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

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(54) **EXPANSION VALVE**  
(71) Applicant: **TGK CO., LTD.**, Tokyo (JP)  
(72) Inventors: **Ryosuke Satake**, Tokyo (JP); **Takeshi Kaneko**, Tokyo (JP)  
(73) Assignee: **TGK CO., LTD.**, Tokyo (JP)  
(\*\*) Term: **15 Years**

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  
(Continued)

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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.

**FOREIGN PATENT DOCUMENTS**

JP 1430930 1/2012  
JP 1431241 1/2012  
JP 1461499 2/2013

**OTHER PUBLICATIONS**

Japanese Office Action, (English and Japanese) Notification of Reason(s) for Refusal, TGK 16-119, Expansion Valve, Design Application No. 2016-007369, Dispatch No. 040762, Dispatch Date Aug. 23, 2016.

*Primary Examiner* — Cynthia Ramirez  
*Assistant Examiner* — Gino Colan  
(74) *Attorney, Agent, or Firm* — Martine Penilla Group, LLP

(57) **CLAIM**

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

**DESCRIPTION**

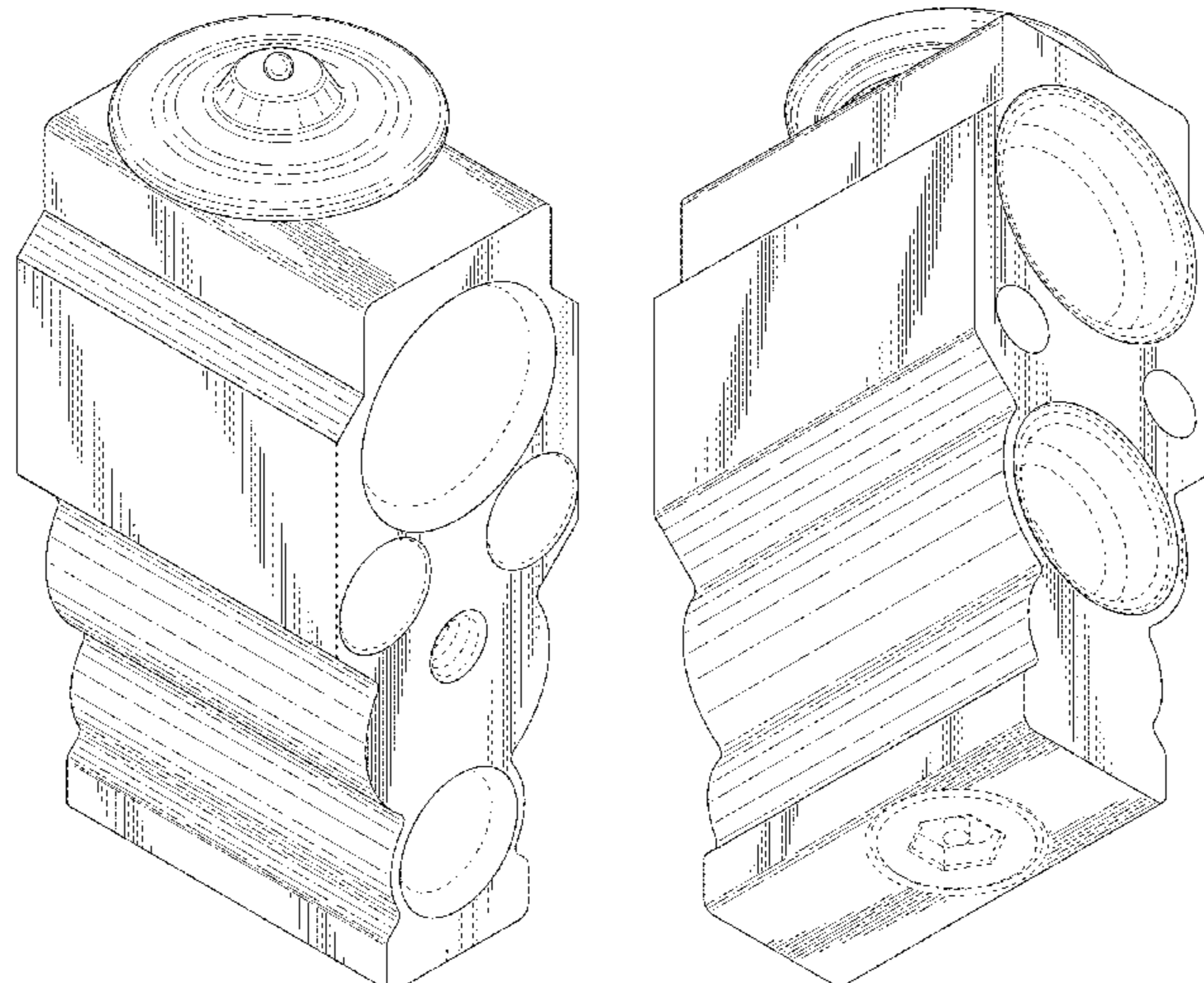
FIG. 1 is a front perspective view of an expansion valve showing our new design;  
FIG. 2 is a rear perspective view thereof;  
FIG. 3 is a front view thereof;  
FIG. 4 is a rear view thereof;  
FIG. 5 is a top view thereof;  
FIG. 6 is a bottom view thereof; and,  
FIG. 7 is a left side view thereof, 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.

(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  
D692,533 S 10/2013 Kaneko ..... D23/233  
D694,362 S 11/2013 Kaneko ..... D23/233  
D701,590 S 3/2014 Kaneko ..... D23/233

**1 Claim, 7 Drawing Sheets**



(56)

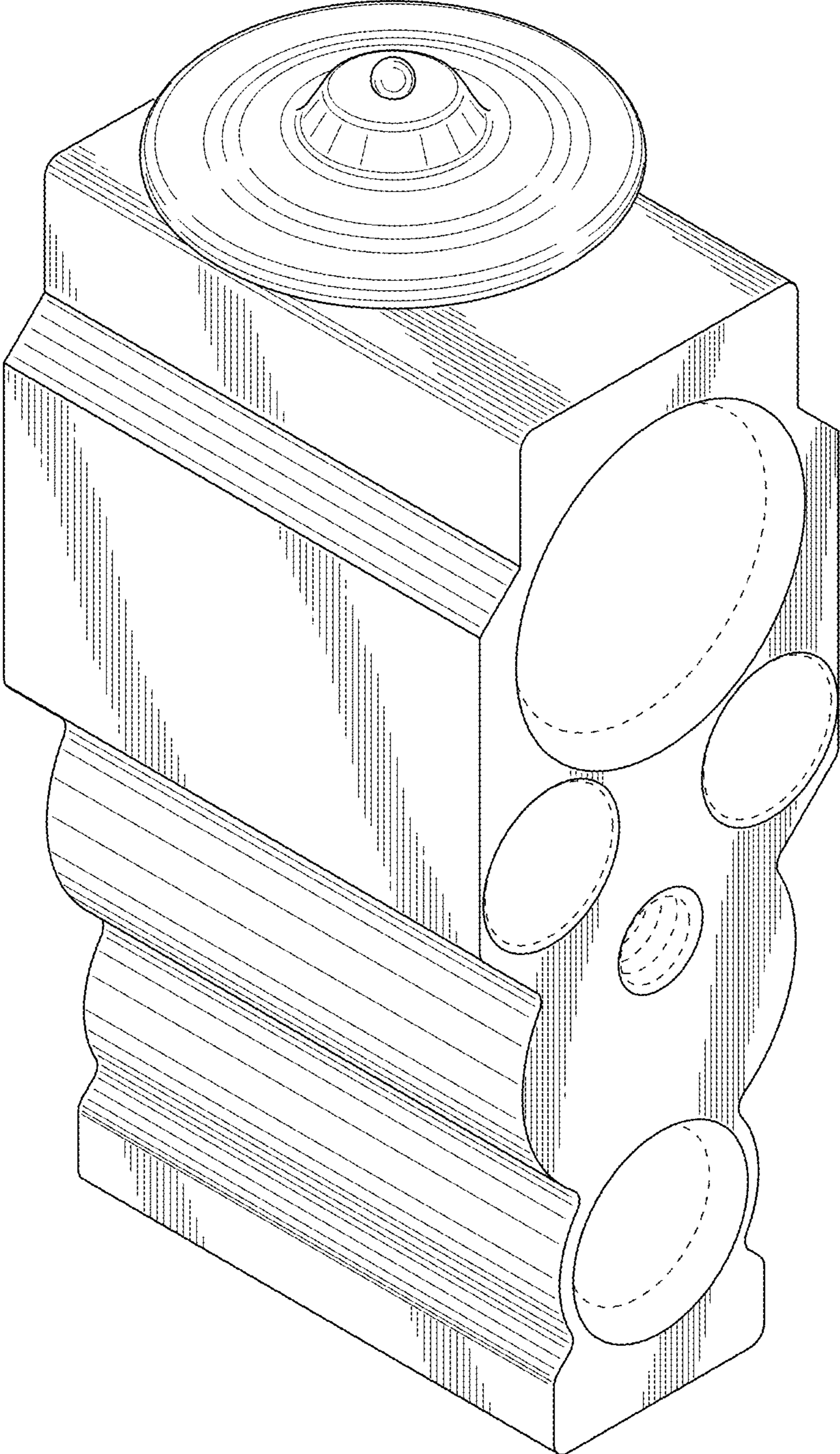
**References Cited**

U.S. PATENT DOCUMENTS

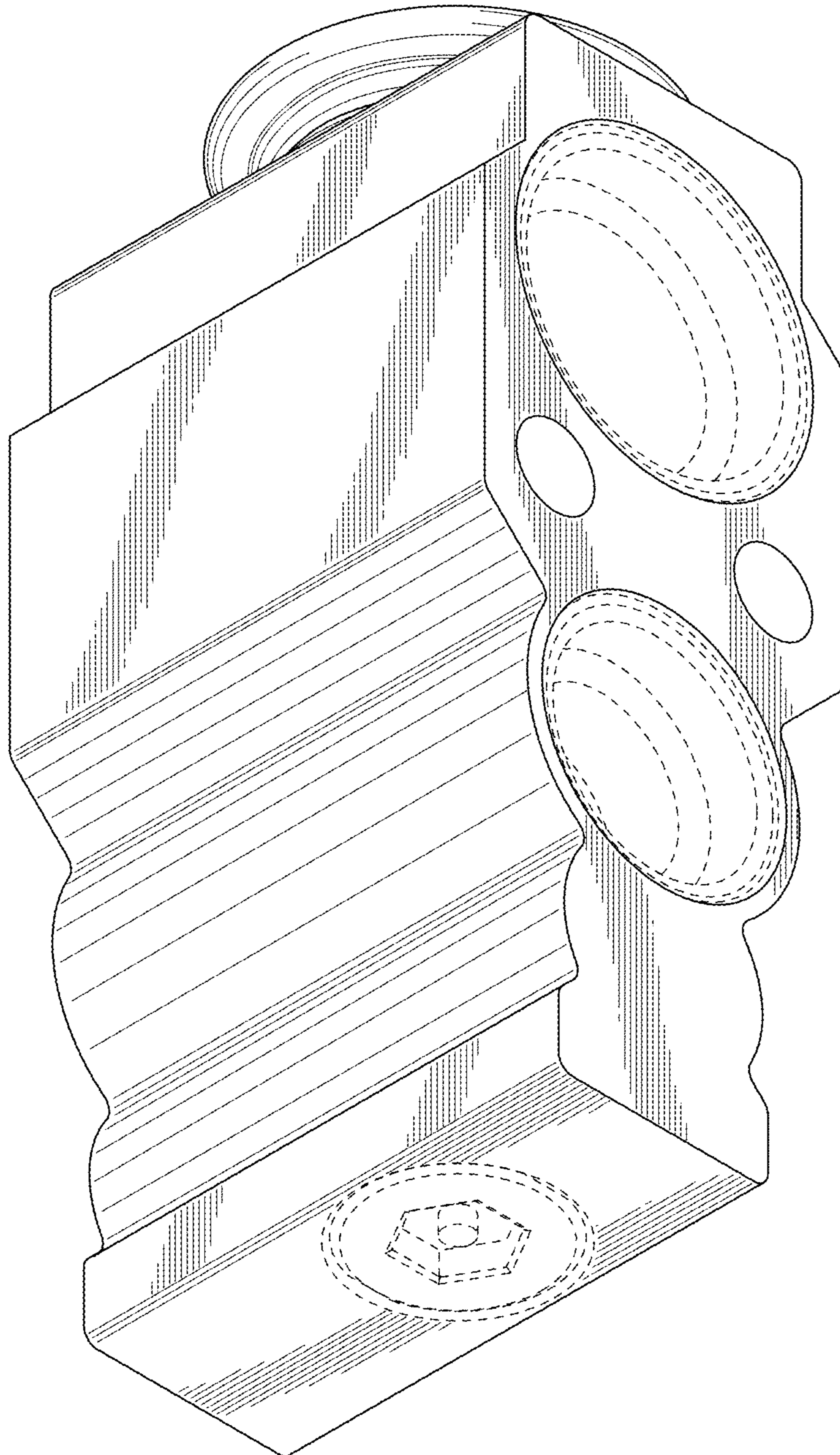
D782,009 S *	3/2017	Watanabe	.....	D23/233
D782,010 S *	3/2017	Watanabe	.....	D23/233
2012/0192970 A1 *	8/2012	Kobayashi	.....	F25B 41/062 137/468
2013/0247609 A1 *	9/2013	Kaneko	.....	F25B 41/062 62/528

\* cited by examiner

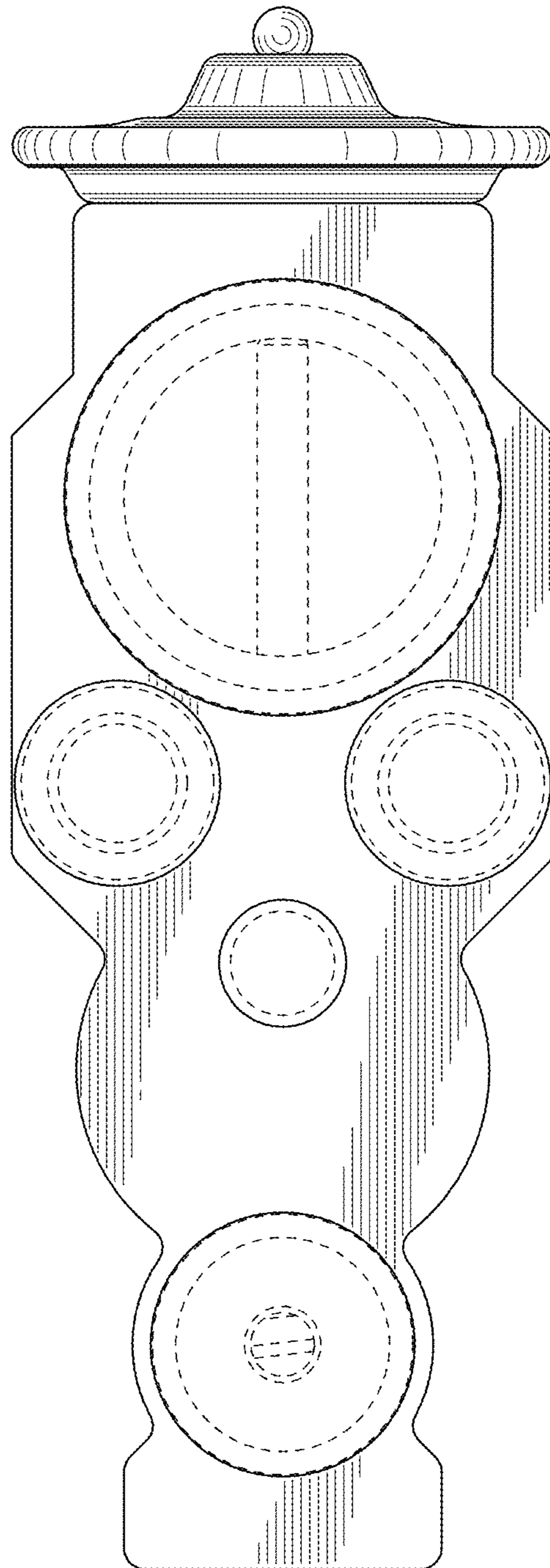
**FIG. 1**



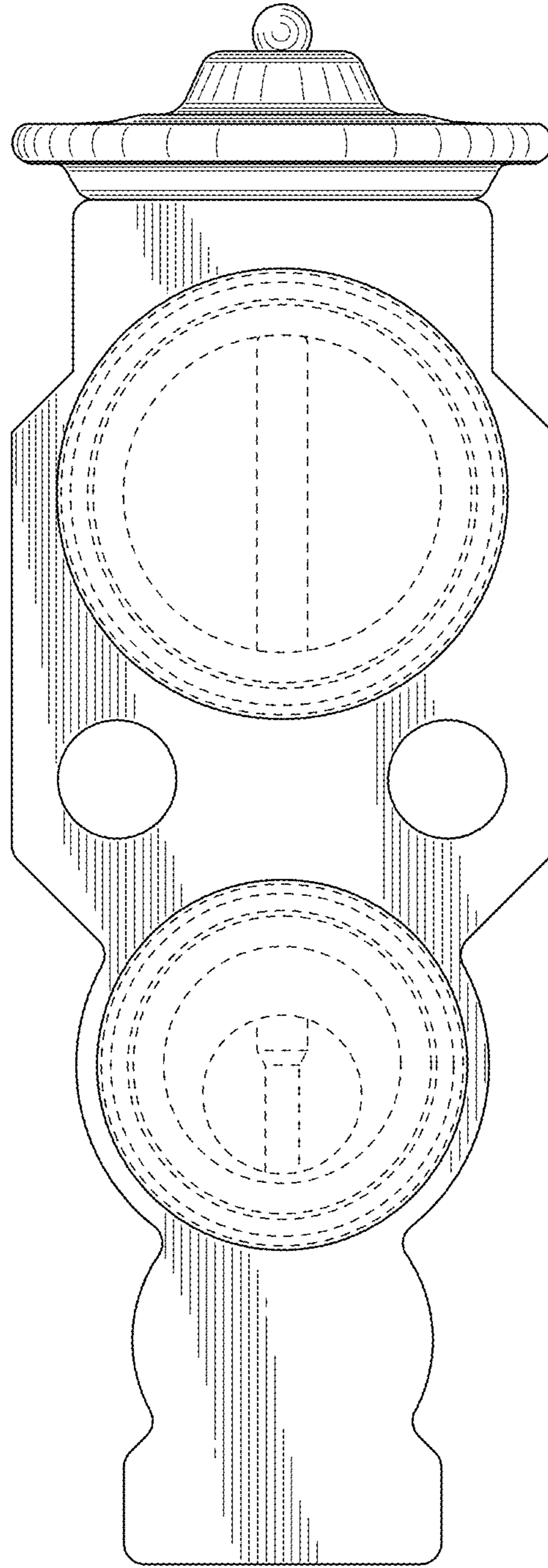
**FIG. 2**



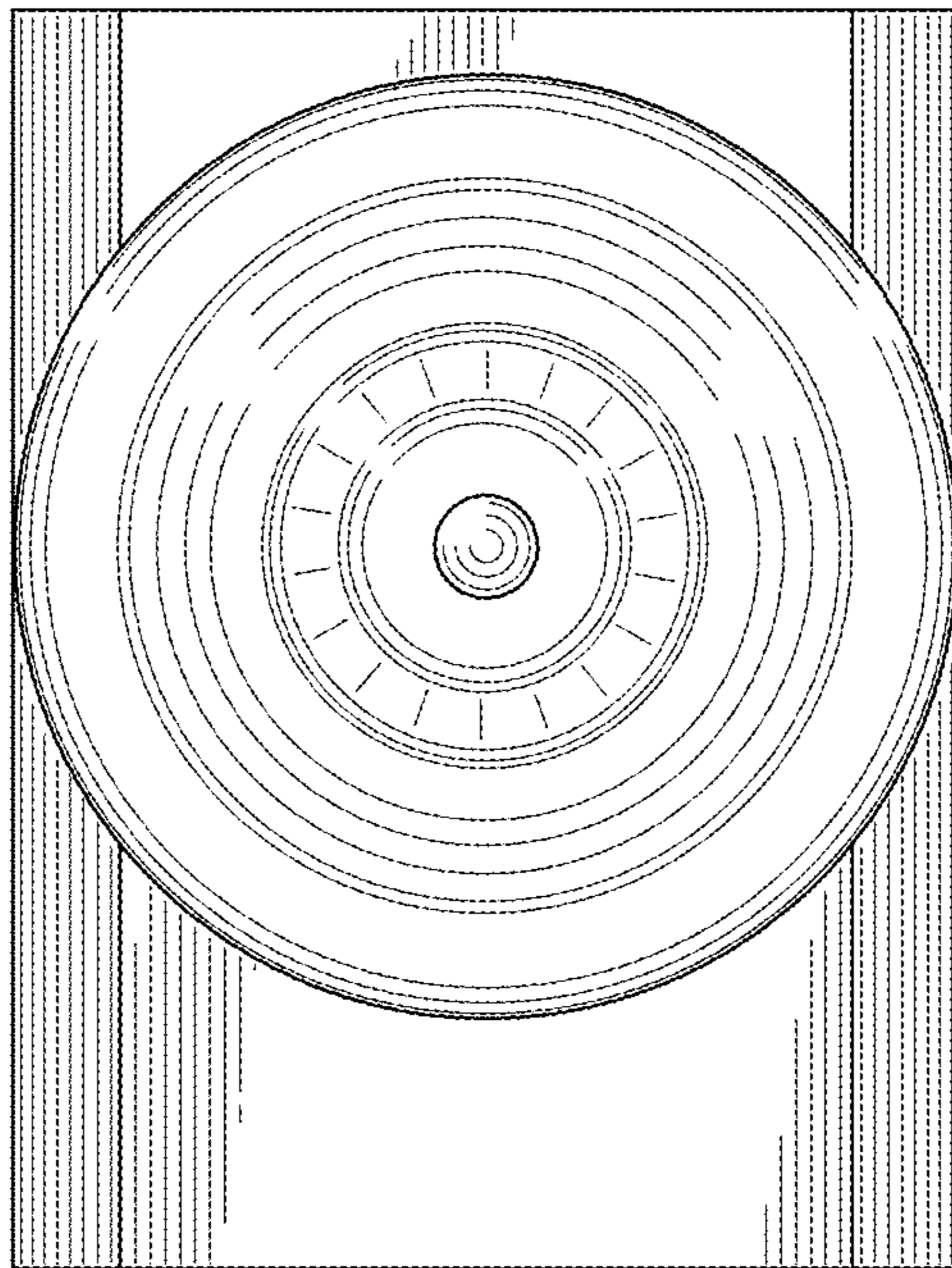
**FIG. 3**



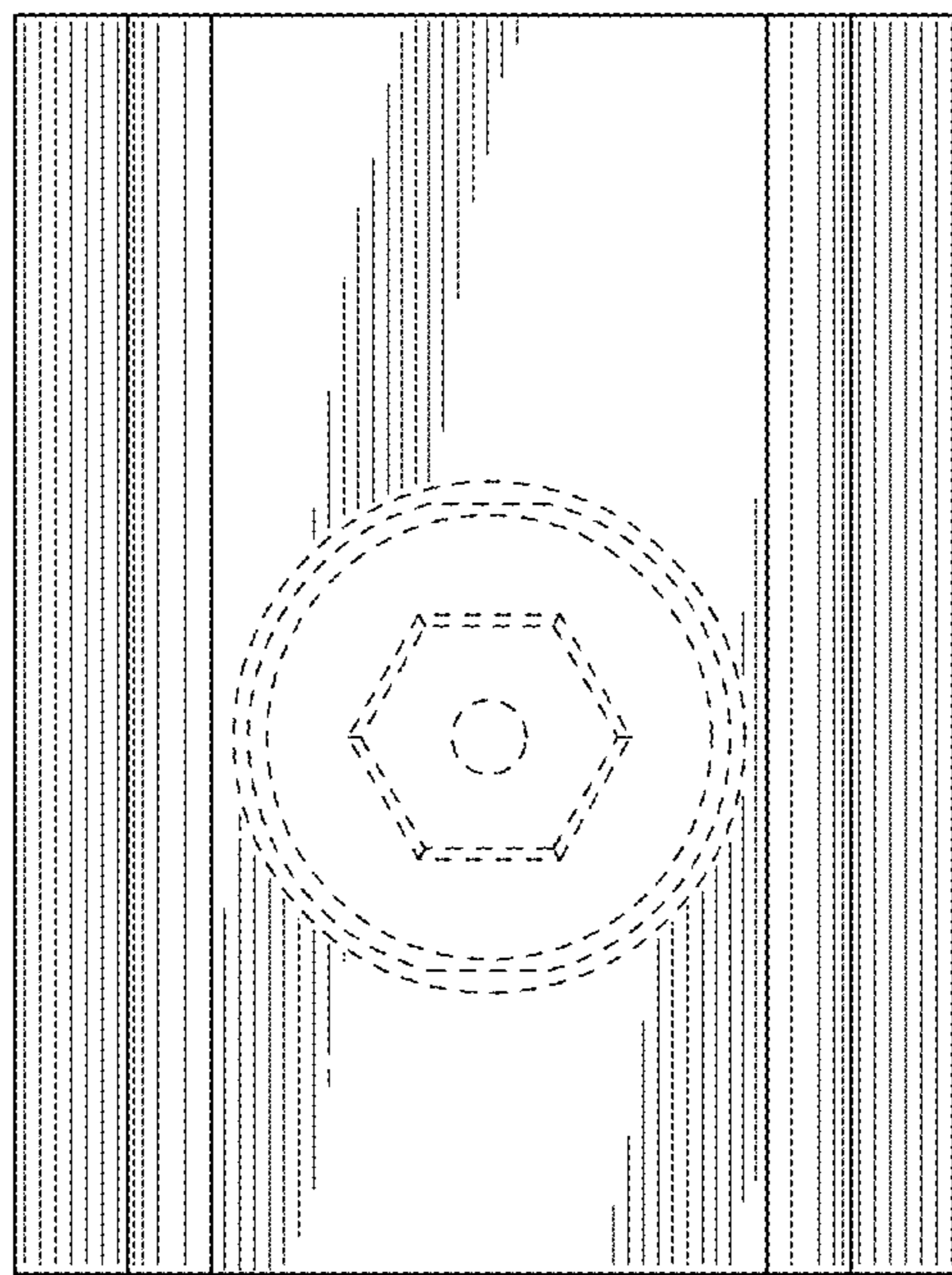
**FIG. 4**



***FIG. 5***



***FIG. 6***





**FIG. 7**

