



US00D842351S

(12) **United States Design Patent**  
**Hart**

(10) **Patent No.:** **US D842,351 S**  
(45) **Date of Patent:** **\*\* Mar. 5, 2019**

- (54) **TOROIDAL SHAPED PARTICLE IMPACT DAMPER**
- (71) Applicant: **TopLine Corporation**, Irvine, CA (US)
- (72) Inventor: **Martin B. Hart**, Irvine, CA (US)
- (73) Assignee: **TopLine Corporation**, Irvine, CA (US)
- (\*\*) Term: **15 Years**
- (21) Appl. No.: **29/634,593**
- (22) Filed: **Jan. 23, 2018**
- (51) **LOC (11) Cl.** ..... **15-09**
- (52) **U.S. Cl.**  
USPC ..... **D15/138**
- (58) **Field of Classification Search**  
USPC ..... D15/138, 143  
CPC ..... F16F 7/015  
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

|           |     |         |              |                               |
|-----------|-----|---------|--------------|-------------------------------|
| 2,667,237 | A   | 1/1954  | Rabinow      |                               |
| 2,790,697 | A * | 4/1957  | Wockenfuss   | ..... B41J 2/23<br>101/110    |
| 3,141,523 | A   | 7/1964  | Dickie       |                               |
| 3,250,508 | A * | 5/1966  | Kfoury       | ..... F16F 15/02<br>188/378   |
| 3,871,496 | A * | 3/1975  | Wigal        | ..... F16F 9/30<br>188/268    |
| 4,040,686 | A * | 8/1977  | F'Geppert    | ..... F16C 19/06<br>384/527   |
| 4,429,656 | A * | 2/1984  | Weisenberger | ..... G10K 5/00<br>116/137 R  |
| 4,504,044 | A   | 3/1985  | Shtarkman    |                               |
| 4,561,476 | A * | 12/1985 | Bunkoczy     | ..... B65D 88/04<br>141/311 R |

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 15/727,371, filed Oct. 6, 2017, Hart.

*Primary Examiner* — Patricia A Palasik  
(74) *Attorney, Agent, or Firm* — Knobbe, Martens, Olson & Bear LLP

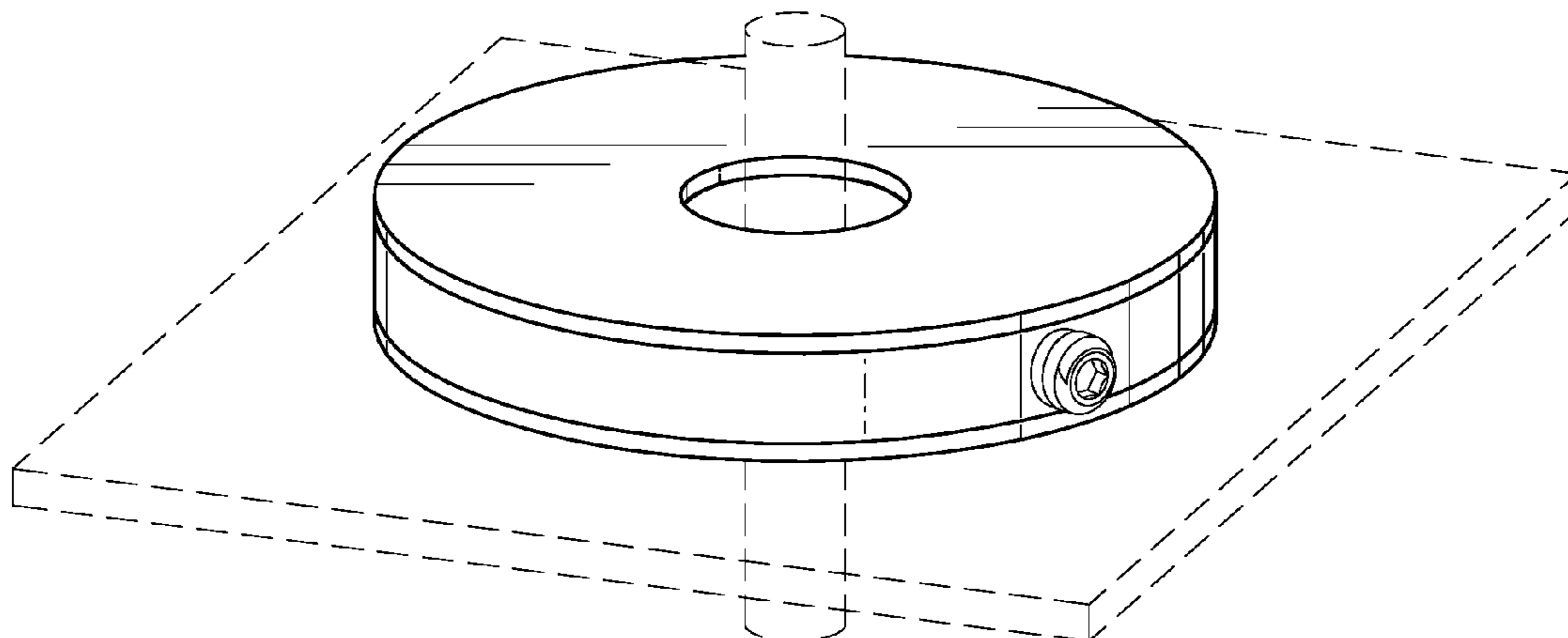
(57) **CLAIM**

I claim the ornamental design for a toroidal shaped particle impact damper, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective top view of a toroidal shaped particle impact damper, according to my new design, with a disclaimed motor shaft extending through the damper;  
 FIG. 2 is a perspective top view of the toroidal shaped particle impact damper with a disclaimed motor shaft extending through the damper mounted onto a disclaimed printed circuit board;  
 FIG. 3 is a cross-sectional view of the toroidal shaped particle impact damper along line 3-3 in FIG. 1;  
 FIG. 4 is an exploded view of the cross-sectional side view of the toroidal shaped particle impact damper in FIG. 3;  
 FIG. 5 is a top cross-sectional view of the toroidal shaped particle impact damper along line 5-5 in FIG. 1.  
 FIG. 6 is a top planar view of the toroidal shaped particle impact damper;  
 FIG. 7 is a bottom planar view of the toroidal shaped particle impact damper;  
 FIG. 8 is a front view of the toroidal shaped particle impact damper;  
 FIG. 9 is a rear view of the toroidal shaped particle impact damper;  
 FIG. 10 is a right side view of the toroidal shaped particle impact damper; and,  
 FIG. 11 is a left side view of the toroidal shaped particle impact damper.  
 The broken lines depict features that form no part of the claimed design.

**1 Claim, 11 Drawing Sheets**



(56)

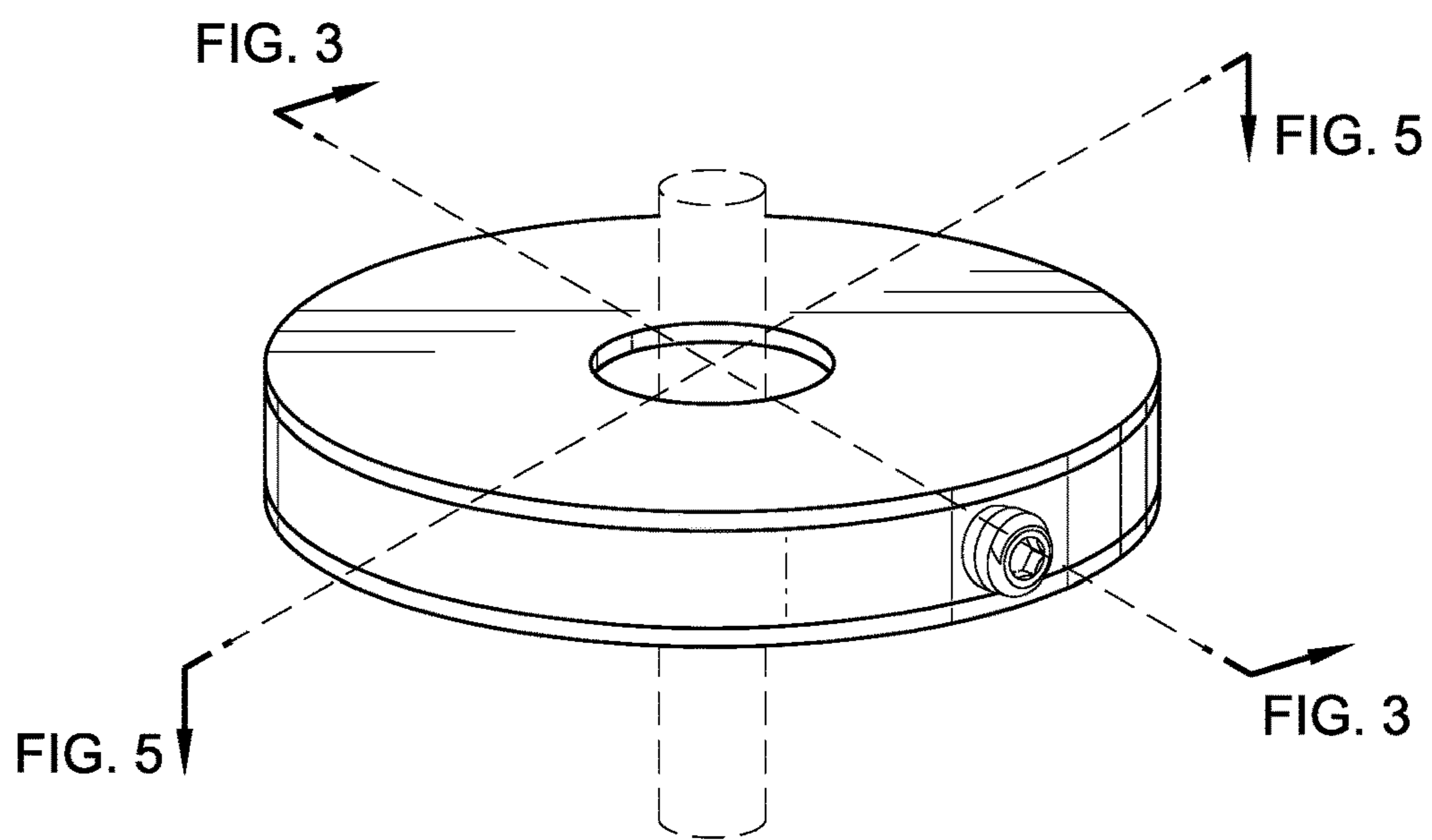
References Cited

U.S. PATENT DOCUMENTS

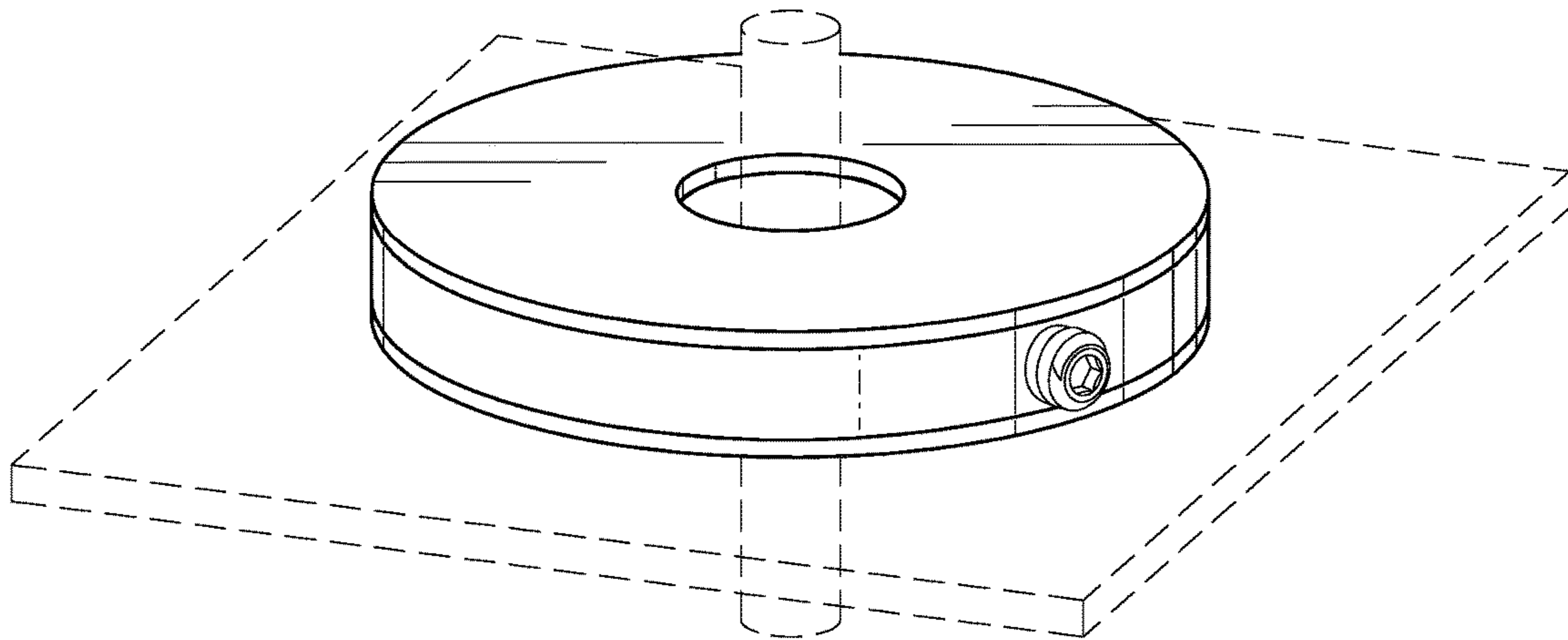
4,790,472 A \* 12/1988 Bunkoczy ..... B65D 88/04  
220/566  
4,795,016 A \* 1/1989 Schisler ..... F16D 25/048  
192/85.15  
4,865,324 A \* 9/1989 Nesis ..... A63F 9/0811  
273/155  
4,873,888 A \* 10/1989 Matsuyama ..... F16F 15/173  
74/573.1  
4,944,875 A \* 7/1990 Gaignet ..... B01D 35/303  
210/232  
5,409,236 A \* 4/1995 Therrien ..... A63F 9/1204  
273/156  
D394,697 S \* 5/1998 Liang ..... D23/209  
5,788,232 A \* 8/1998 Binkley ..... A63F 9/0811  
273/153 S  
5,834,689 A \* 11/1998 Cook ..... H01L 23/142  
174/50  
6,151,930 A \* 11/2000 Carlson ..... D06F 37/20  
68/12.06  
6,547,049 B1 4/2003 Tomlinson  
7,234,986 B2 \* 6/2007 Kowalski ..... A63H 33/12  
446/111  
7,839,041 B2 \* 11/2010 Mohler ..... H02K 21/24  
310/156.32  
D638,096 S \* 5/2011 Taylor ..... D23/209  
8,177,201 B2 \* 5/2012 Goudie ..... F16F 3/087  
267/140.11  
8,272,786 B2 \* 9/2012 Cottrell ..... B64D 27/26  
188/298  
8,905,637 B2 \* 12/2014 Tybinkowski ..... A61B 6/04  
378/209  
D735,292 S \* 7/2015 Johnson ..... D23/207  
D736,284 S \* 8/2015 Maurer ..... D15/143  
9,521,753 B1 12/2016 Hunt  
9,835,083 B2 \* 12/2017 Cunningham ..... F01C 9/002  
10,006,513 B1 \* 6/2018 Wang ..... F16F 7/015  
10,021,779 B1 7/2018 Hart

2002/0011832 A1 \* 1/2002 Berkcan ..... G01R 15/181  
324/127  
2002/0148971 A1 \* 10/2002 Sogard ..... H01J 37/141  
250/396 R  
2003/0117031 A1 \* 6/2003 Wang ..... H02K 7/09  
310/90.5  
2004/0015154 A1 \* 1/2004 Harper ..... A61M 5/14276  
604/892.1  
2004/0070307 A1 \* 4/2004 Haugan ..... H02K 21/24  
310/268  
2005/0284576 A1 \* 12/2005 America ..... B08B 7/0035  
156/345.43  
2006/0111032 A1 \* 5/2006 Weston ..... B24D 7/18  
451/557  
2006/0180420 A1 8/2006 Rongong  
2007/0071605 A1 \* 3/2007 Gazzillo ..... F01D 5/34  
416/222  
2007/0078477 A1 \* 4/2007 Heneveld, Sr. .... A61B 17/0218  
606/191  
2007/0186784 A1 \* 8/2007 Liverani ..... A47J 31/0668  
99/295  
2007/0262875 A1 \* 11/2007 El-Ibiary ..... G06K 19/041  
340/572.8  
2008/0157914 A1 \* 7/2008 Pokharna ..... H01F 27/306  
336/220  
2009/0044561 A1 \* 2/2009 Dalton ..... B67D 1/06  
62/398  
2010/0320046 A1 12/2010 Provost  
2011/0239981 A1 \* 10/2011 Cunningham ..... F01C 9/002  
123/245  
2012/0024646 A1 2/2012 Tsugihashi  
2012/0052352 A1 \* 3/2012 Brilmyer ..... H01M 10/121  
429/94  
2012/0168271 A1 7/2012 Ryaboy  
2015/0252851 A1 \* 9/2015 Tate ..... F16C 33/6659  
29/898.1  
2017/0016327 A1 \* 1/2017 Yaakoby ..... F02B 71/00  
2017/0071826 A1 \* 3/2017 Py ..... A61J 1/1406  
2017/0144090 A1 \* 5/2017 Lin ..... B01D 27/08

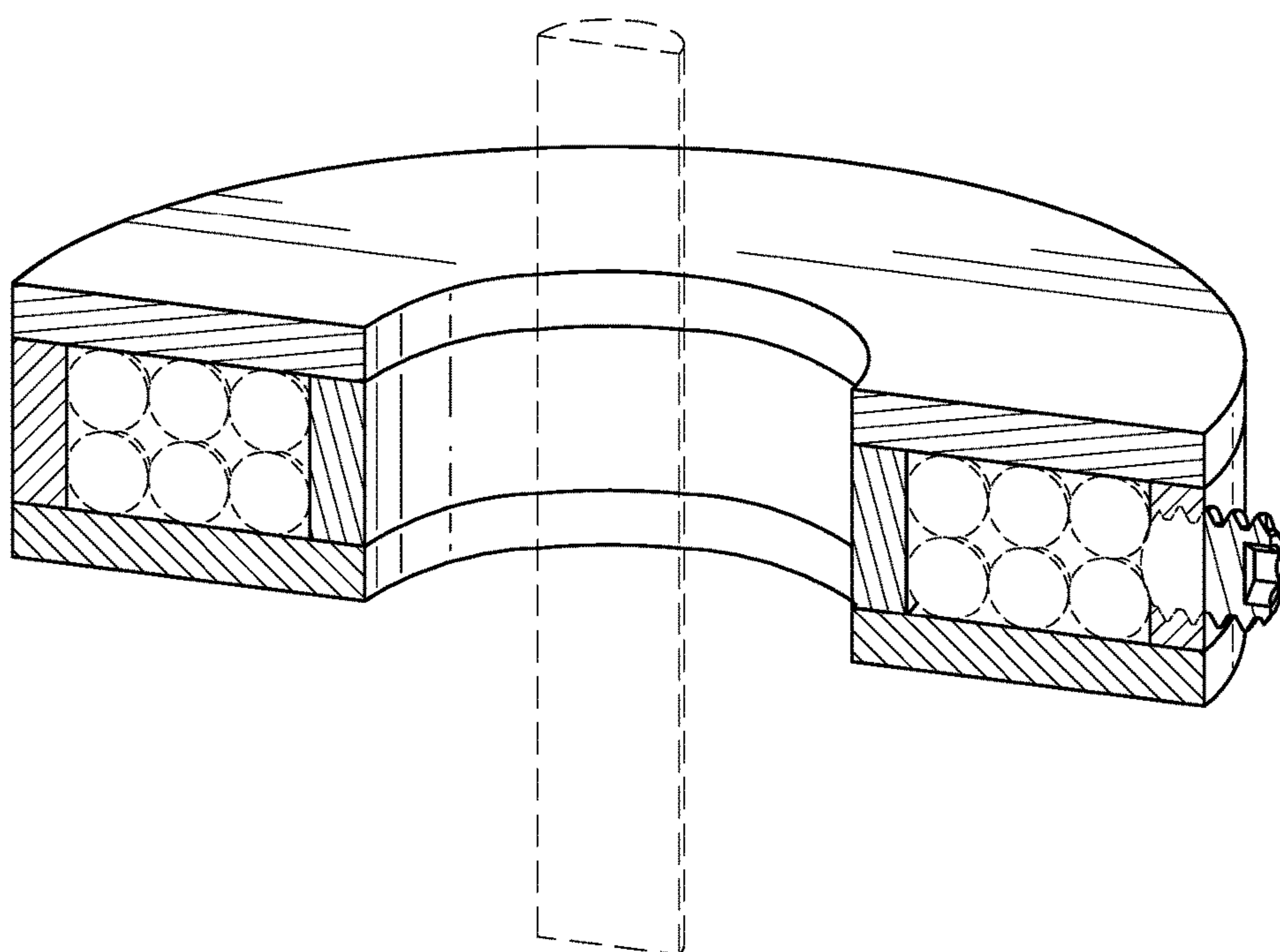
\* cited by examiner



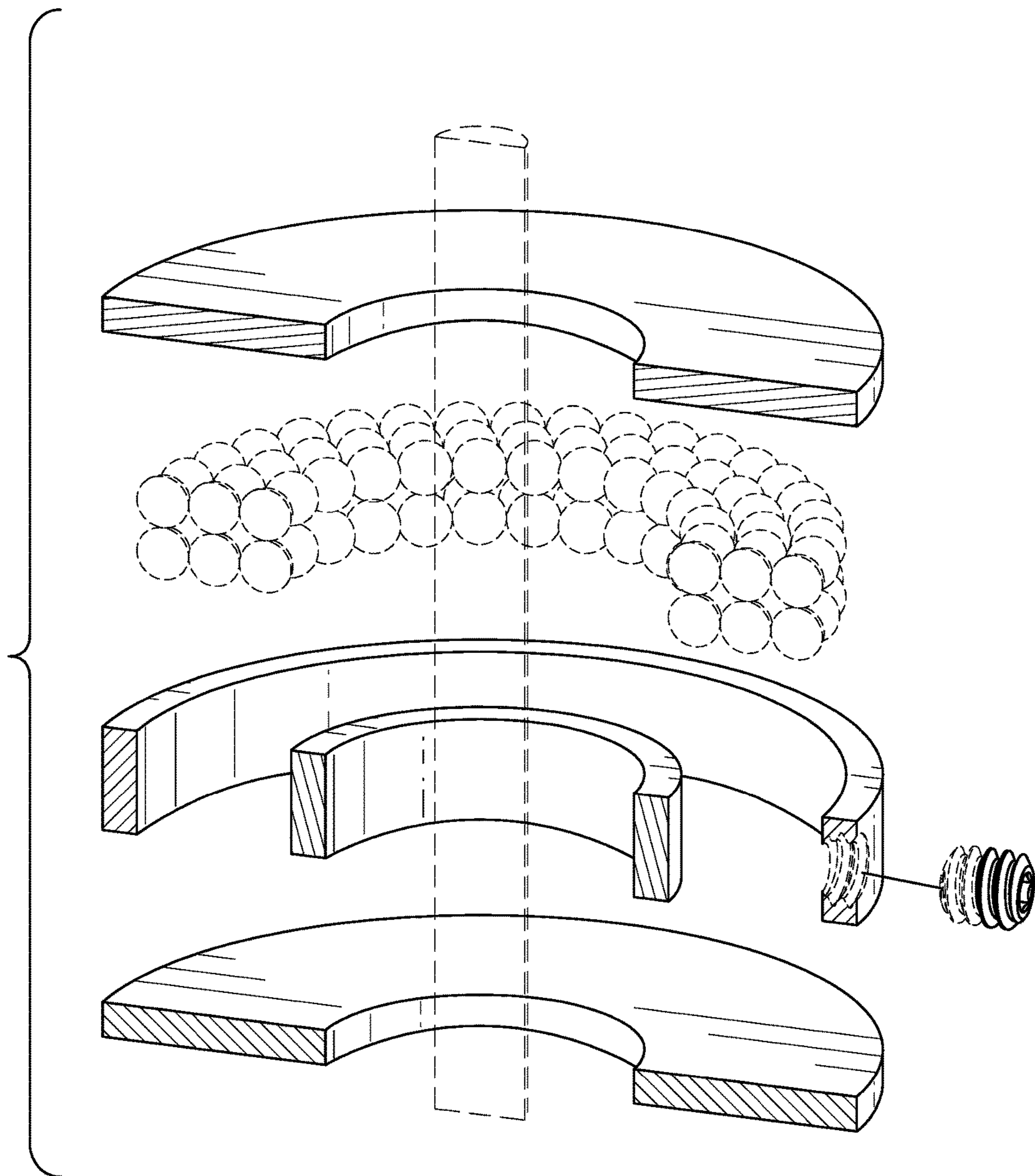
*FIG. 1*



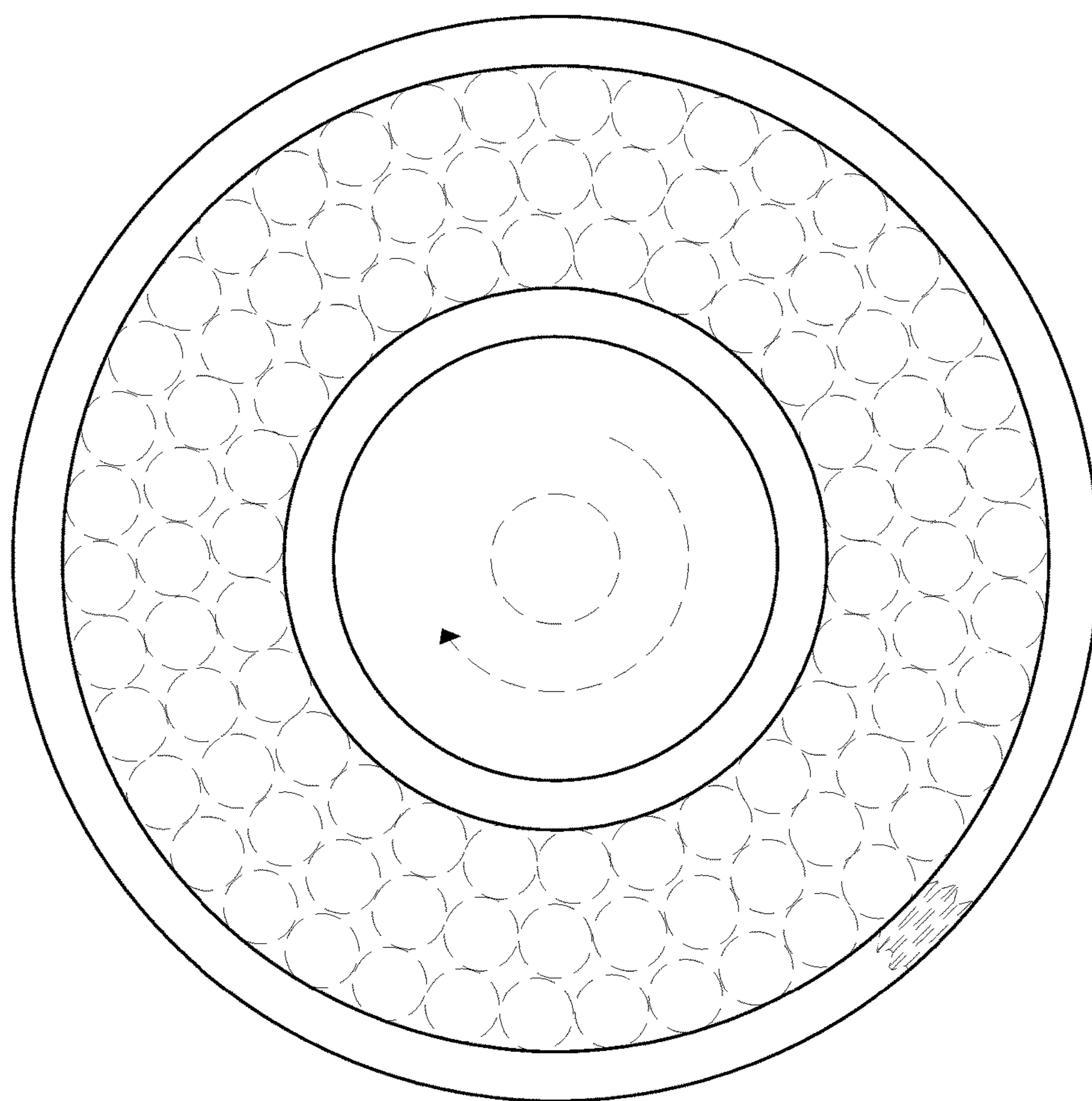
*FIG. 2*



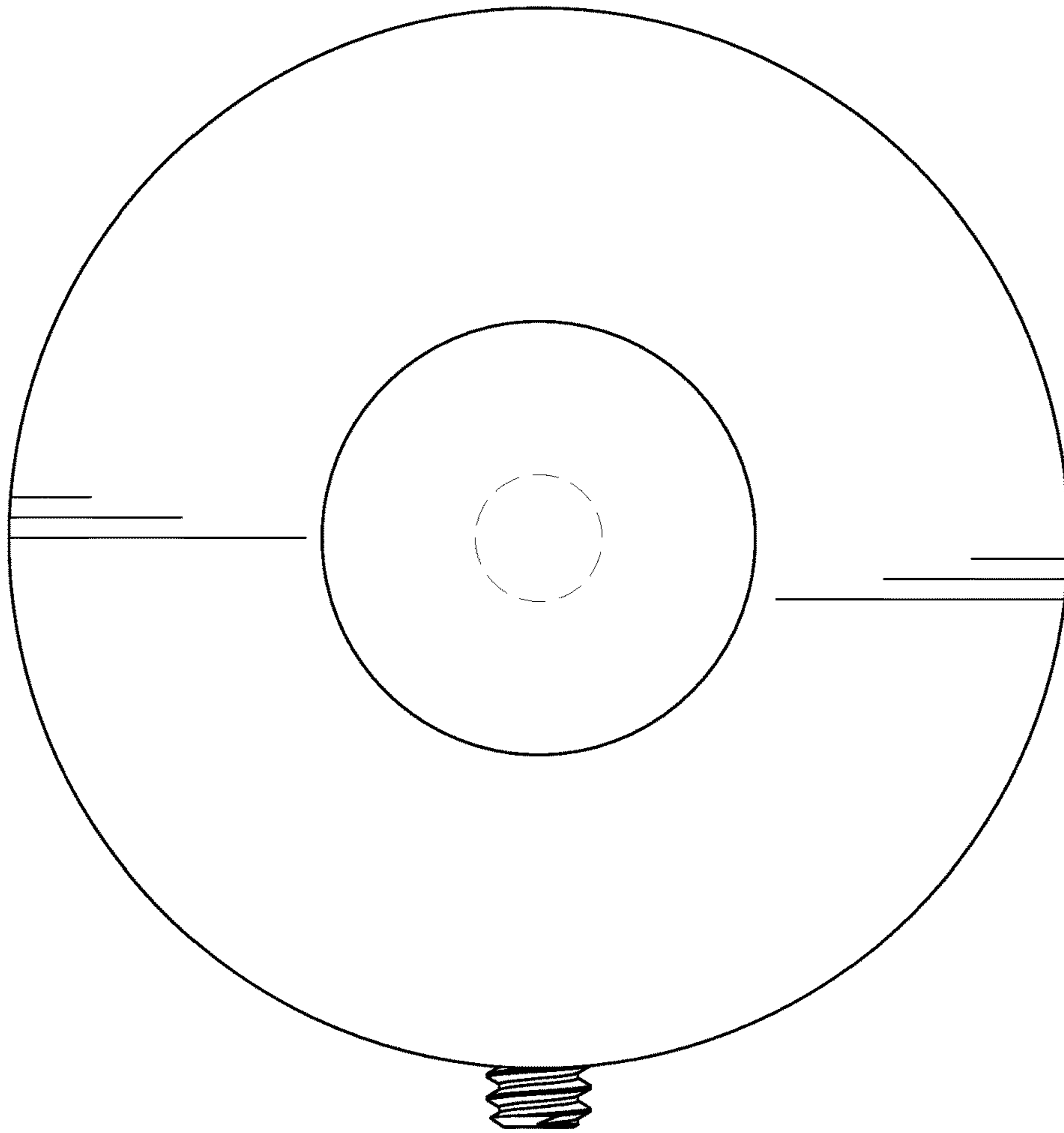
*FIG. 3*



*FIG. 4*

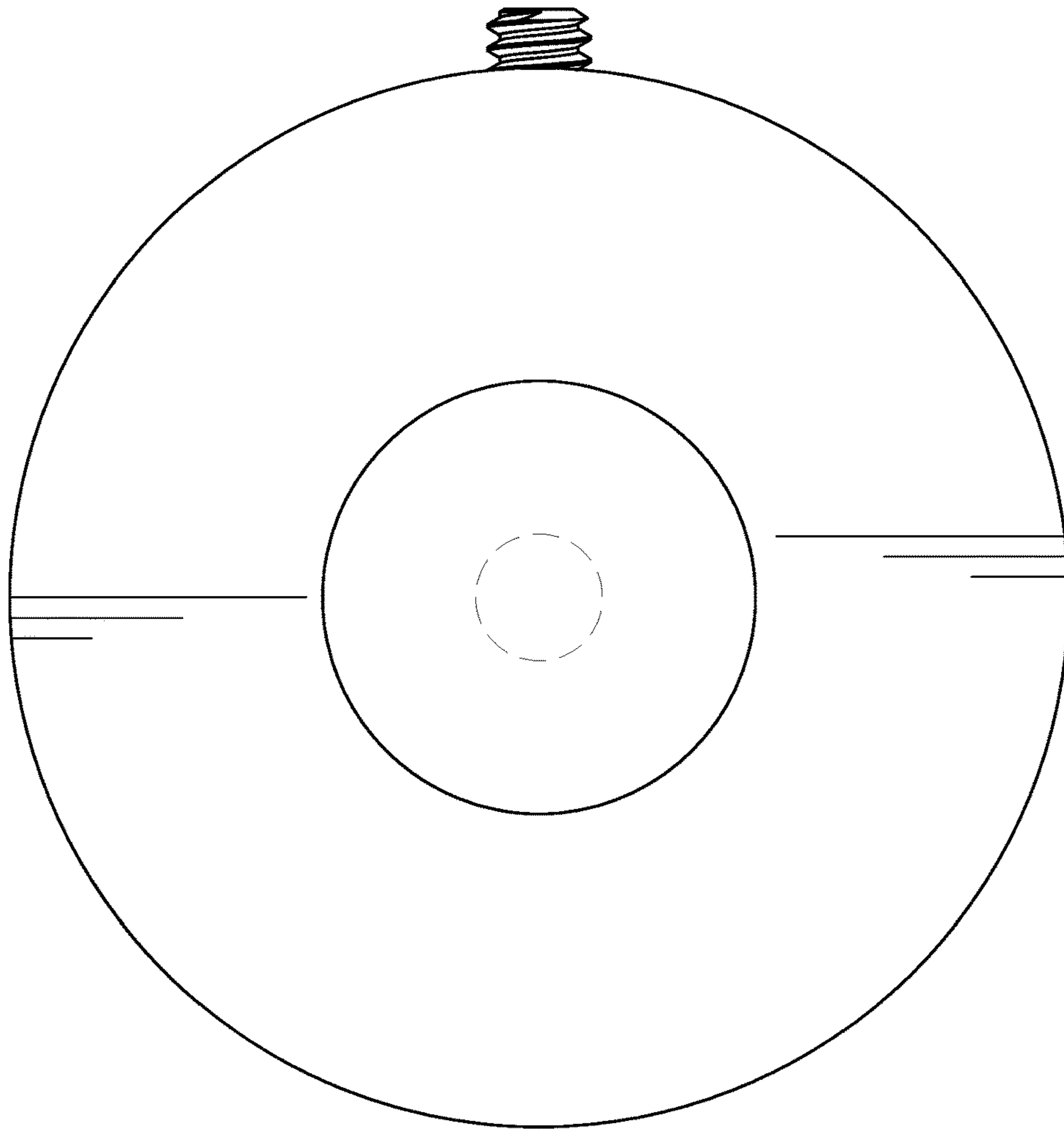


*FIG. 5*

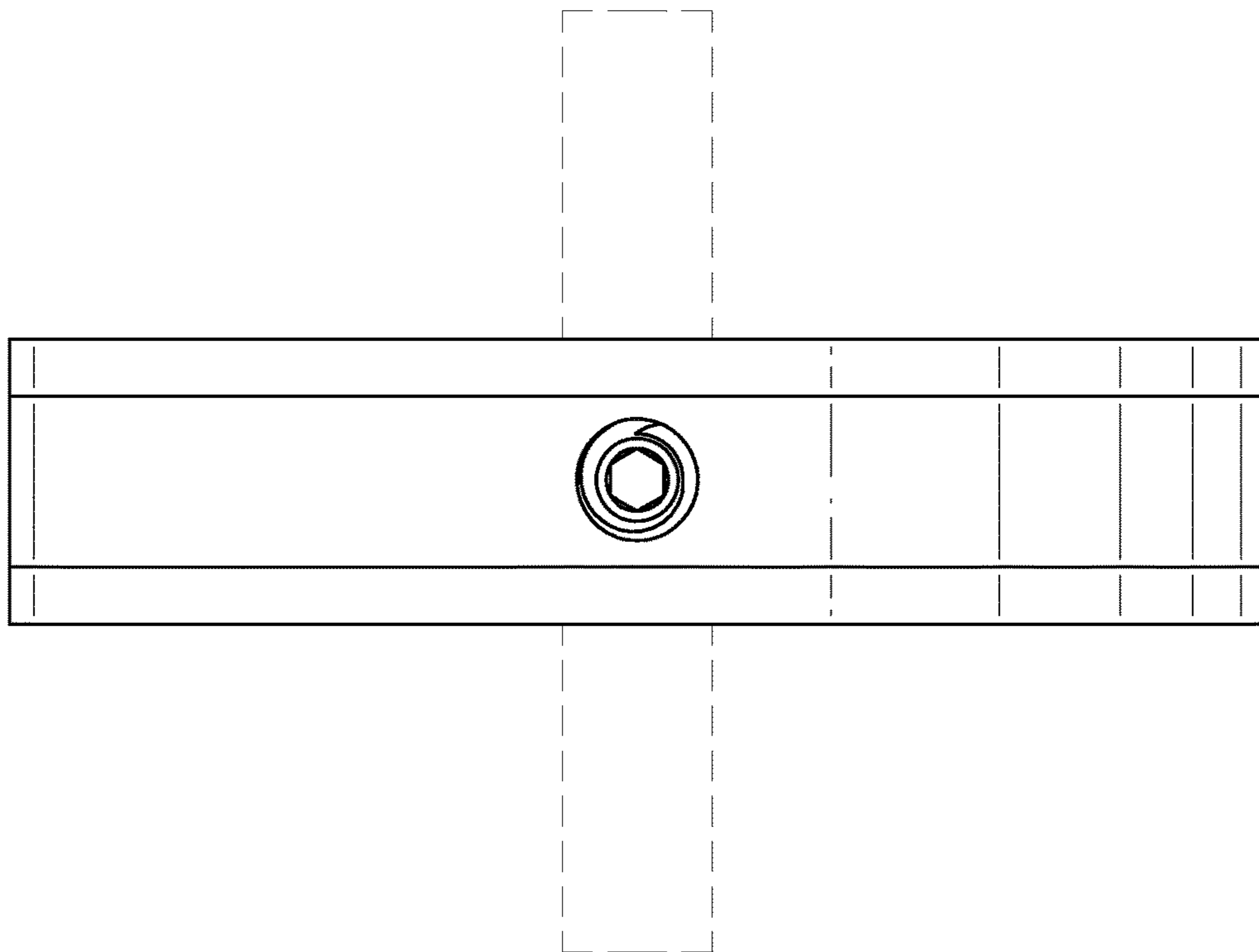


*FIG. 6*

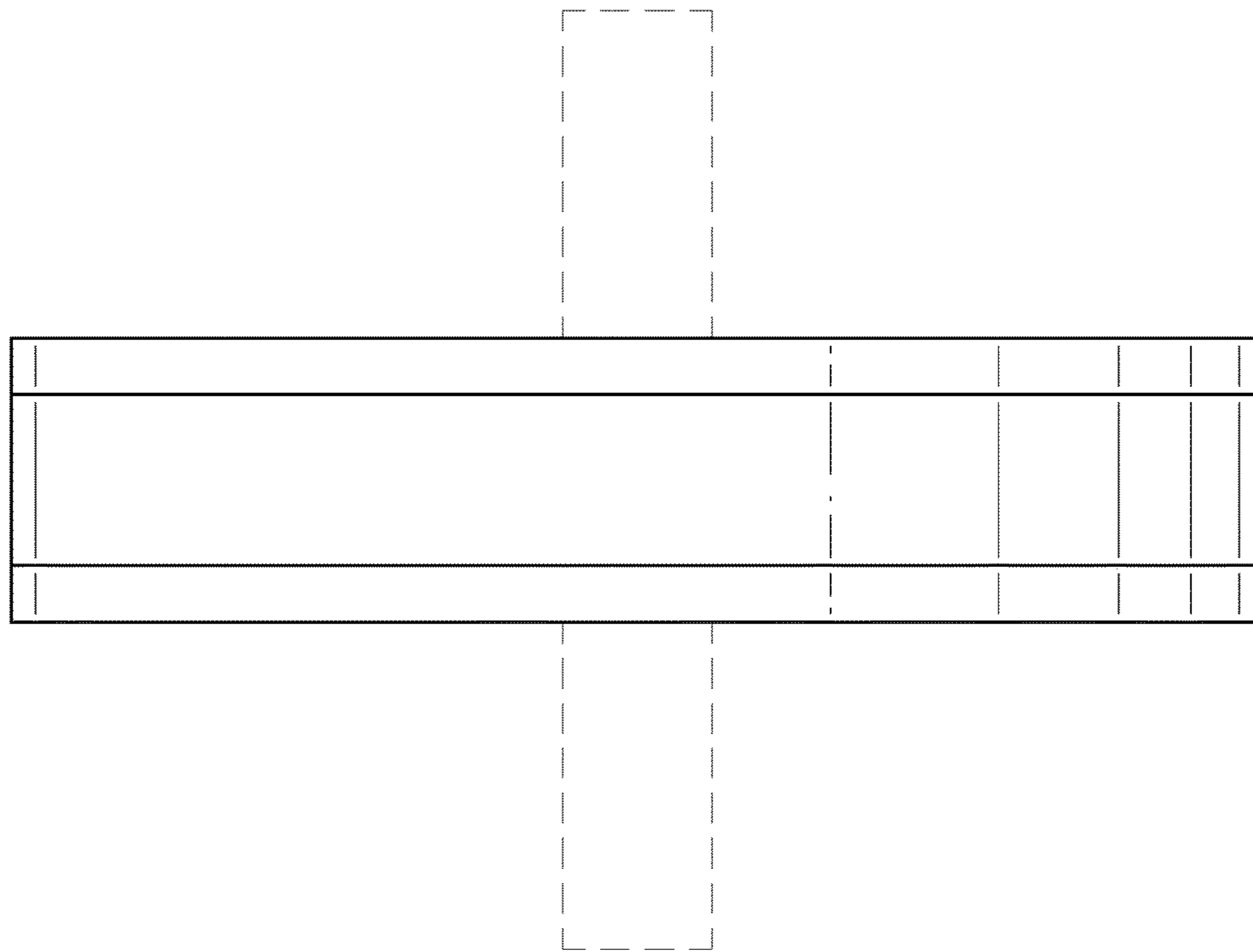




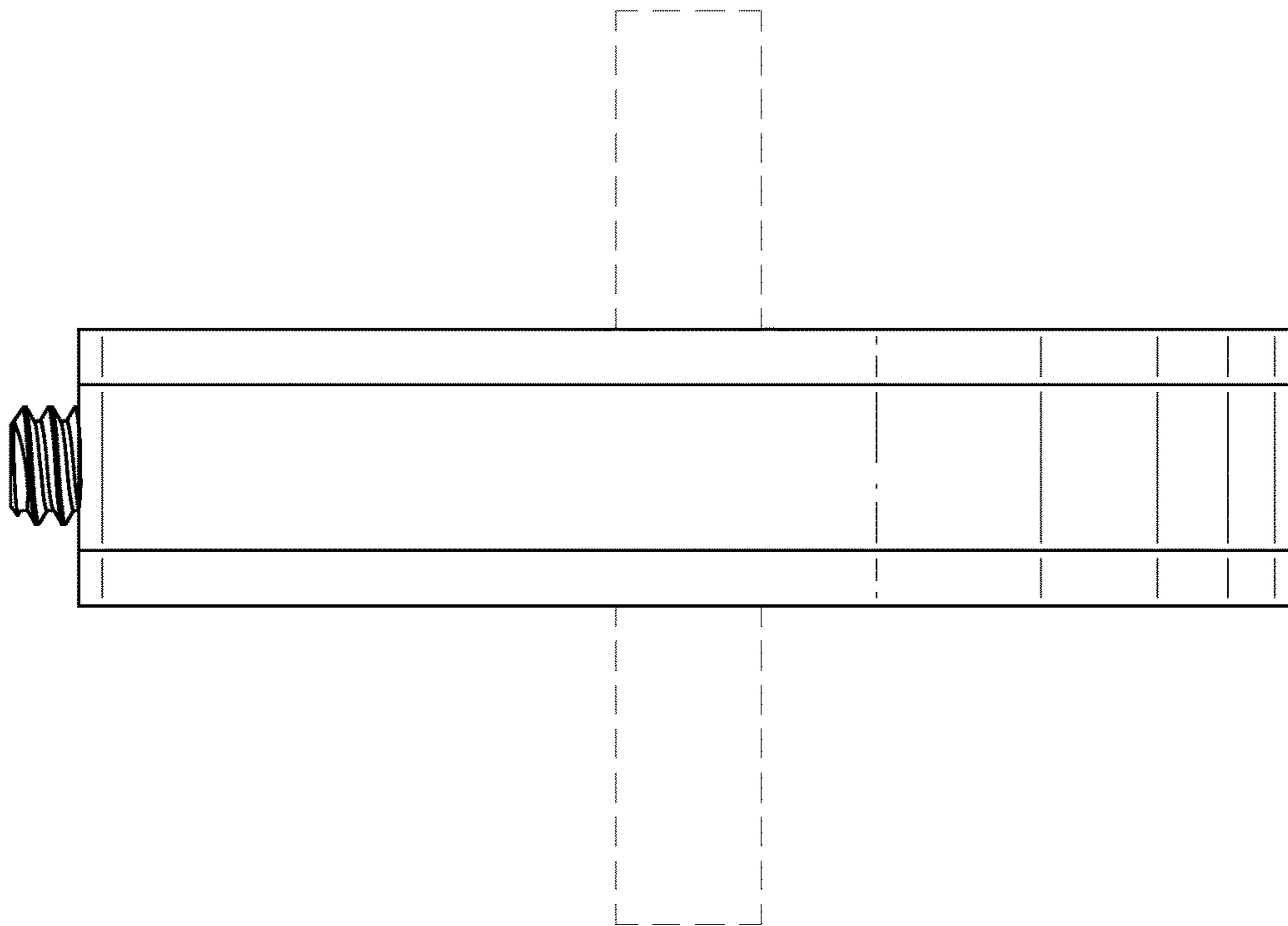
*FIG. 7*



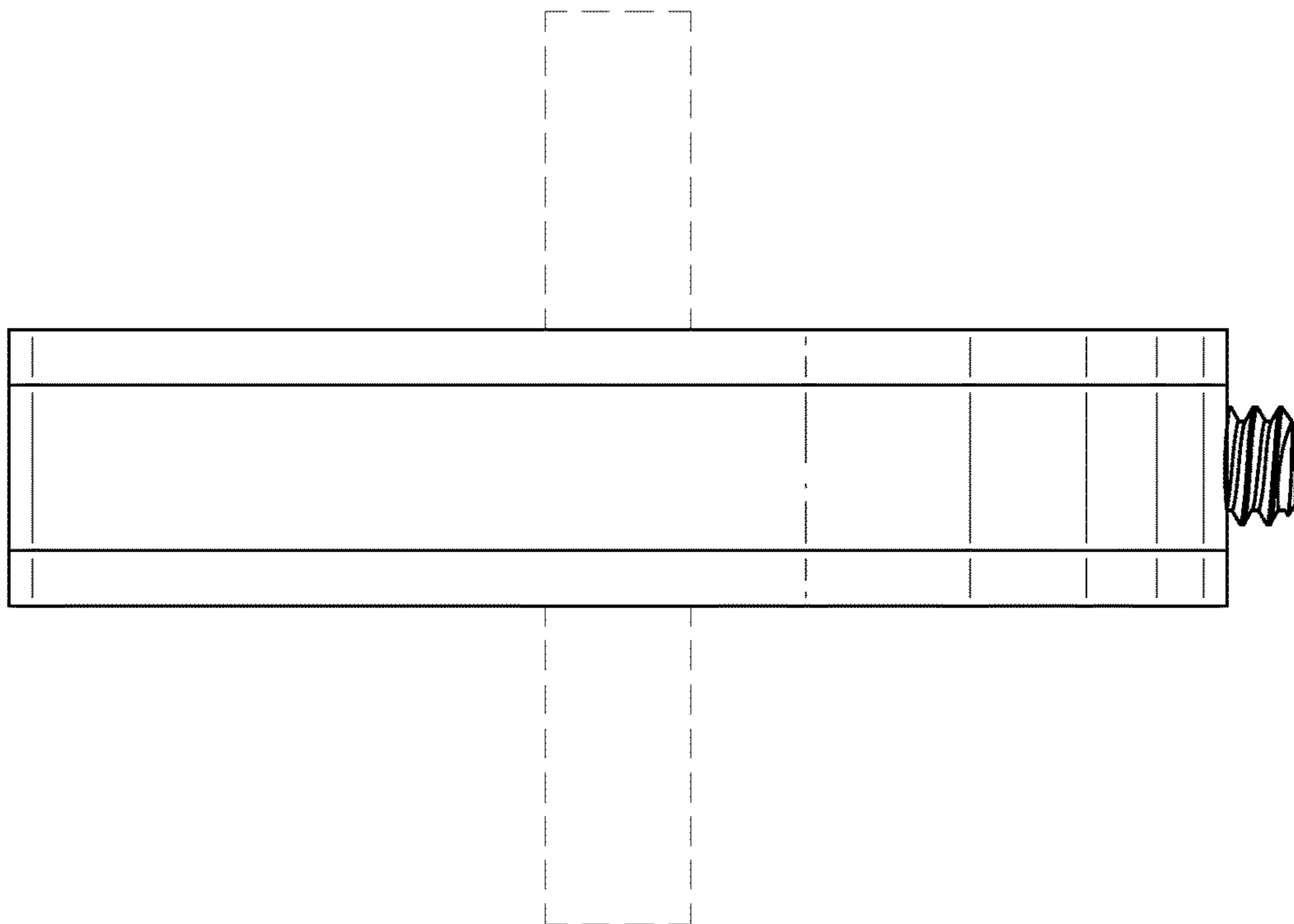
*FIG. 8*



*FIG. 9*



*FIG. 10*



*FIG. 11*