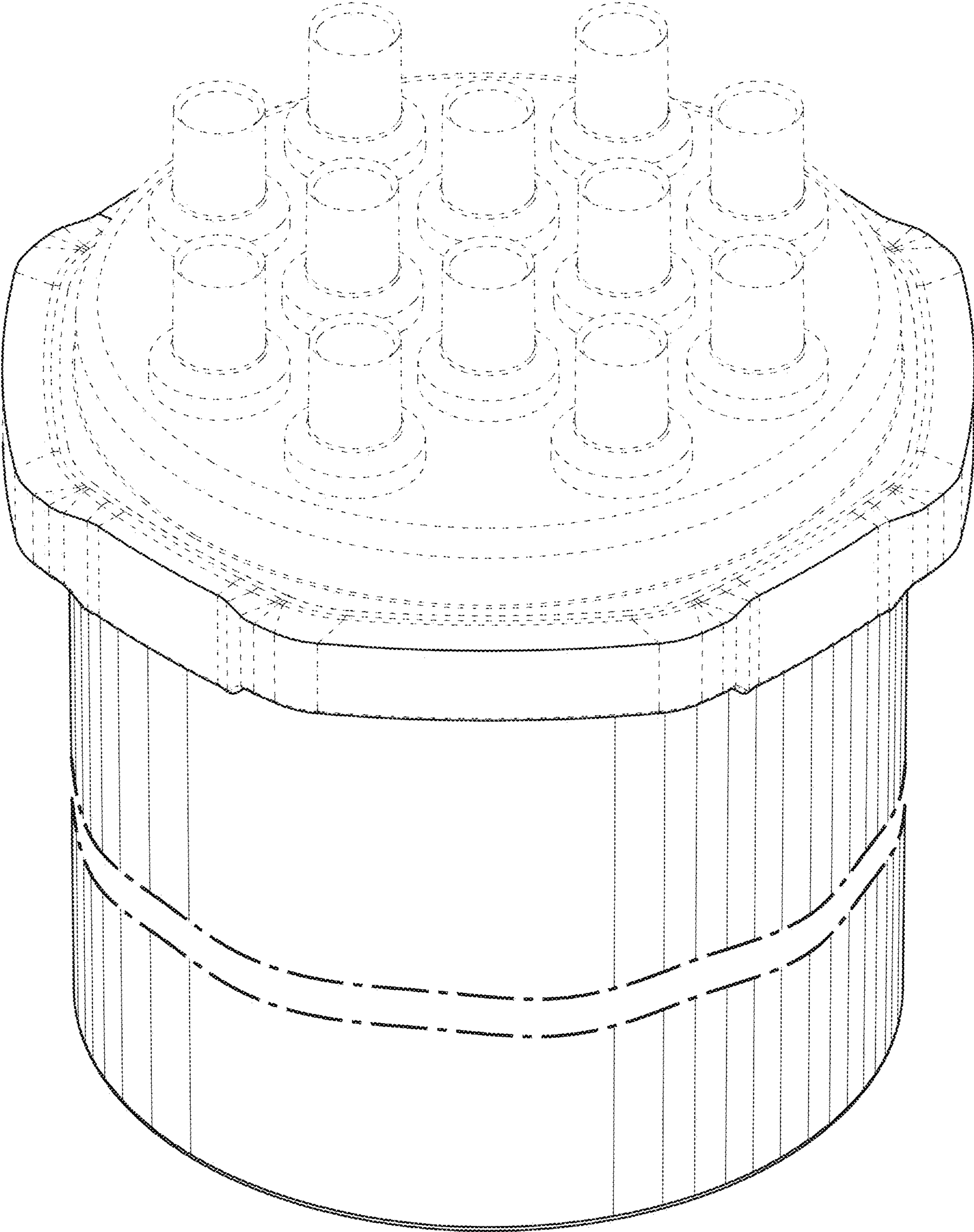


FIG. 2

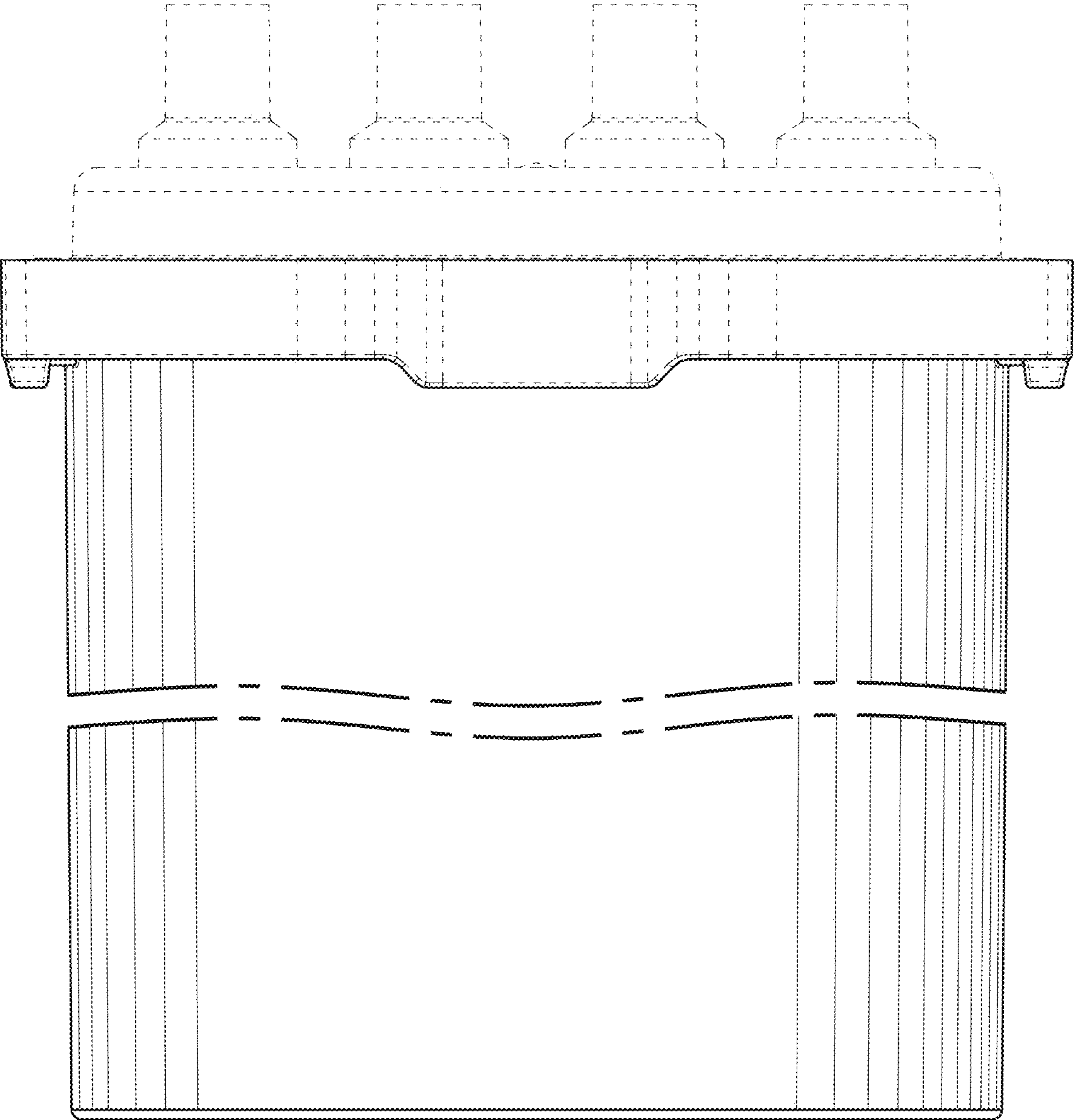


FIG. 3

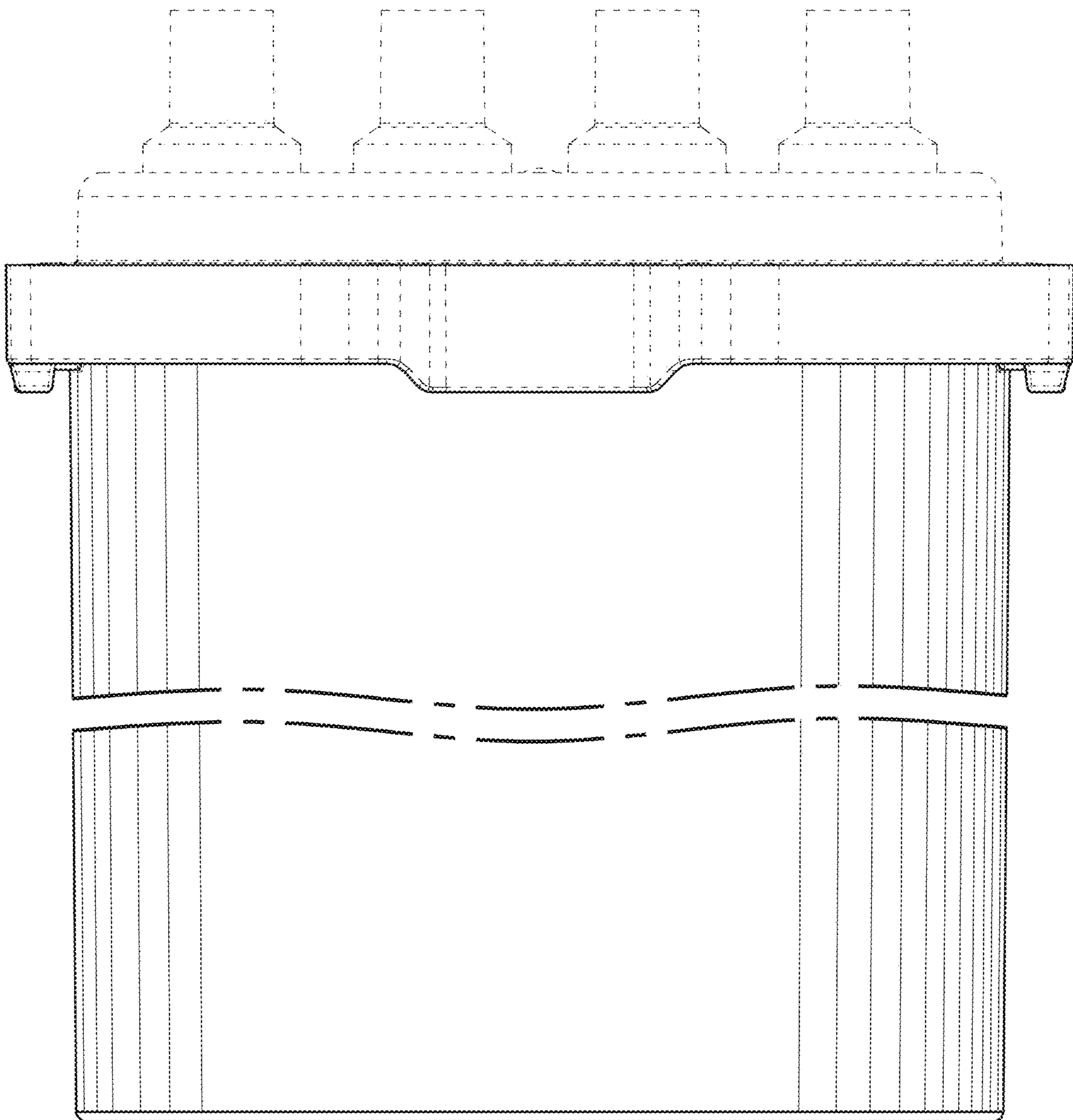


FIG. 4

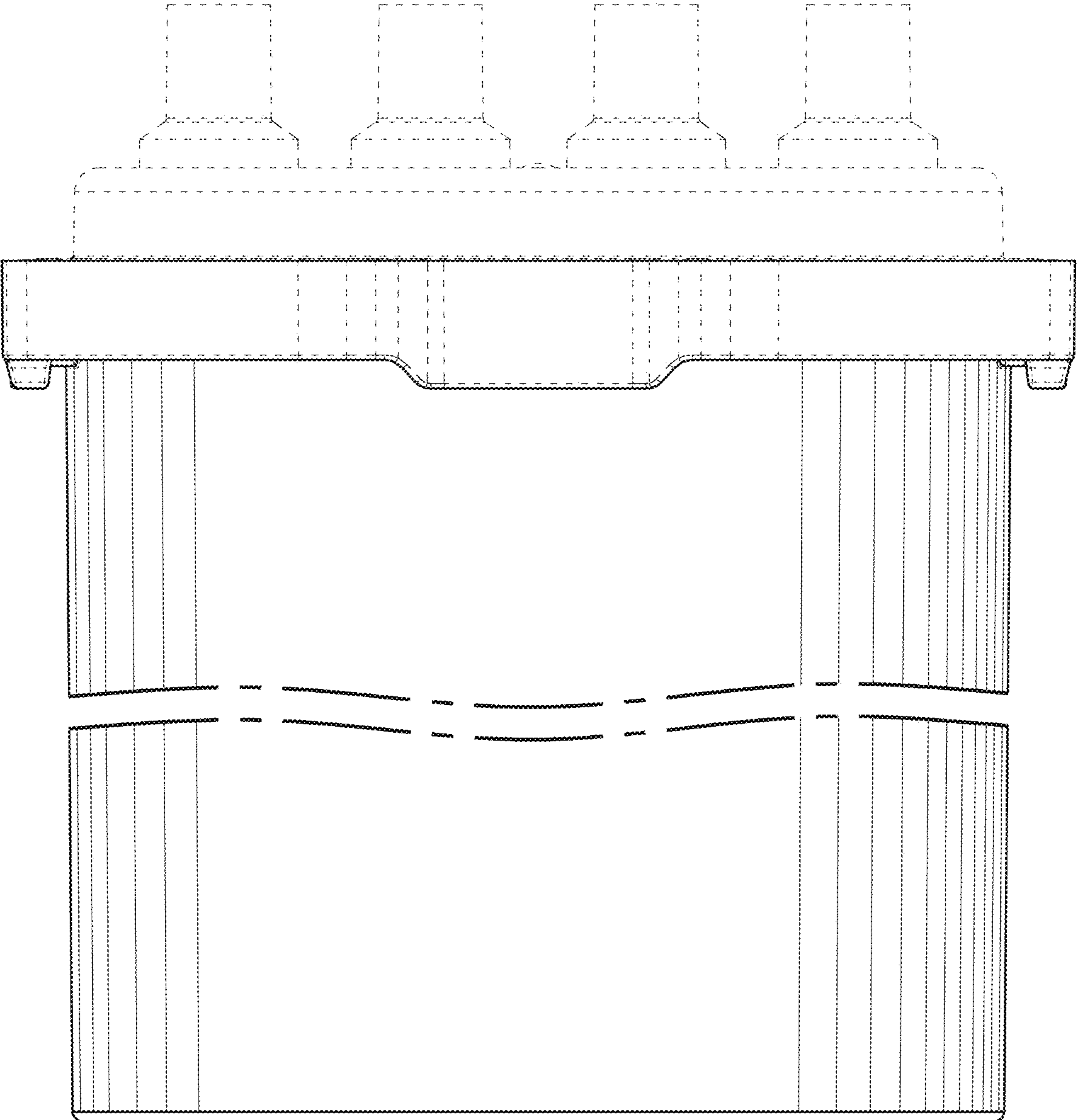


FIG. 5

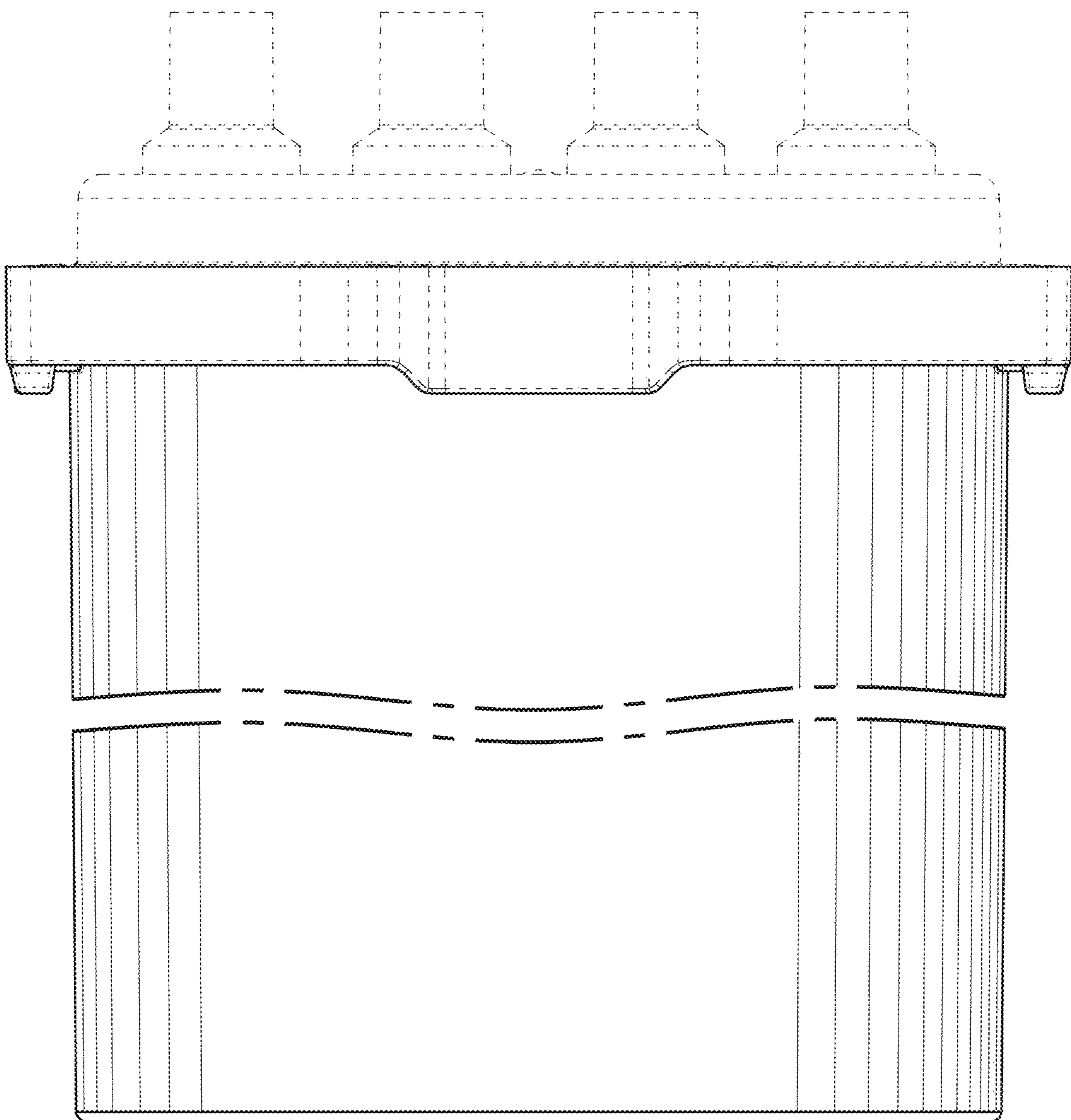


FIG. 6

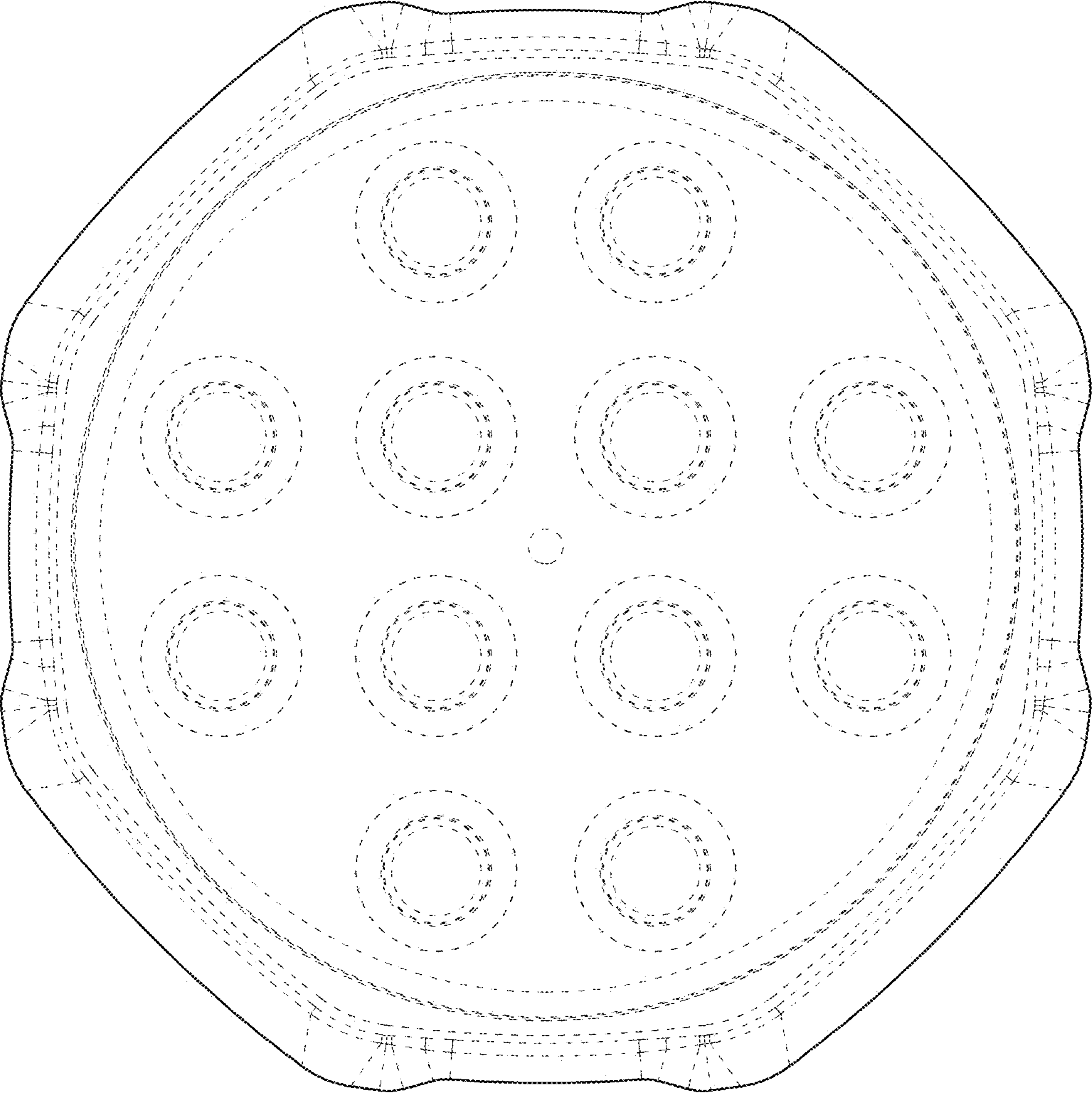


FIG. 7

