



US00D842978S

(12) **United States Design Patent** (10) **Patent No.:** **US D842,978 S**
Bailey et al. (45) **Date of Patent:** **** Mar. 12, 2019**

(54) **ATOMIZER** 5,271,562 A 12/1993 Myers et al.
5,293,967 A * 3/1994 Siegrist F16D 53/00
(71) Applicant: **Hamworthy Combustion Engineering** 188/218 A
Limited, Poole (GB) 5,639,217 A * 6/1997 Ohtsuki F04D 29/284
416/183

(72) Inventors: **Keith Bailey**, Poole (GB); **Paul Newman**, Poole (GB); **Nick James**, Poole (GB)

(Continued)

FOREIGN PATENT DOCUMENTS

(73) Assignee: **Hamworthy Combustion Engineering Limited, Poole (GB)**

CN 2685718 Y 3/2005
JP S5021742 U 3/1975

(Continued)

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

OTHER PUBLICATIONS

(21) Appl. No.: **29/611,316**

Swirl Plate—Wayback Machine, image post date Aug. 16, 2016, site visited Jul. 4, 2018, (online), <<https://web.archive.org/web/20160816230342/http://boilerpartsunlimited.com/products/7500p-093-91543-swirl-plate.html>>.*

(22) Filed: **Jul. 20, 2017**

(30) **Foreign Application Priority Data**

May 24, 2017 (EM) 004017507

Primary Examiner — Kevin K Rudzinski

(51) **LOC (11) Cl.** **23-03**

(57) **CLAIM**

(52) **U.S. Cl.**
USPC **D23/418**

The ornamental design for an atomizer, as shown and described.

(58) **Field of Classification Search**

DESCRIPTION

USPC D23/387, 390, 415, 418, 419, 499
CPC B01F 5/0256; B01J 4/002; B05B 1/14;
B05B 1/26; B05B 1/34; B05B 7/0441;
B05B 7/0483; B05B 7/02; B05B 7/06;
B05B 7/066; B05B 7/08; B05B 7/0892;
B05B 7/12; B05B 7/14; B05B 7/1486;
C21C 5/4606; F23D 11/108; F23D
17/002; F23R 3/36; Y10S 261/09

FIG. 1 is a front, top, left perspective view of an atomizer showing the new design;
FIG. 2 is a front, top, right perspective view thereof;
FIG. 3 is a front, bottom, left perspective view thereof;
FIG. 4 is a top plan view thereof;
FIG. 5 is a bottom plan view thereof;
FIG. 6 is a front elevation view thereof;
FIG. 7 is a left side view thereof; and,
FIG. 8 is a top, left side, perspective cross-sectional view along line 8-8 of FIG. 4.

See application file for complete search history.

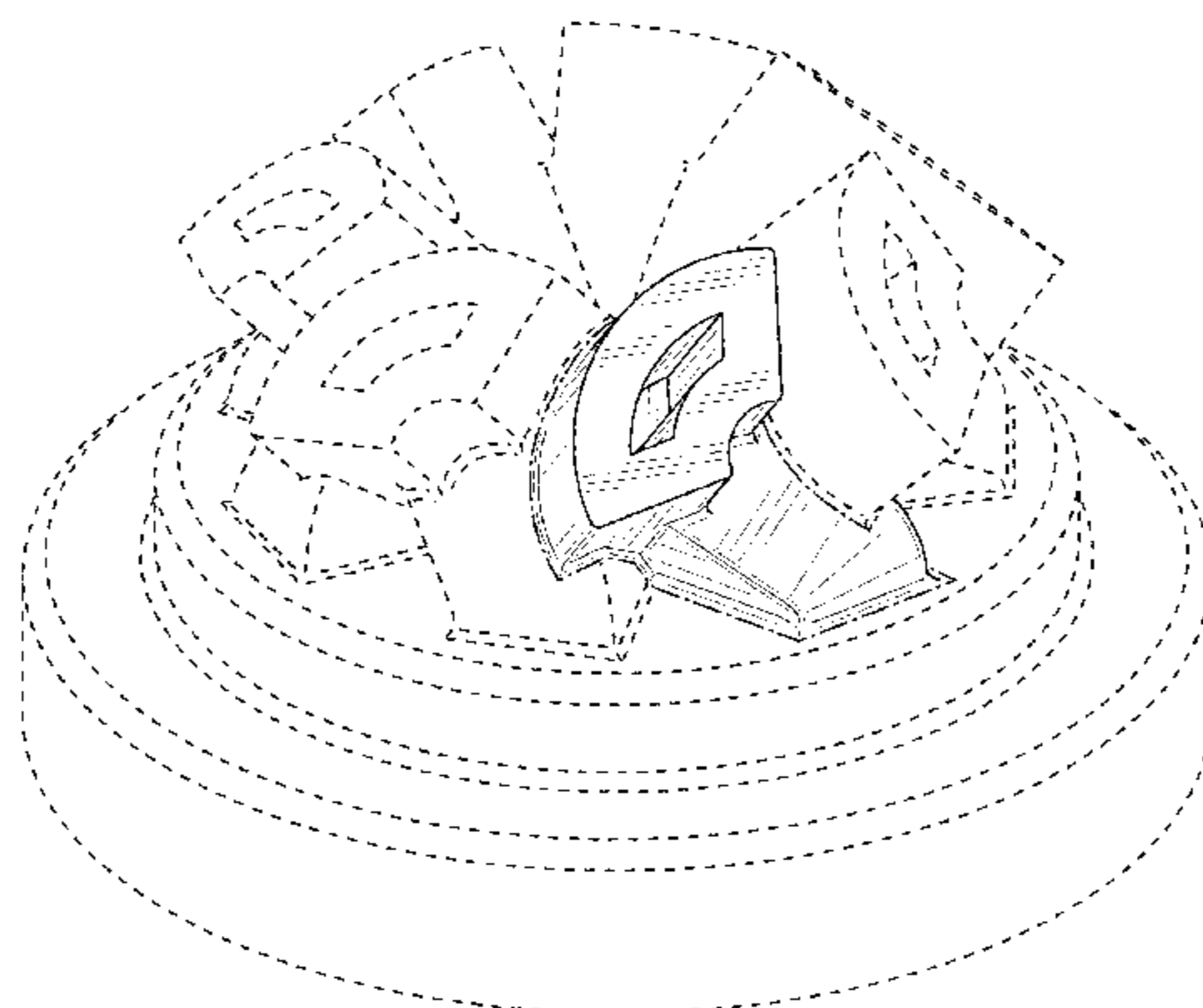
The even length broken lines shown in the drawings illustrate portions of the atomizer that form no part of the claimed design. The uneven length broken lines illustrate the boundary of the claimed design, and form no part of the claimed design.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,518,120 A * 5/1985 Johnson B05B 1/14
239/424
4,695,225 A * 9/1987 Hellat F15D 1/0015
239/486
5,121,608 A 6/1992 Willis et al.

1 Claim, 8 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,722,598 A * 3/1998 Werding B05B 1/3405
239/403
5,921,472 A 7/1999 Haruch
6,024,301 A * 2/2000 Hurley B05B 1/3436
239/463
6,199,768 B1 3/2001 Koveal et al.
6,276,615 B1 * 8/2001 Scholz B05B 7/066
239/419
6,899,290 B2 * 5/2005 Varble F02M 61/162
239/463
6,915,636 B2 * 7/2005 Stuttaford F23L 7/002
60/39.463
6,951,454 B2 * 10/2005 Sarv F23D 1/00
110/262
7,090,153 B2 * 8/2006 King B05B 1/20
166/177.5
D537,398 S * 2/2007 Levey D12/197
7,214,031 B2 * 5/2007 Parrent B01F 5/0256
415/199.1
7,234,568 B2 * 6/2007 Schorn F16D 55/227
188/71.1
7,261,248 B2 * 8/2007 Curtis B05B 1/26
241/38
D584,366 S * 1/2009 Bowen D21/563
7,500,849 B2 3/2009 Dudill et al.
7,588,199 B2 * 9/2009 Huffman B05B 1/34
239/290
7,740,154 B2 * 6/2010 Kennedy B05B 11/0005
222/205
8,007,273 B2 * 8/2011 Ruck F23C 7/002
431/8

D657,014 S * 4/2012 Seiz D23/213
8,596,074 B2 * 12/2013 Nilsson F23C 7/002
60/737
8,739,545 B2 * 6/2014 Cant F23C 7/004
60/39.463
8,806,848 B2 * 8/2014 Koizumi F23R 3/12
60/39.463
8,820,664 B2 * 9/2014 Sawalski B67D 7/00
239/548
9,067,221 B2 * 6/2015 Gopalan B05B 1/08
9,138,761 B2 * 9/2015 Ritchie F24F 5/0035
D746,007 S * 12/2015 Oh D32/29
9,285,123 B2 * 3/2016 Garay F02C 7/228
9,352,340 B2 * 5/2016 Bourrilhon A62C 31/05
9,400,105 B2 * 7/2016 Genin F23R 3/286
D767,651 S * 9/2016 Heinzle D15/89
9,441,837 B2 * 9/2016 Pasqualotto F23R 3/286
D768,044 S * 10/2016 Huang D12/207
9,492,829 B2 * 11/2016 Mastrovito B05B 1/14
D773,639 S * 12/2016 Shen D23/379
D776,428 S * 1/2017 Grebinoski D3/259
9,579,669 B2 * 2/2017 Al-Ansary B05B 1/34
D781,708 S * 3/2017 Jasso Gomez D9/451
D785,901 S * 5/2017 Wilson D1/125
D809,121 S * 1/2018 Richardson D23/379
D821,557 S * 6/2018 Schaub D23/365
2005/0100846 A1 5/2005 Gutmark et al.

FOREIGN PATENT DOCUMENTS

KR 20020051067 A 6/2002
WO WO2014024842 A1 2/2014

* cited by examiner

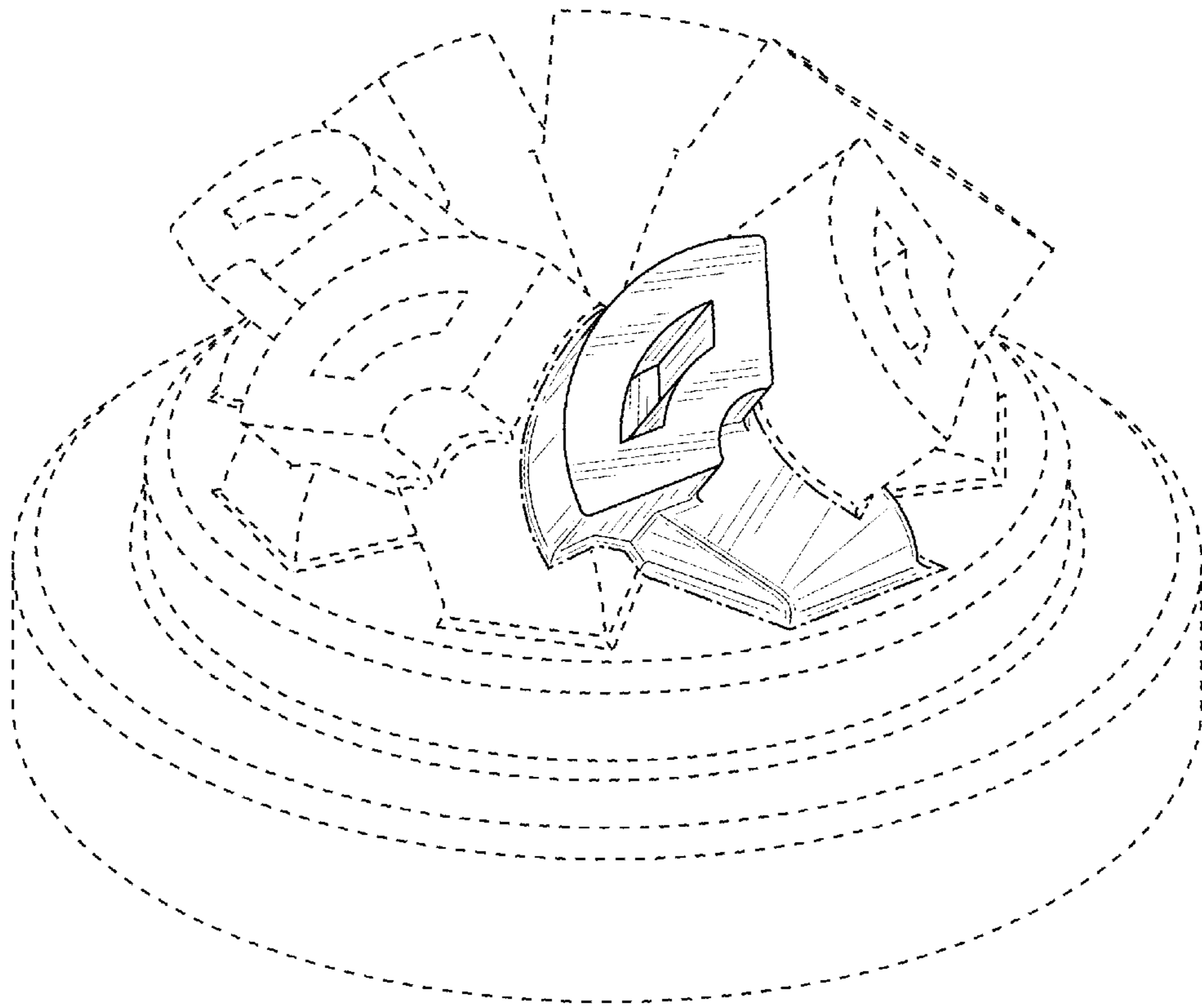


FIG. 1

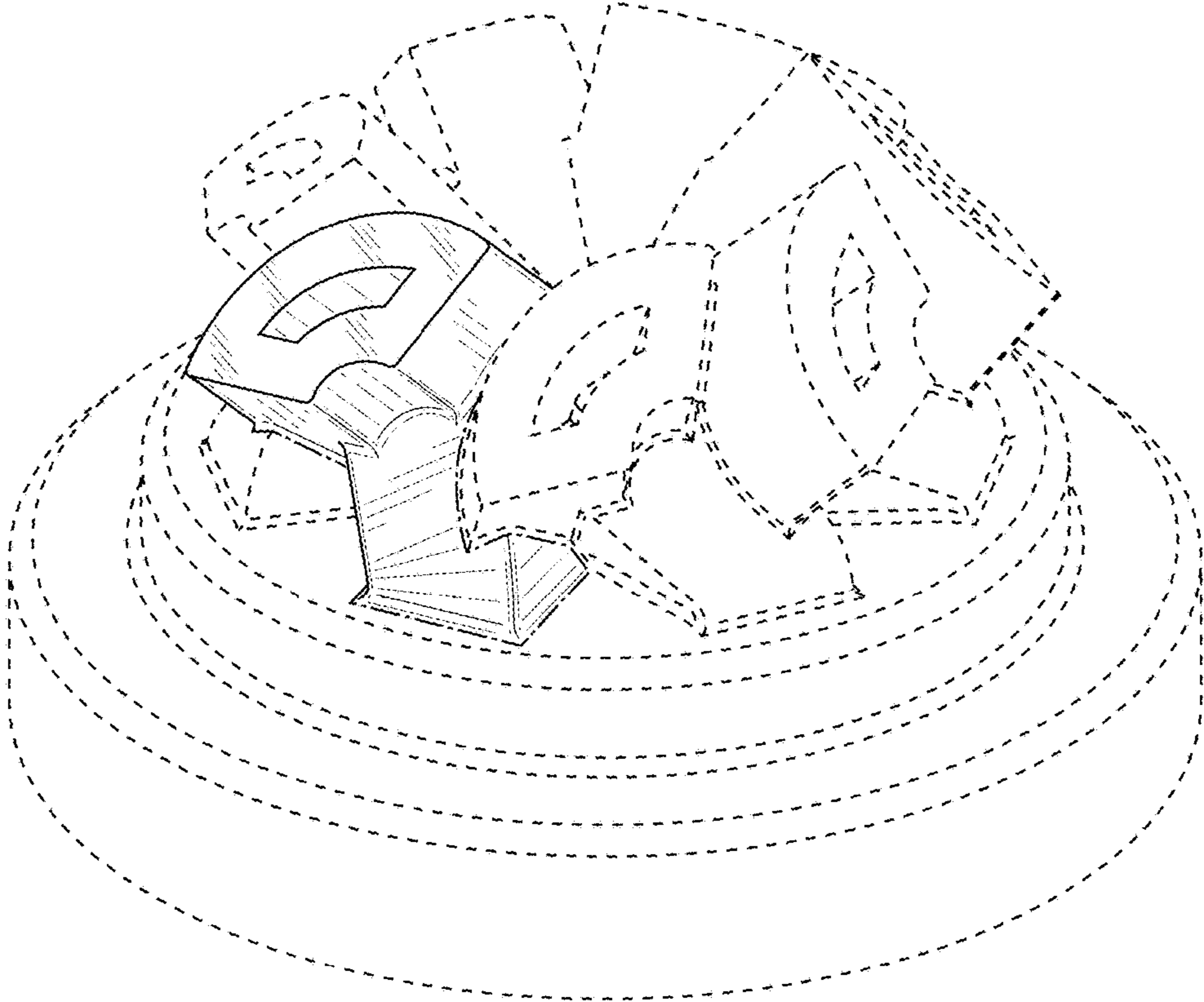


FIG. 2

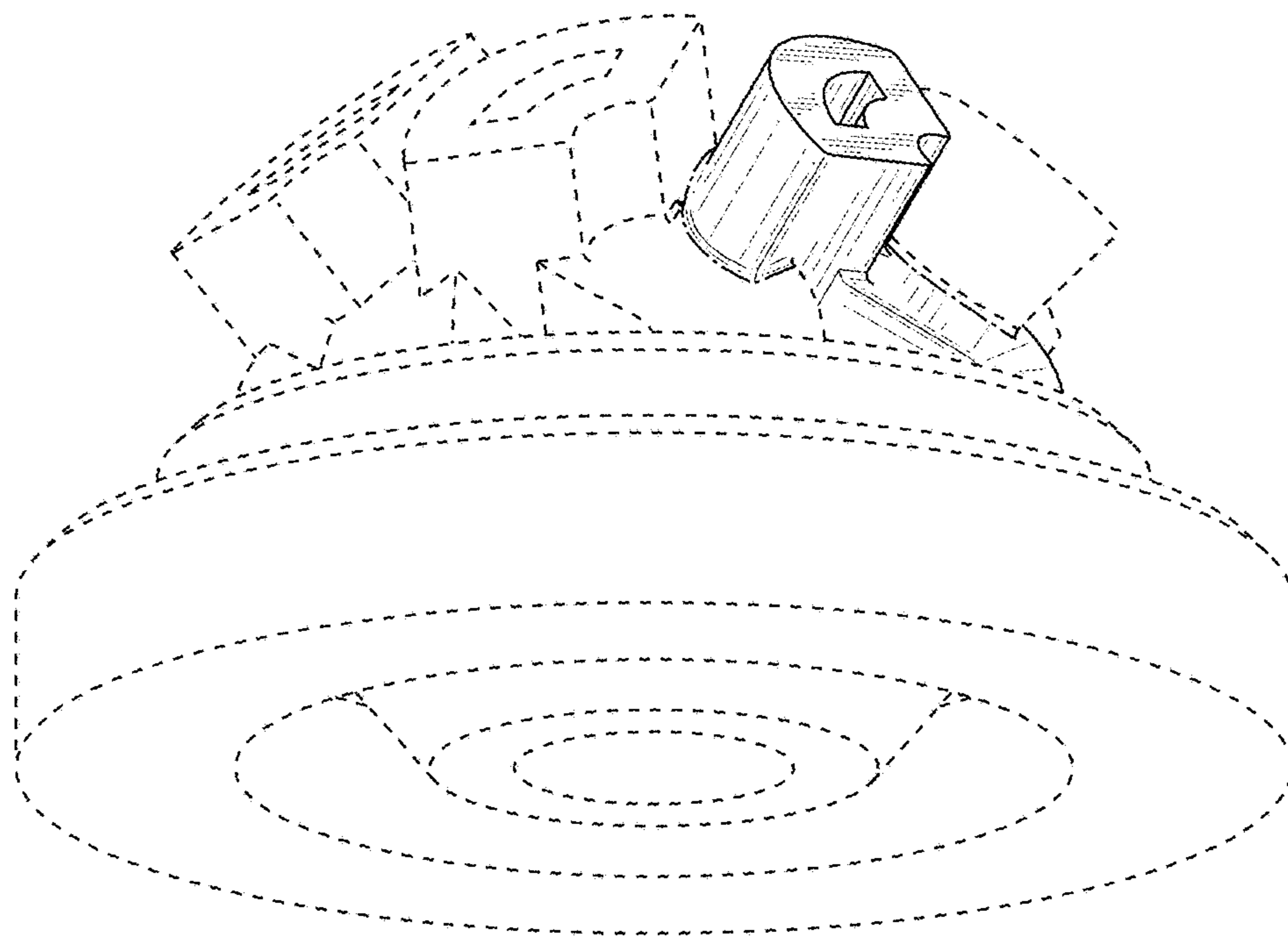


FIG. 3

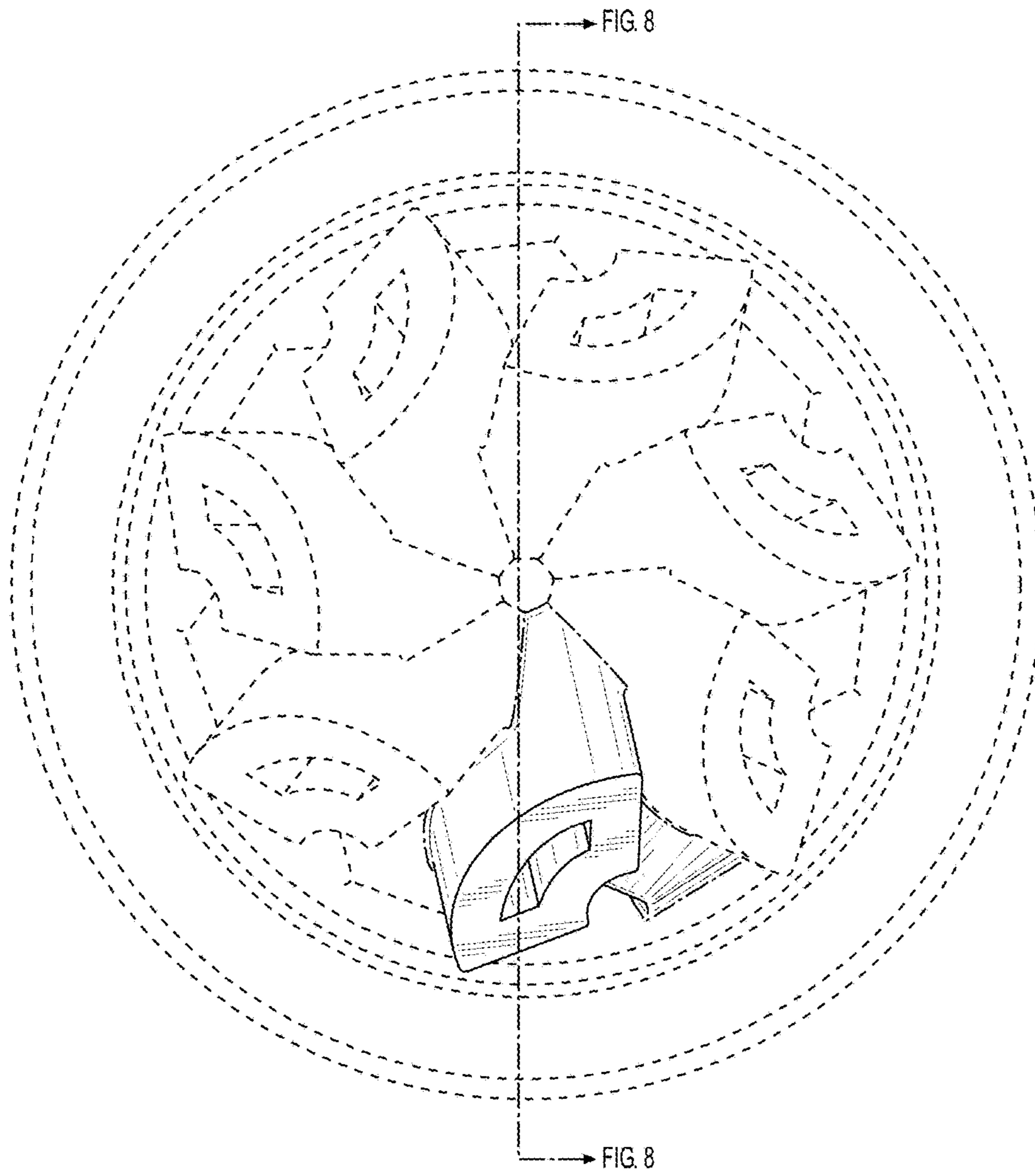


FIG. 4

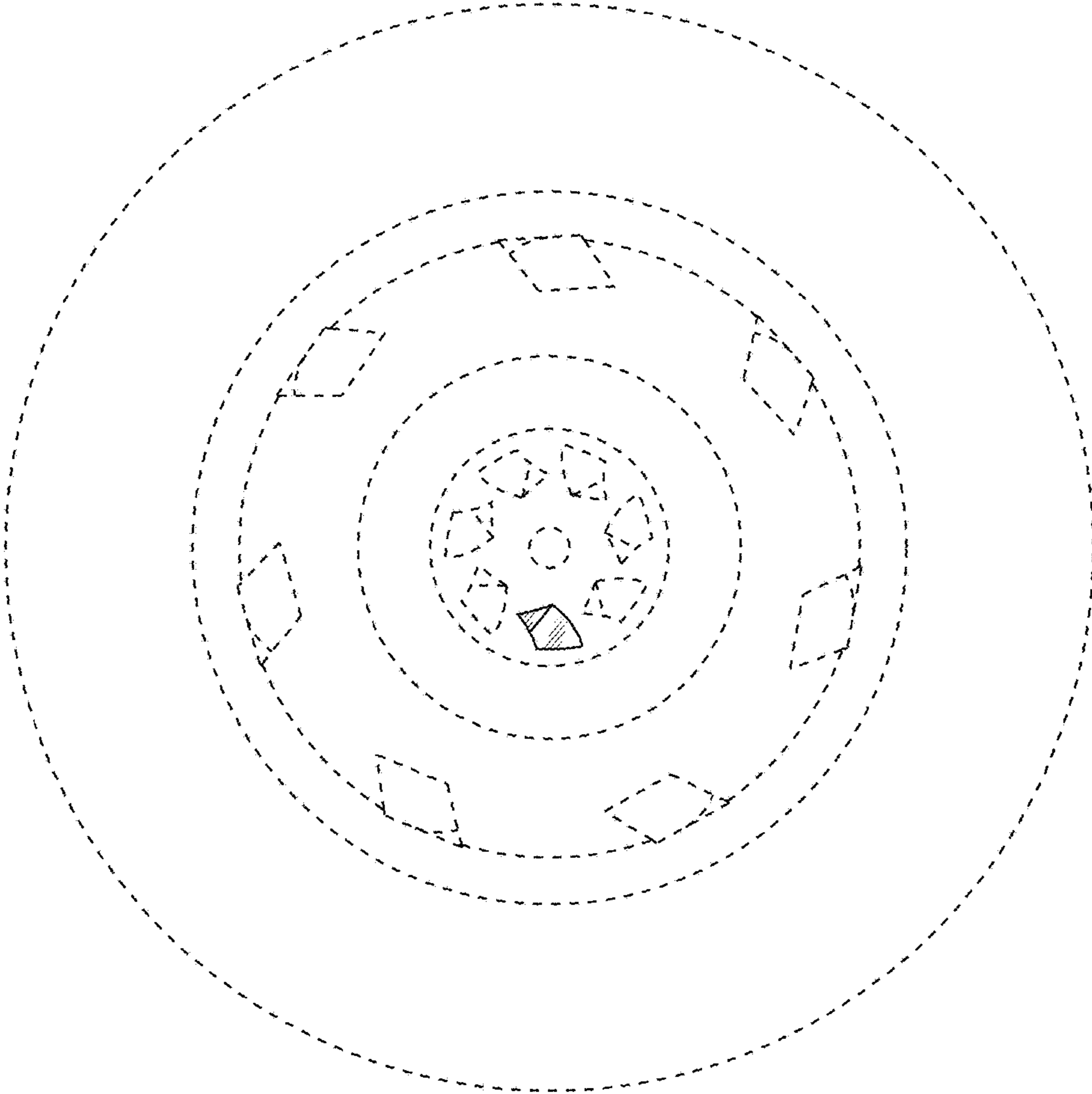


FIG. 5

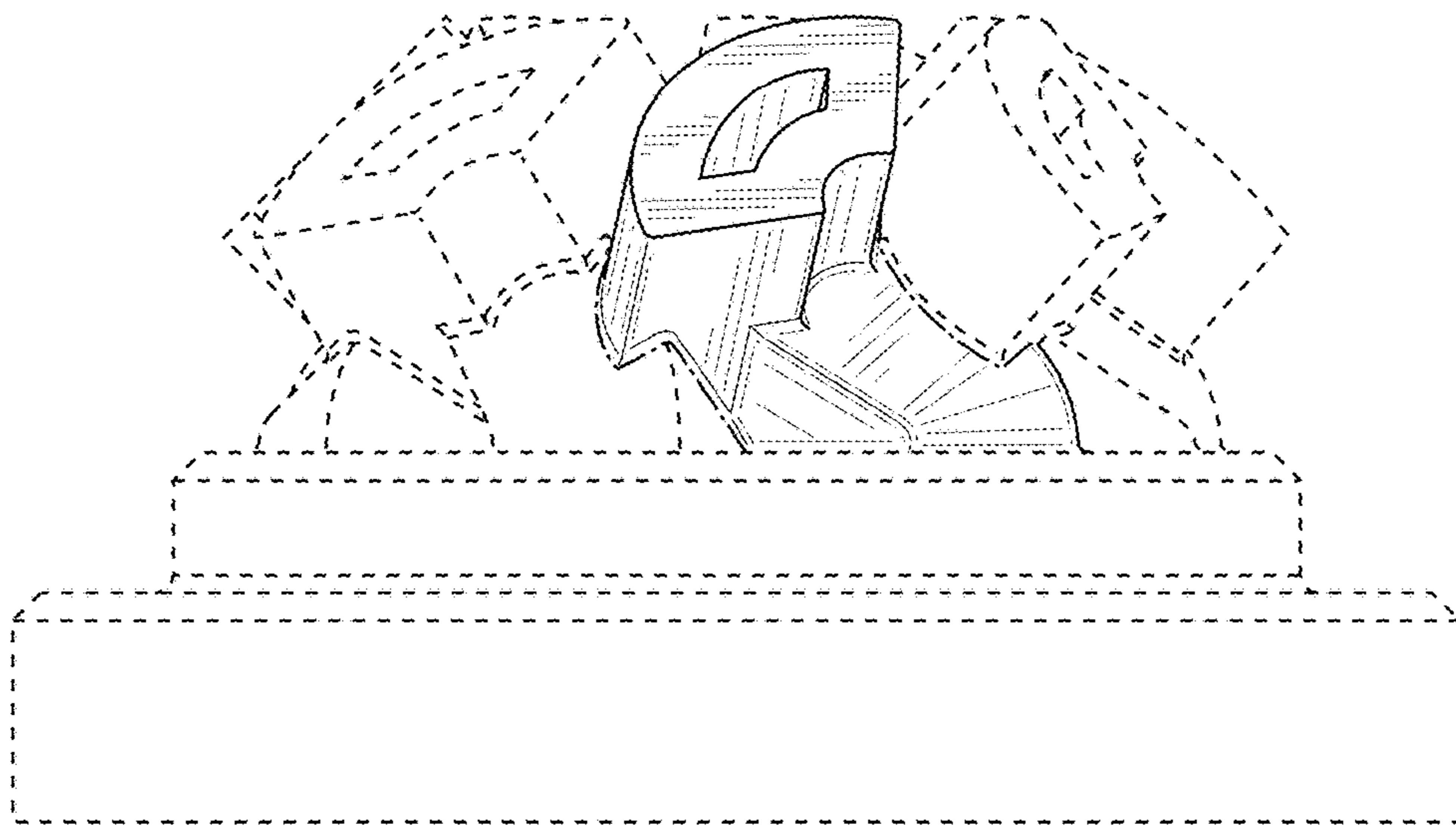


FIG. 6

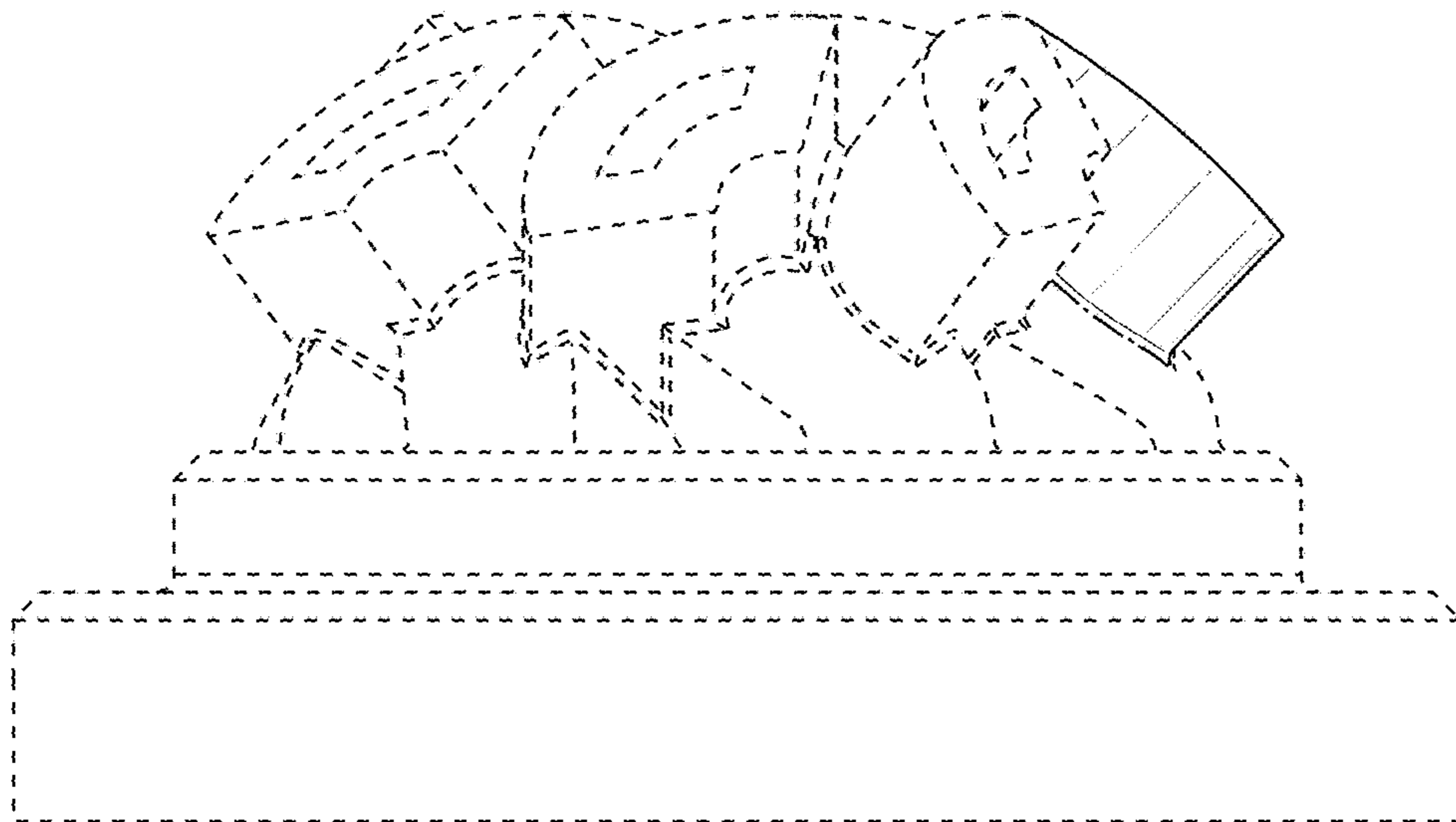


FIG. 7

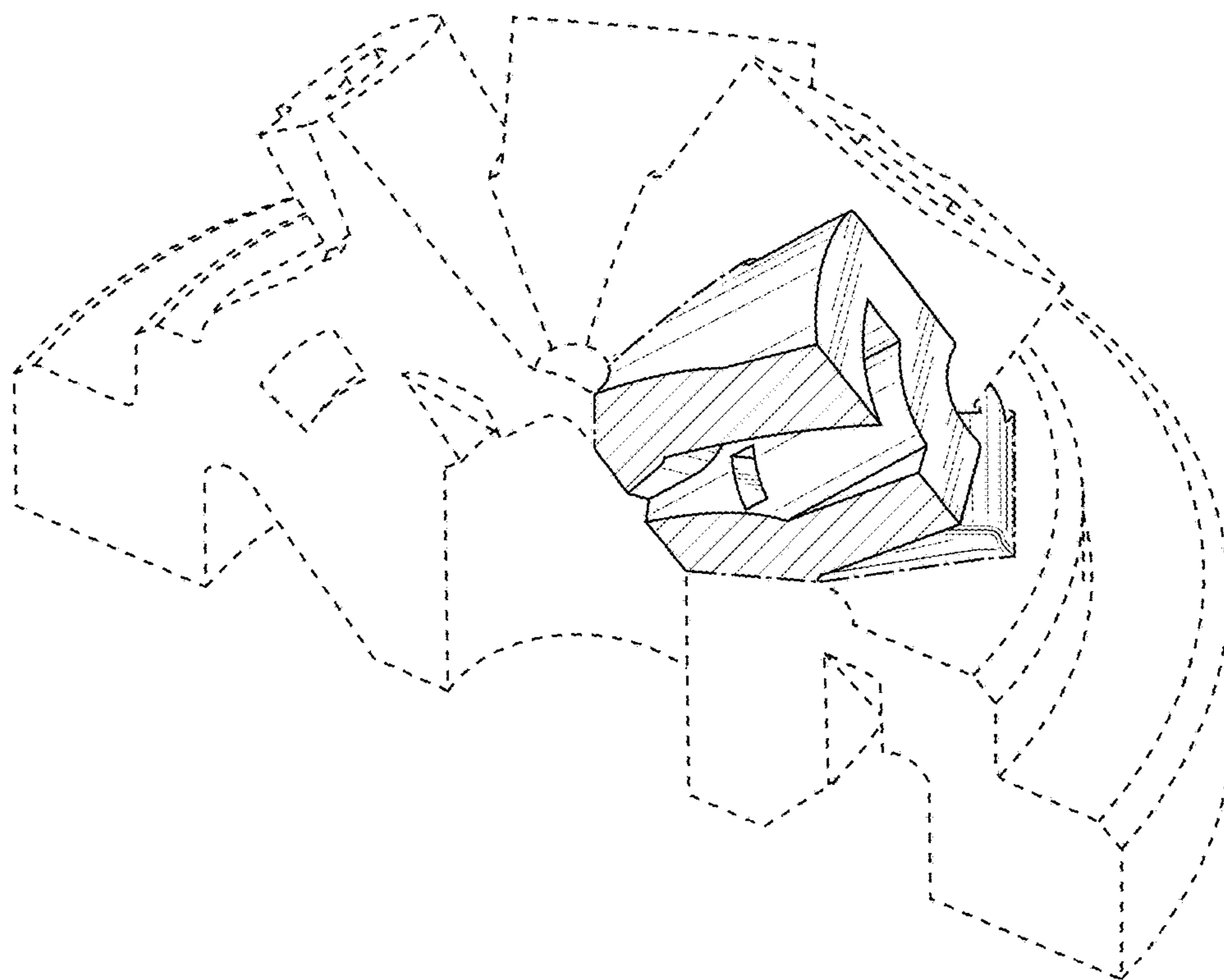


FIG. 8