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

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(54) **EXPANSION VALVE**

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

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(30) **Foreign Application Priority Data**

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(51) **LOC (10) Cl.** **23-01**

(52) **U.S. Cl.**
USPC **D23/233**

(58) **Field of Classification Search**
USPC D23/233-249; 236/92 B, 99 R; 62/222,
62/115, 210, 527, 528, 299; 137/15.04,
137/15.08, 515, 7, 859, 843, 332, 529,
137/533.17, 540, 54, 543.17, 512.1, 468;
251/129.01, 331, 333, 151; 239/585.1
CPC F25B 41/062; F25B 2600/2513; F25B
2341/068; F25B 41/06; F16K 31/0675;
F16K 27/029; F16K 27/048
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 5,467,611 A * 11/1995 Cummings B60H 1/00571
251/151
- D413,373 S * 8/1999 Watanabe D23/233
- 6,241,157 B1 * 6/2001 Yano F25B 41/062
236/92 B
- D647,597 S * 10/2011 Kobayashi D23/233
- D649,222 S 11/2011 Kobayashi et al. D23/233
- D683,815 S * 6/2013 Kobayashi D23/233
- D683,816 S 6/2013 Kobayashi et al. D23/233

- D683,819 S 6/2013 Watanabe et al. D23/233
- D701,590 S 3/2014 Kaneko D23/233
- 8,667,984 B2 * 3/2014 Kobayashi F25B 41/062
137/468
- D712,010 S 8/2014 Okutsu et al. D23/233
- D754,818 S * 4/2016 Watanabe D23/233
- D782,009 S * 3/2017 Watanabe D23/233

(Continued)

FOREIGN PATENT DOCUMENTS

JP 1431241 1/2012

OTHER PUBLICATIONS

Japanese Office Action, (English and Japanese) Notification of Reason(s) for Refusal, TGK 16118-1, Expansion Valve, Dispatch No. 040305, Dispatch Date Aug. 23, 2016.

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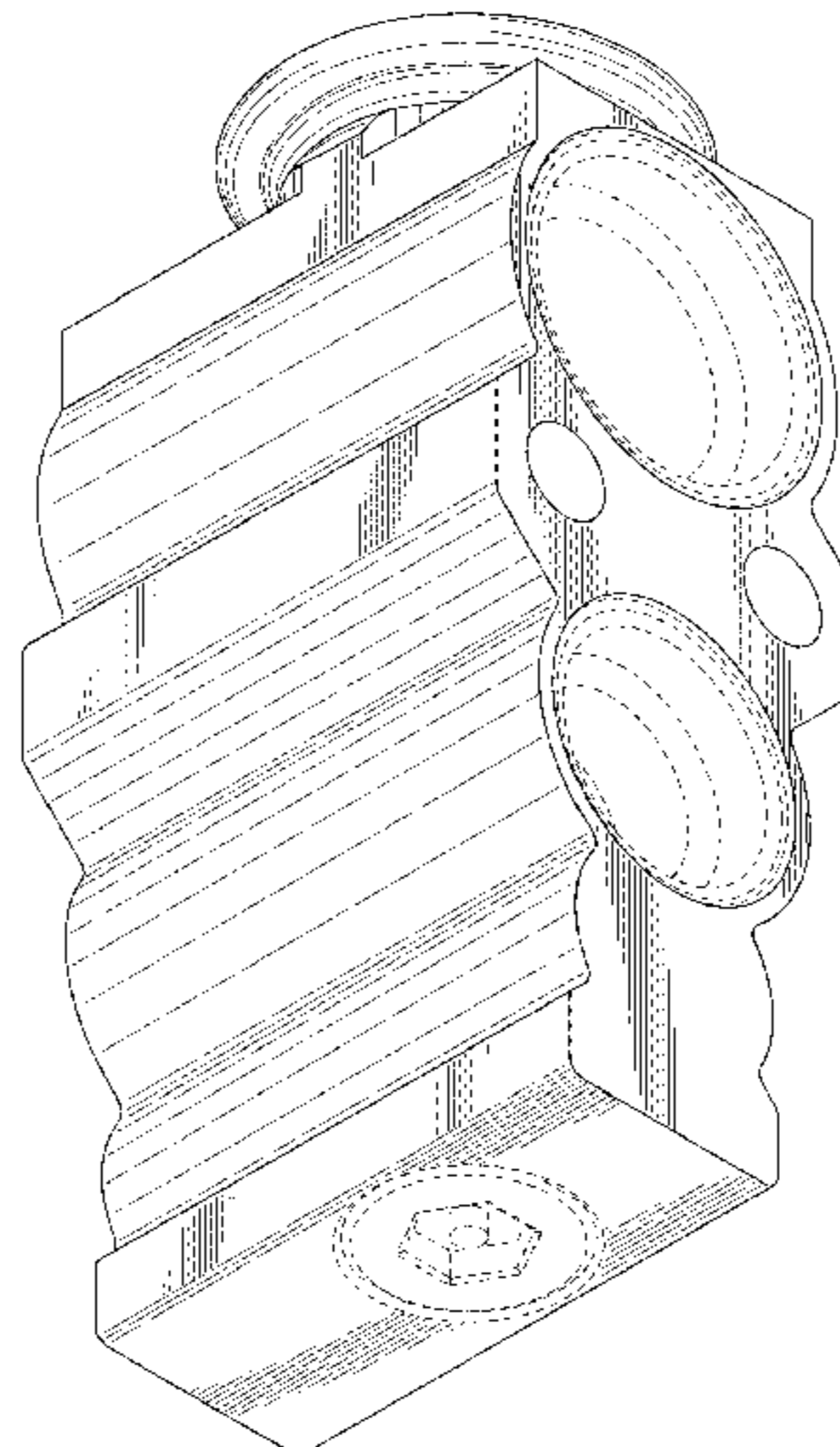
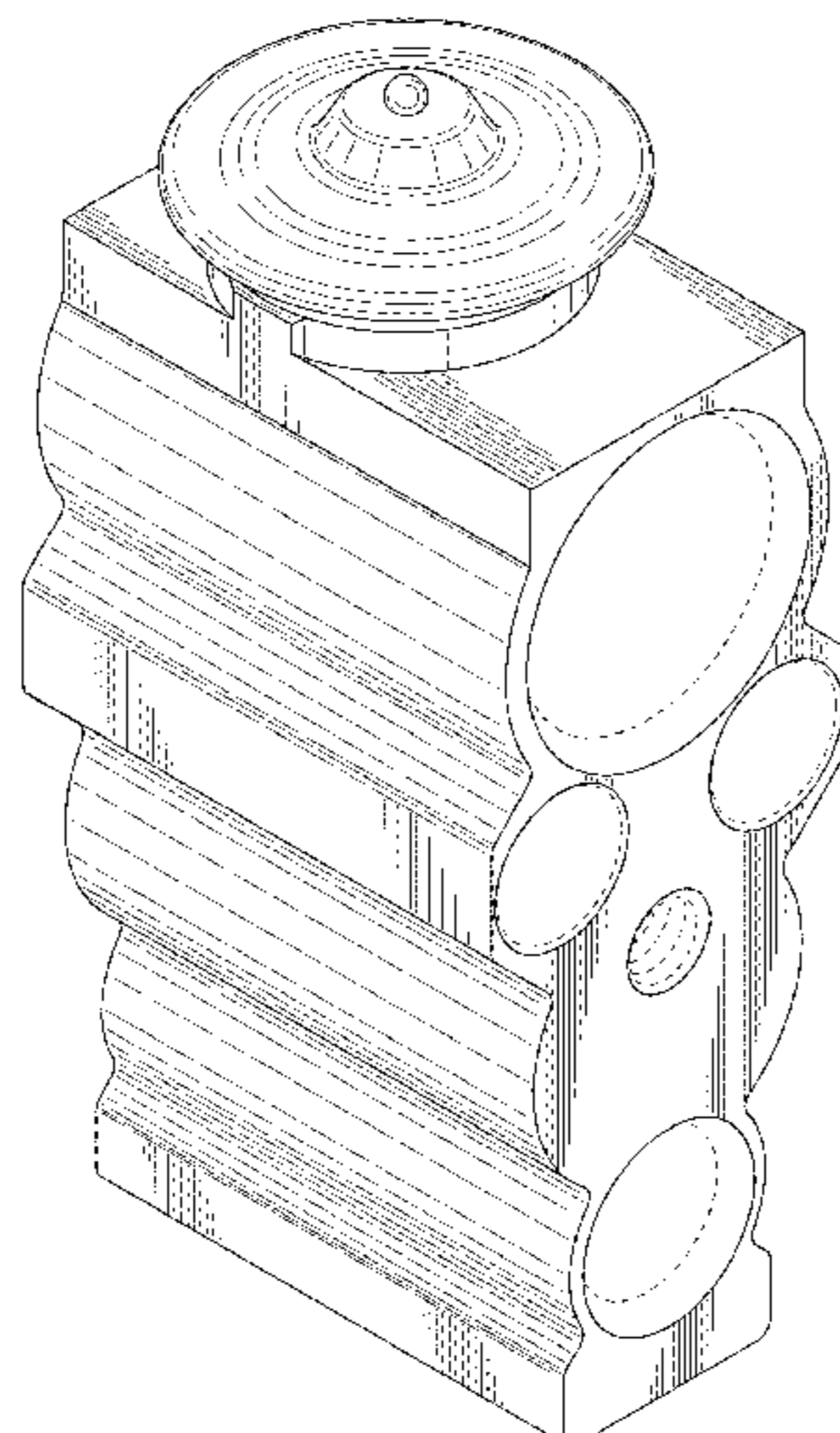
(57) **CLAIM**

The ornamental design for an expansion valve, as shown and described.

DESCRIPTION

FIG. 1 is a front perspective view of an expansion valve showing our new design;
FIG. 2 is a rear perspective view thereof;
FIG. 3 is a front view thereof;
FIG. 4 is a rear view thereof;
FIG. 5 is a top view thereof;
FIG. 6 is a bottom view thereof; and,
FIG. 7 is a left side view thereof, the right side view being a mirror image thereof.
The broken lines are for the purpose of illustrating portions of the expansion valve and form no part of the claimed design.

1 Claim, 7 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D782,010 S * 3/2017 Watanabe D23/233
2012/0192970 A1* 8/2012 Kobayashi F25B 41/062
137/468
2013/0247609 A1* 9/2013 Kaneko F25B 41/062
62/528

* cited by examiner

FIG. 1

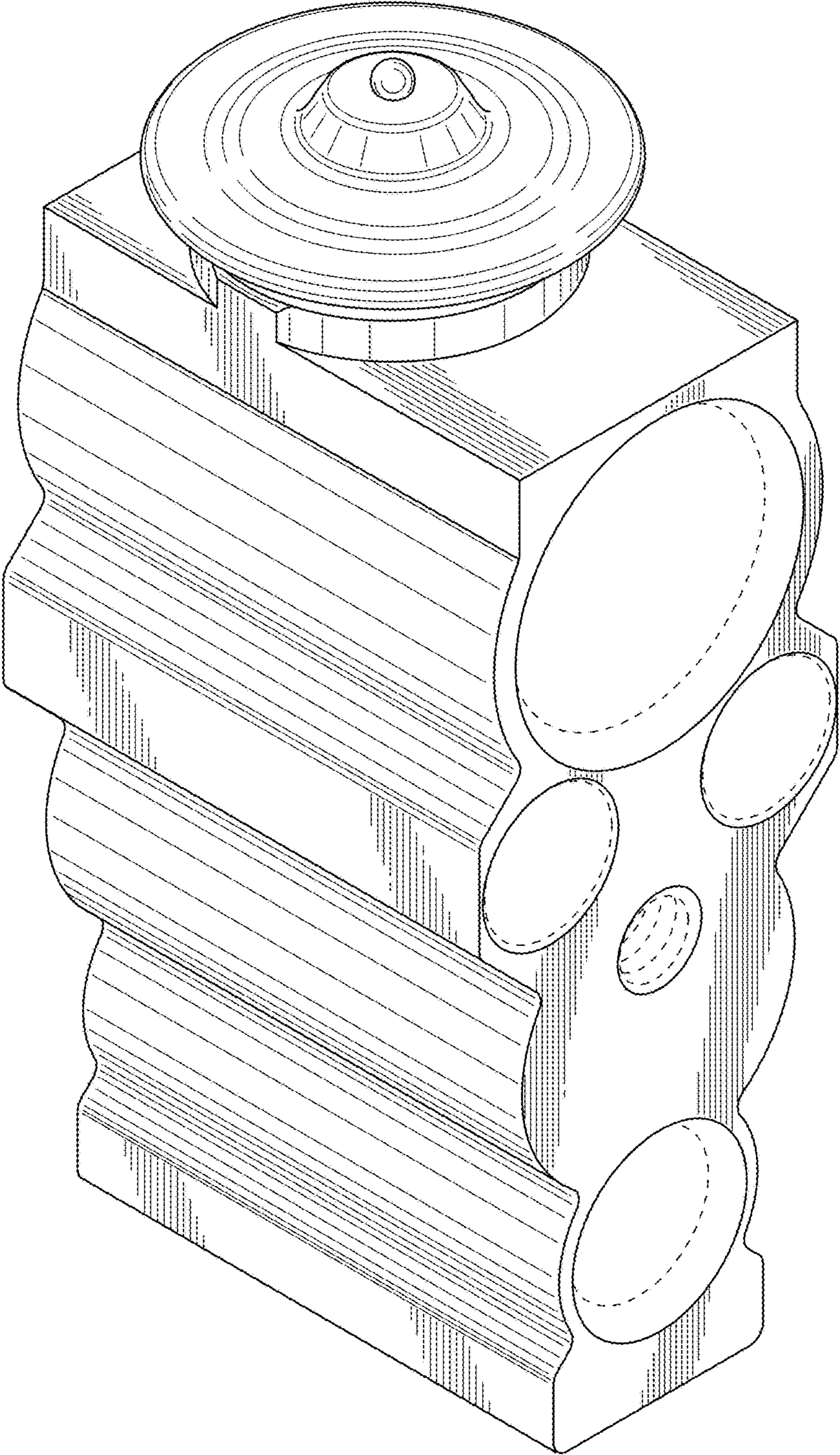


FIG. 2

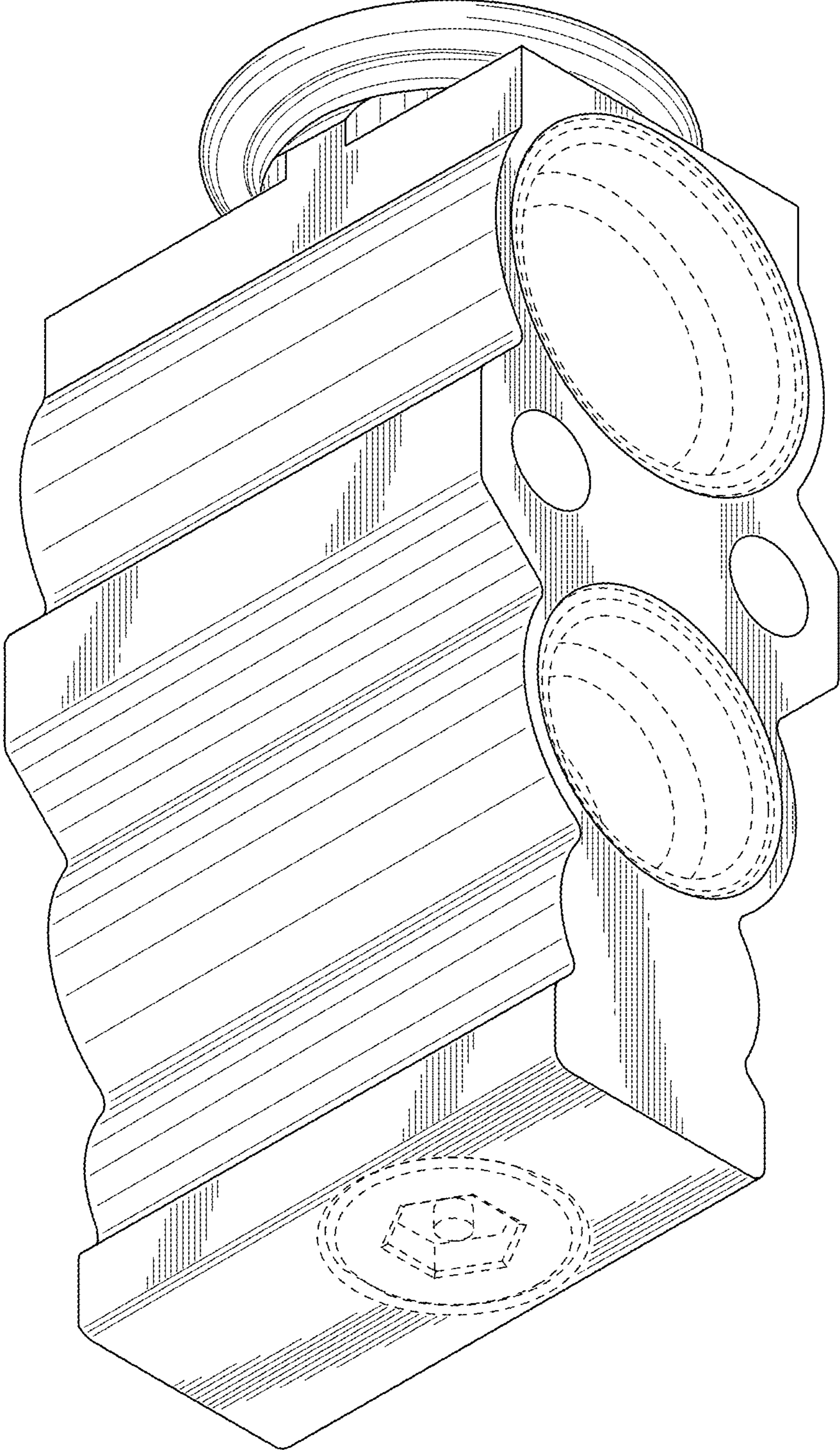


FIG. 3

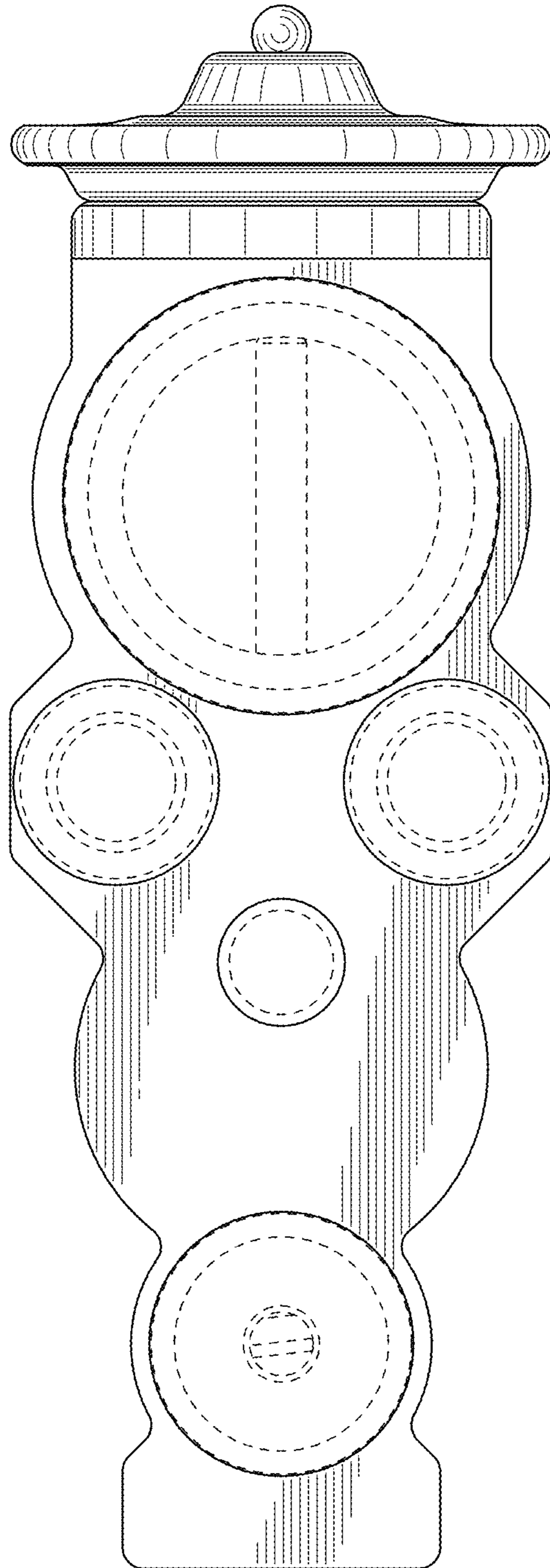


FIG. 4

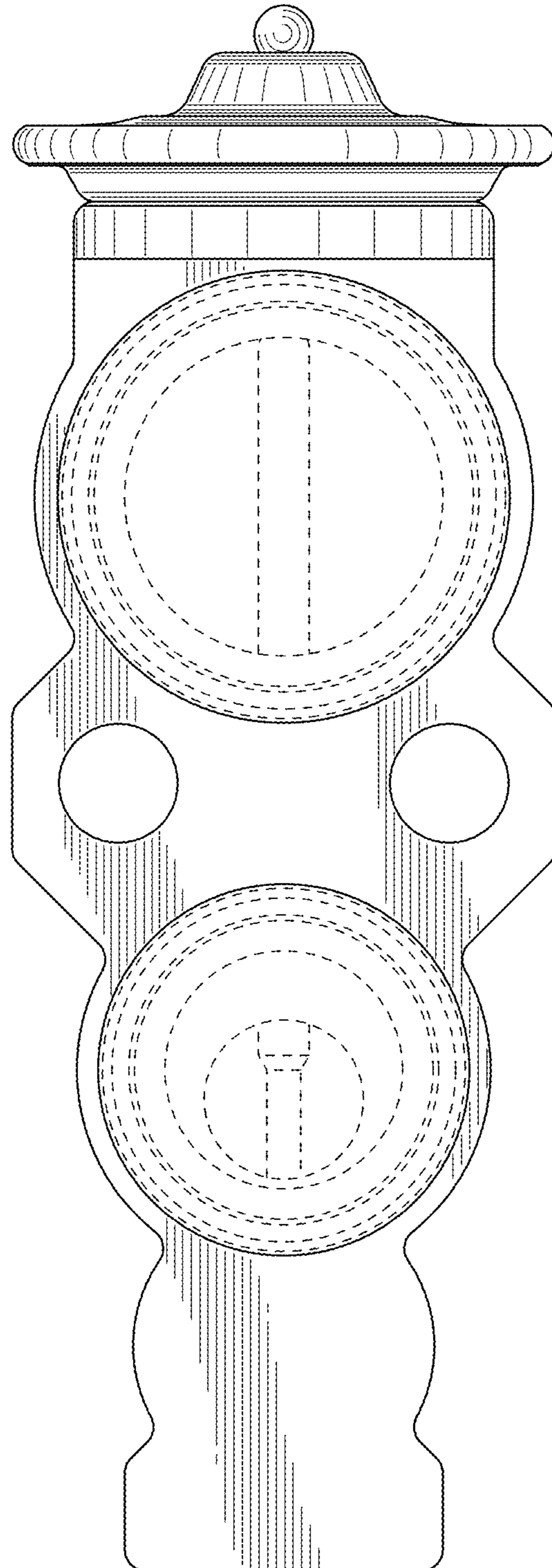


FIG. 5

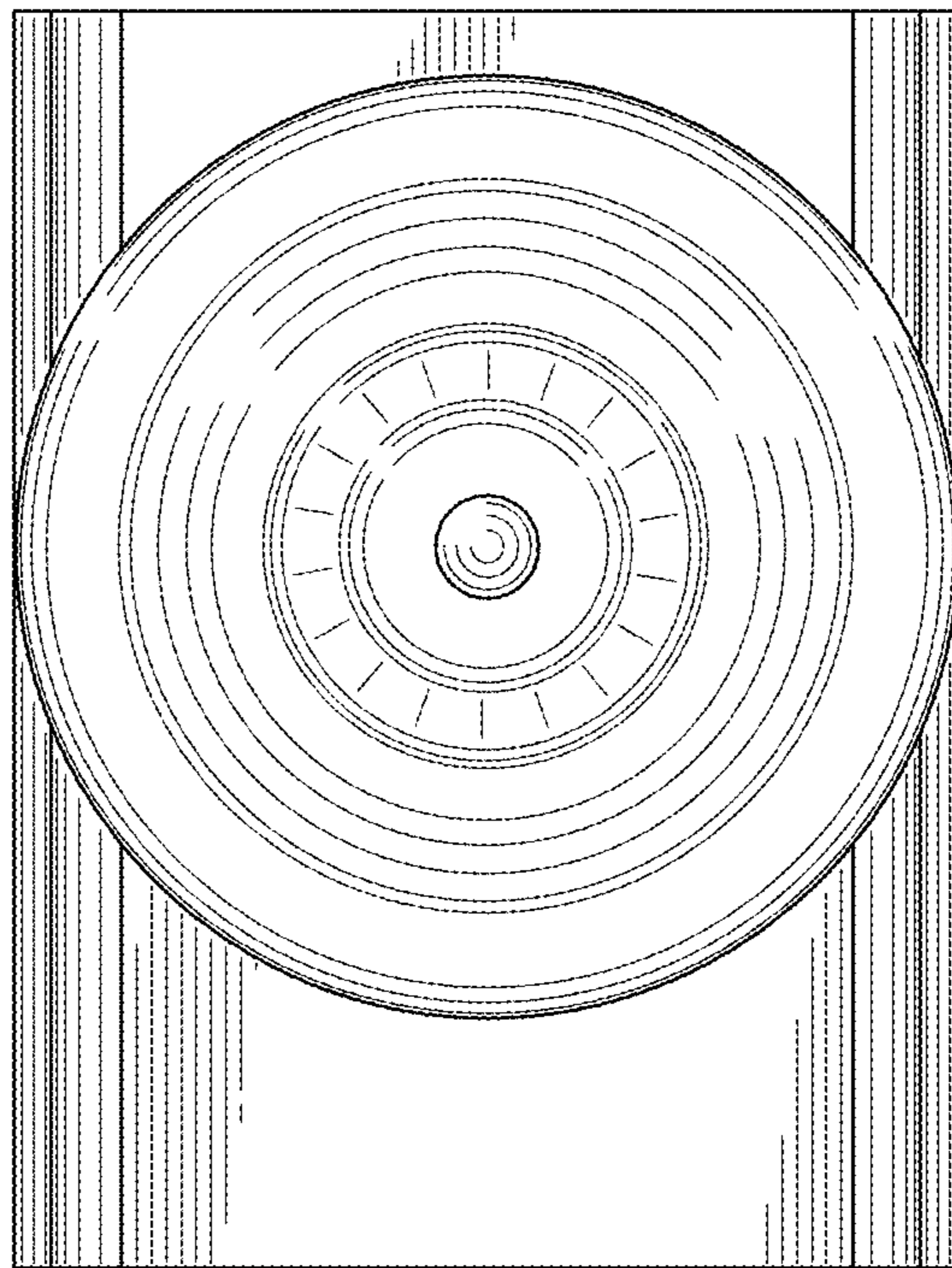


FIG. 6

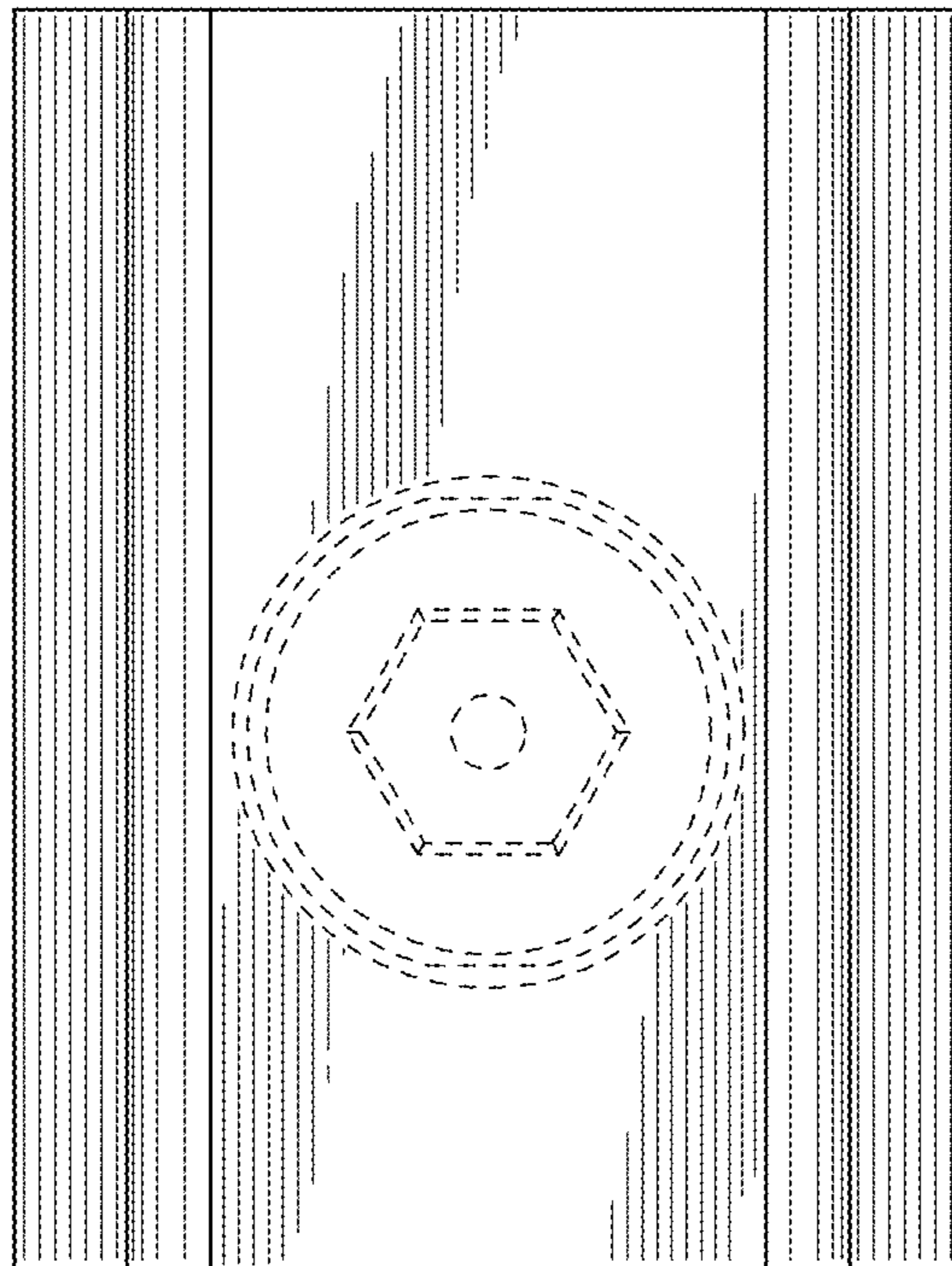


FIG. 7

