



US00D708387S

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

(10) **Patent No.:** **US D708,387 S**
(45) **Date of Patent:** **** Jul. 1, 2014**

(54) **LED LENS**

- (71) Applicant: **Cree, Inc.**, Durham, NC (US)
- (72) Inventor: **Mario Alberto Castillo**, Racine, WI (US)
- (73) Assignee: **Cree, Inc.**, Durham, NC (US)
- (**) Term: **14 Years**
- (21) Appl. No.: **29/471,928**
- (22) Filed: **Nov. 6, 2013**

Related U.S. Application Data

- (63) Continuation of application No. 29/420,272, filed on May 7, 2012, now Pat. No. Des. 697,664.
- (51) **LOC (10) Cl.** **26-99**
- (52) **U.S. Cl.**
USPC **D26/120**
- (58) **Field of Classification Search**
USPC D26/63, 120, 118, 113, 119, 121, 122, D26/123, 65, 66, 68, 124, 125, 72, 76, 1, 2, D26/128, 69, 74, 88, 89, 87, 61, 92, 98, 93, D26/86; 362/158, 240, 260, 235, 249.02, 362/249.11, 294, 364, 335; D13/179, 180
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,404,004 A 1/1922 Benford
1,535,486 A 4/1925 Lundy

(Continued)

FOREIGN PATENT DOCUMENTS

EP 1107210 A2 6/2001
GB 2282700 4/1995

(Continued)

OTHER PUBLICATIONS

Future Ughting Solutions “the 6 Steps to LED Lighting Success” brochure. Date: undated. 6 pages.

Primary Examiner — Kevin Rudzinski

(74) *Attorney, Agent, or Firm* — Jansson Munger McKinley & Shape Ltd.

(57) **CLAIM**

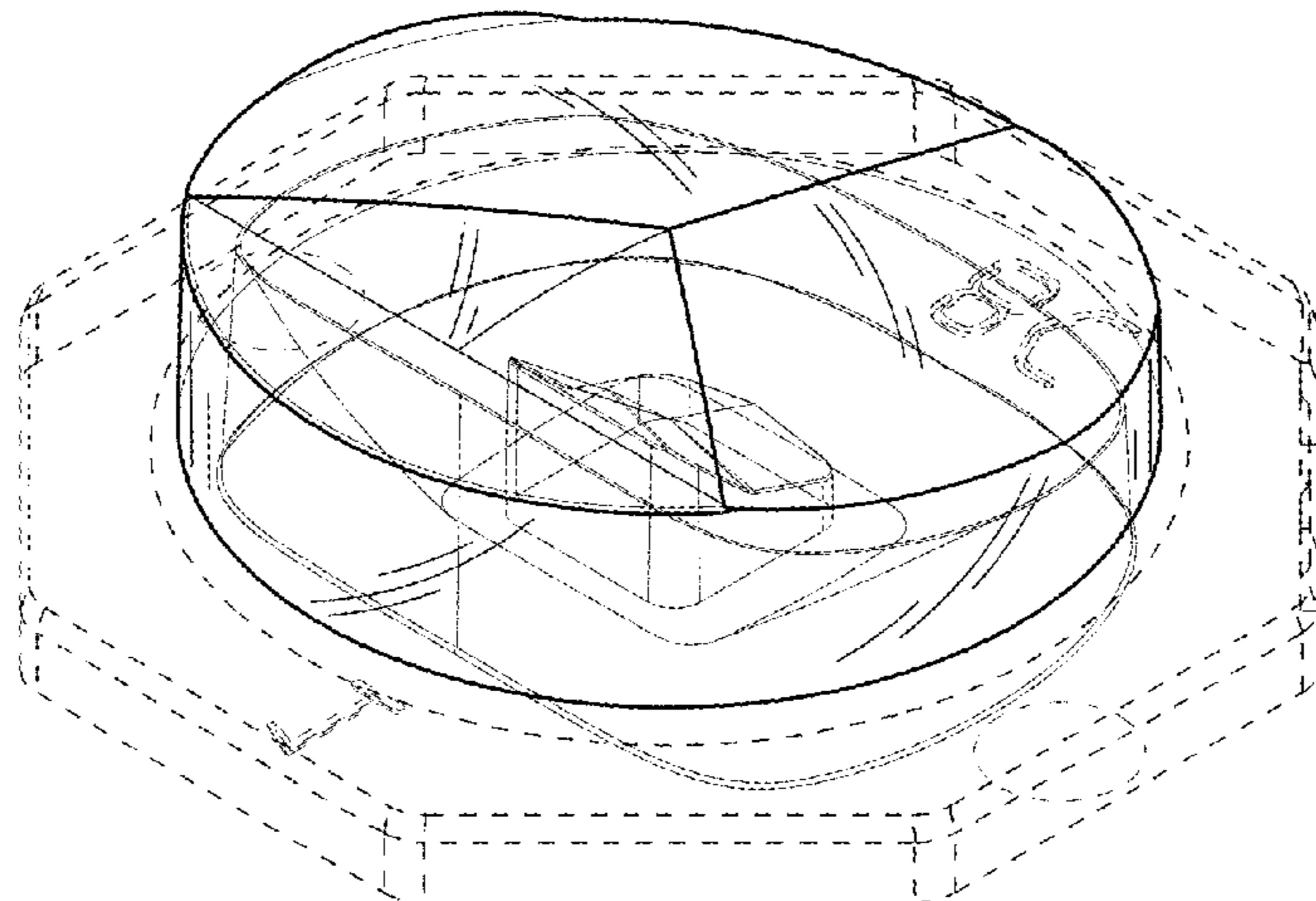
The ornamental design for an LED lens, as shown and described.

DESCRIPTION

FIG. 1 is a transparent top perspective view of the LED Lens, the flange of the lens being shown in phantom lines; FIG. 2 is a transparent bottom perspective view of the lens of FIG. 1; FIG. 3 is a transparent top plan view of the lens of FIG. 1; FIG. 4 is a transparent bottom plan view of the lens of FIG. 1; FIG. 5 is a transparent left side elevation of the lens of FIG. 1, the right side elevation being a mirror image thereof; FIG. 6 is a transparent front elevation of the lens of FIG. 1; FIG. 7 is a transparent back elevation of the lens of FIG. 1; FIG. 8 is an opaque top perspective view of the lens of FIG. 1; FIG. 9 is an opaque bottom perspective view of the lens of FIG. 1; FIG. 10 is an opaque top plan view of the lens of FIG. 1; FIG. 11 is an opaque bottom plan view of the lens of FIG. 1; FIG. 12 is an opaque left side elevation of the lens of FIG. 1, the right side elevation being a mirror image thereof; FIG. 13 is an opaque front elevation of the lens of FIG. 1; FIG. 14 is an opaque back elevation of the lens of FIG. 1; FIG. 15 is a side-to-side sectional view taken along the middle of the lens of FIG. 1; and, FIG. 16 is a front-to-back sectional view taken along the middle of the lens of FIG. 1.

The phantom lines are provided for illustrative purposes only and form no part of the claimed design.

1 Claim, 7 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2,007,033	A	7/1935	Williams	6,846,101	B2	1/2005	Coushaine
2,212,876	A	8/1940	Chauvet	6,851,835	B2	2/2005	Smith et al.
2,254,961	A	9/1941	Harris	6,896,381	B2	5/2005	Benitez et al.
2,802,097	A	9/1952	Franck	6,903,376	B2	6/2005	Shen et al.
2,908,197	A	10/1959	Wells et al.	6,918,677	B2	7/2005	Shipman
3,497,687	A	2/1970	Hermann	6,924,943	B2	8/2005	Minano et al.
3,625,615	A	12/1971	Wilson	6,929,384	B2	8/2005	Watanabe et al.
4,186,995	A	2/1980	Schumacher	6,948,840	B2	9/2005	Grenda et al.
4,254,453	A	3/1981	Mouyard et al.	6,955,451	B2	10/2005	Coushaine et al.
4,336,580	A	6/1982	Mouyard et al.	6,987,613	B2	1/2006	Pocius et al.
4,345,308	A	8/1982	Mouyard et al.	6,991,355	B1	1/2006	Coushaine et al.
4,650,998	A	3/1987	Martin	6,995,402	B2	2/2006	Ludowise et al.
4,767,172	A	8/1988	Nichols et al.	7,009,213	B2	3/2006	Camras et al.
4,845,600	A	7/1989	Matsumura et al.	7,021,797	B2	4/2006	Minano et al.
4,862,330	A	8/1989	Machida et al.	D520,143	S *	5/2006	Yoneda D24/209
4,935,665	A	6/1990	Murata	7,040,782	B2 *	5/2006	Mayer 362/350
4,941,072	A	7/1990	Yasumoto et al.	7,042,021	B2	5/2006	Isoda
5,001,609	A	3/1991	Gardner et al.	7,053,419	B1	5/2006	Camras et al.
5,013,144	A	5/1991	Silverglate et al.	7,063,441	B2	6/2006	Kramer et al.
5,014,165	A	5/1991	Naganawa	7,063,450	B2	6/2006	Ehara et al.
5,062,027	A	10/1991	Machida et al.	7,064,355	B2	6/2006	Camras et al.
5,127,728	A	7/1992	Warren et al.	7,080,932	B2	7/2006	Keuper
5,140,220	A	8/1992	Hasegawa	7,083,313	B2	8/2006	Smith
5,174,649	A	12/1992	Alston	7,104,672	B2	9/2006	Zhang
RE34,254	E	5/1993	Dragoon	7,106,523	B2	9/2006	McLean et al.
5,289,082	A	2/1994	Komoto	7,111,972	B2	9/2006	Coushaine et al.
5,302,778	A	4/1994	Maurinus	7,114,838	B2	10/2006	Wu
5,349,504	A	9/1994	Simms et al.	7,118,236	B2	10/2006	Hahm et al.
5,592,578	A	1/1997	Ruh	7,118,262	B2	10/2006	Negley
5,784,209	A	7/1998	Manabe	7,121,691	B2	10/2006	Coushaine et al.
5,813,743	A	9/1998	Naka	7,125,143	B2	10/2006	Hacker
5,813,752	A	9/1998	Singer et al.	7,125,160	B2	10/2006	Wong et al.
5,865,529	A	2/1999	Yan	7,150,553	B2	12/2006	English et al.
5,894,195	A	4/1999	McDermott	7,153,000	B2	12/2006	Park et al.
5,894,196	A	4/1999	McDermott	7,153,002	B2	12/2006	Kim et al.
5,898,267	A	4/1999	McDermott	7,172,324	B2	2/2007	Wu et al.
5,924,788	A	7/1999	Parkyn, Jr.	7,181,378	B2	2/2007	Benitez et al.
5,939,996	A	8/1999	Kniveton et al.	7,182,497	B2	2/2007	Lee et al.
5,995,291	A	11/1999	Togino	D542,239	S *	5/2007	Egawa D13/180
6,055,111	A	4/2000	Nomura et al.	7,213,945	B2	5/2007	Yoneda et al.
6,097,549	A	8/2000	Jenkins et al.	7,246,923	B2	7/2007	Conner
6,229,160	B1	5/2001	Krames et al.	7,246,931	B2	7/2007	Hsieh et al.
6,244,727	B1	6/2001	Ryan, Jr. et al.	7,254,309	B1	8/2007	Chou et al.
6,250,787	B1	6/2001	Matubara	7,329,029	B2	2/2008	Chaves et al.
6,273,596	B1	8/2001	Parkyn, Jr.	7,348,723	B2	3/2008	Yamaguchi et al.
6,274,924	B1	8/2001	Carey et al.	7,352,011	B2	4/2008	Smits et al.
6,283,613	B1	9/2001	Schaffer	D573,554	S *	7/2008	Kobayakawa D13/180
6,296,376	B1	10/2001	Kondo et al.	7,410,275	B2	8/2008	Sommers et al.
6,323,063	B2	11/2001	Krames et al.	7,411,742	B1	8/2008	Kim et al.
6,361,190	B1	3/2002	McDermott	D576,575	S	9/2008	Kanayama et al.
6,361,192	B1	3/2002	Fussell et al.	7,549,769	B2	6/2009	Kim et al.
6,443,594	B1	9/2002	Marshall et al.	D602,613	S *	10/2009	Hamanaka et al. D26/1
6,473,238	B1	10/2002	Daniell	7,618,163	B2 *	11/2009	Wilcox 362/336
6,481,130	B1	11/2002	Wu	D611,078	S	3/2010	Chen et al.
6,498,355	B1	12/2002	Harrah et al.	7,674,018	B2	3/2010	Holder et al.
6,502,956	B1	1/2003	Wu	D618,636	S	6/2010	Hsieh
6,504,301	B1	1/2003	Lowery	7,766,509	B1	8/2010	Laporte
6,541,800	B2	4/2003	Barnett et al.	7,841,750	B2 *	11/2010	Wilcox et al. 362/334
6,547,423	B2	4/2003	Marshall et al.	7,854,536	B2	12/2010	Holder et al.
6,550,940	B2	4/2003	Kamiya et al.	7,866,837	B2	1/2011	Ho
6,554,451	B1	4/2003	Keuper	7,891,835	B2 *	2/2011	Wilcox 362/245
6,560,038	B1	5/2003	Parkyn, Jr. et al.	7,901,098	B2	3/2011	Saitoh et al.
6,570,190	B2	5/2003	Krames et al.	D636,111	S *	4/2011	Chen et al. D26/120
6,598,998	B2	7/2003	West et al.	7,922,369	B2	4/2011	Condon et al.
6,601,962	B1	8/2003	Ehara et al.	7,942,558	B2	5/2011	Zweig et al.
6,607,286	B2	8/2003	West et al.	7,988,338	B2 *	8/2011	Zhou 362/311.02
6,616,299	B2	9/2003	Martineau	D649,944	S	12/2011	Kuwaharada
6,637,921	B2	10/2003	Coushaine	8,132,944	B2	3/2012	Ruud et al.
6,679,621	B2	1/2004	West et al.	8,215,814	B2 *	7/2012	Marcoux 362/555
6,682,211	B2	1/2004	English et al.	D666,353	S	8/2012	Lin et al.
D488,137	S	4/2004	Kamada	8,292,474	B2 *	10/2012	Ho et al. 362/335
6,721,101	B2	4/2004	Daniell	8,293,548	B2 *	10/2012	Cheng et al. 438/27
6,730,940	B1	5/2004	Steranka et al.	8,348,475	B2 *	1/2013	Wilcox et al. 362/332
6,808,293	B2	10/2004	Watanabe et al.	8,454,205	B2 *	6/2013	Holder et al. 362/311.02
6,837,605	B2	1/2005	Reill	8,511,854	B2 *	8/2013	Wilcox 362/245
				D697,664	S	1/2014	Castillo
				2004/0037076	A1	2/2004	Katoh et al.
				2004/0114355	A1	6/2004	Rizkin
				2004/0156209	A1	8/2004	Ishida

(56)

References Cited

U.S. PATENT DOCUMENTS

2004/0207999 A1 10/2004 Suehiro et al.
 2004/0212291 A1 10/2004 Keuper
 2005/0023538 A1* 2/2005 Ishii et al. 257/79
 2005/0073849 A1 4/2005 Rhoads et al.
 2005/0083699 A1 4/2005 Rhoads et al.
 2005/0179041 A1 8/2005 Harbers et al.
 2005/0205878 A1 9/2005 Kan
 2005/0224826 A1 10/2005 Keuper et al.
 2005/0281047 A1 12/2005 Coushaine et al.
 2006/0013000 A1 1/2006 Coushaine et al.
 2006/0013002 A1 1/2006 Coushaine et al.
 2006/0039143 A1 2/2006 Katoh et al.
 2006/0067640 A1 3/2006 Hsieh et al.
 2006/0082999 A1 4/2006 Klein
 2006/0083000 A1 4/2006 Yoon et al.
 2006/0105482 A1 5/2006 Alferink et al.
 2006/0181902 A1 8/2006 Tamura et al.
 2006/0186431 A1 8/2006 Miki et al.
 2006/0198144 A1 9/2006 Miyairi et al.
 2007/0019416 A1 1/2007 Han et al.
 2007/0058369 A1 3/2007 Parkyn et al.
 2007/0126020 A1 6/2007 Lin et al.
 2007/0201225 A1 8/2007 Holder et al.
 2008/0100773 A1* 5/2008 Hwang et al. 349/62
 2008/0101063 A1 5/2008 Koike et al.
 2008/0203412 A1 8/2008 Shyu et al.
 2008/0205061 A1 8/2008 Holder et al.
 2008/0239722 A1* 10/2008 Wilcox 362/268

2009/0086498 A1 4/2009 Condon et al.
 2009/0290360 A1 11/2009 Wilcox et al.
 2010/0014286 A1 1/2010 Yoneda et al.
 2010/0039810 A1* 2/2010 Holder et al. 362/235
 2010/0073927 A1 3/2010 Lewin et al.
 2010/0073928 A1* 3/2010 Kim et al. 362/245
 2010/0073937 A1* 3/2010 Ho 362/335
 2010/0073938 A1 3/2010 Ho
 2010/0085763 A1 4/2010 Aguglia
 2010/0085764 A1 4/2010 Chuang
 2010/0110695 A1 5/2010 Nakamura
 2010/0128488 A1 5/2010 Marcoux
 2010/0135028 A1 6/2010 Kokubo
 2010/0226130 A1* 9/2010 Cheng et al. 362/294
 2010/0271708 A1* 10/2010 Wilcox 359/654
 2011/0235338 A1* 9/2011 Chen et al. 362/311.02

FOREIGN PATENT DOCUMENTS

JP 60199746 10/1985
 JP 61160328 7/1986
 JP 61185980 8/1986
 JP 61214485 9/1986
 JP 8264839 10/1996
 WO WO9950596 10/1999
 WO WO0024062 4/2000
 WO WO2006111805 A1 10/2006
 WO WO2007018927 A2 2/2007
 WO WO2008144672 A1 11/2008

* cited by examiner

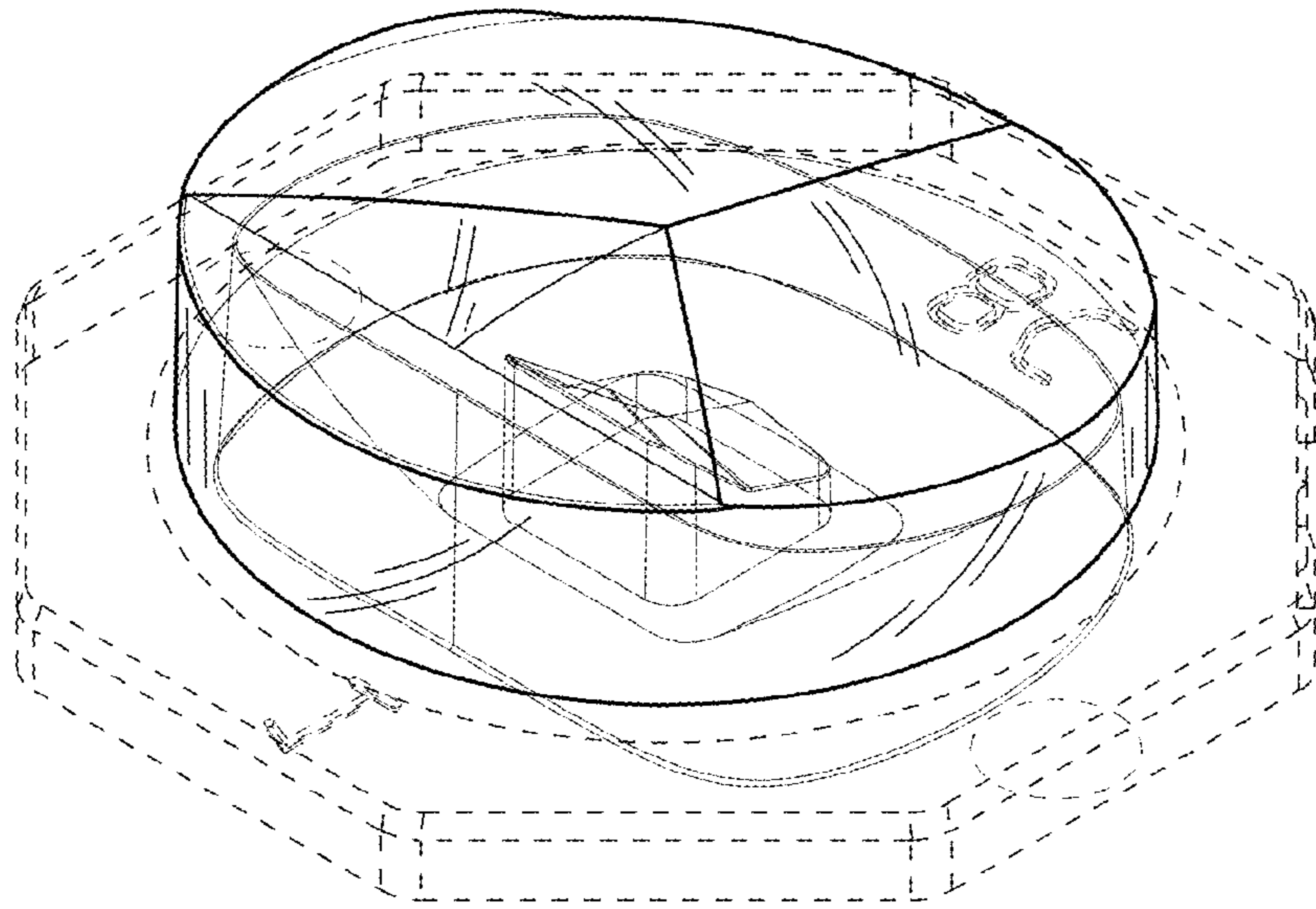


FIG. 1

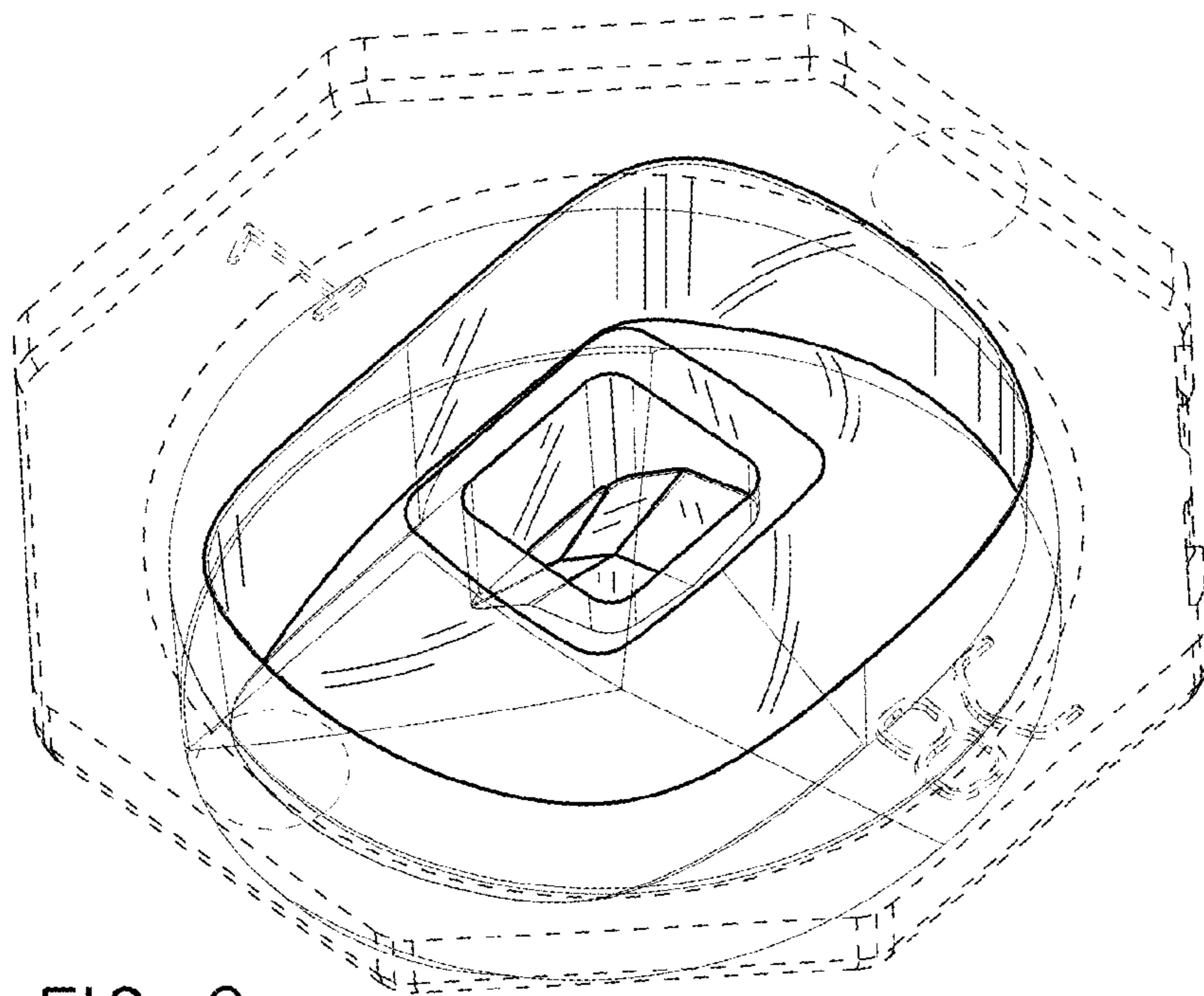


FIG. 2

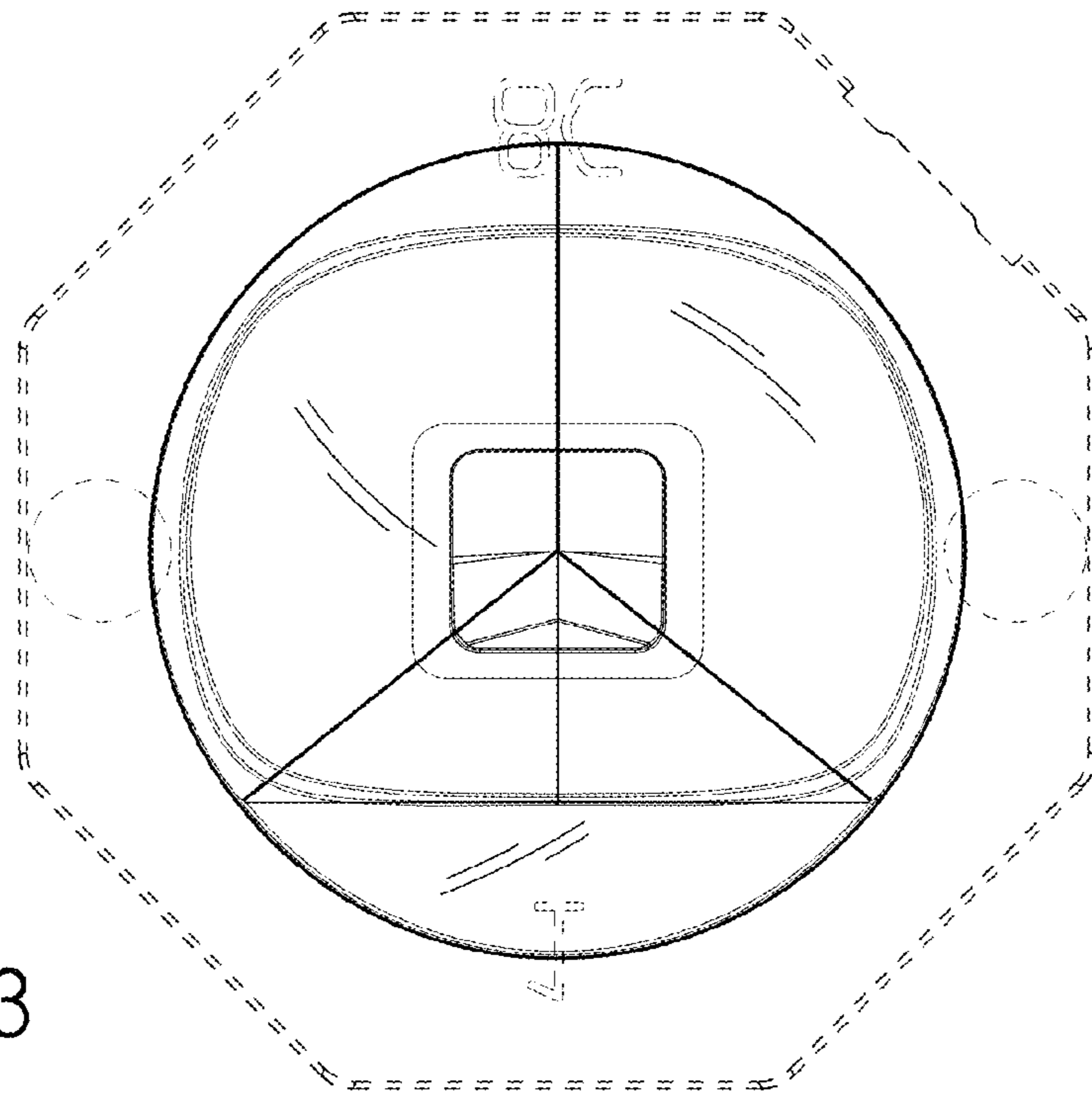


FIG. 3

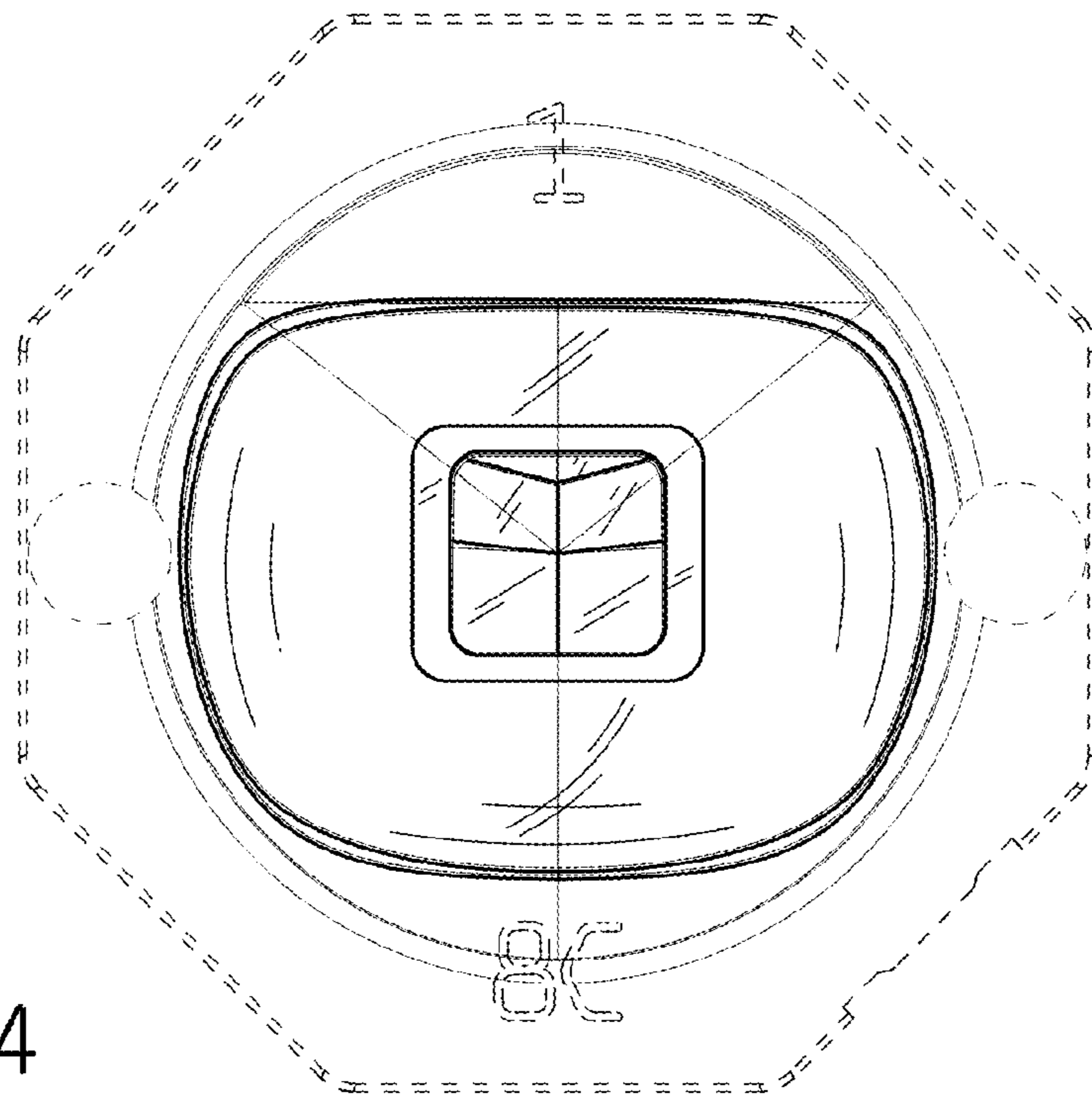


FIG. 4

FIG. 5

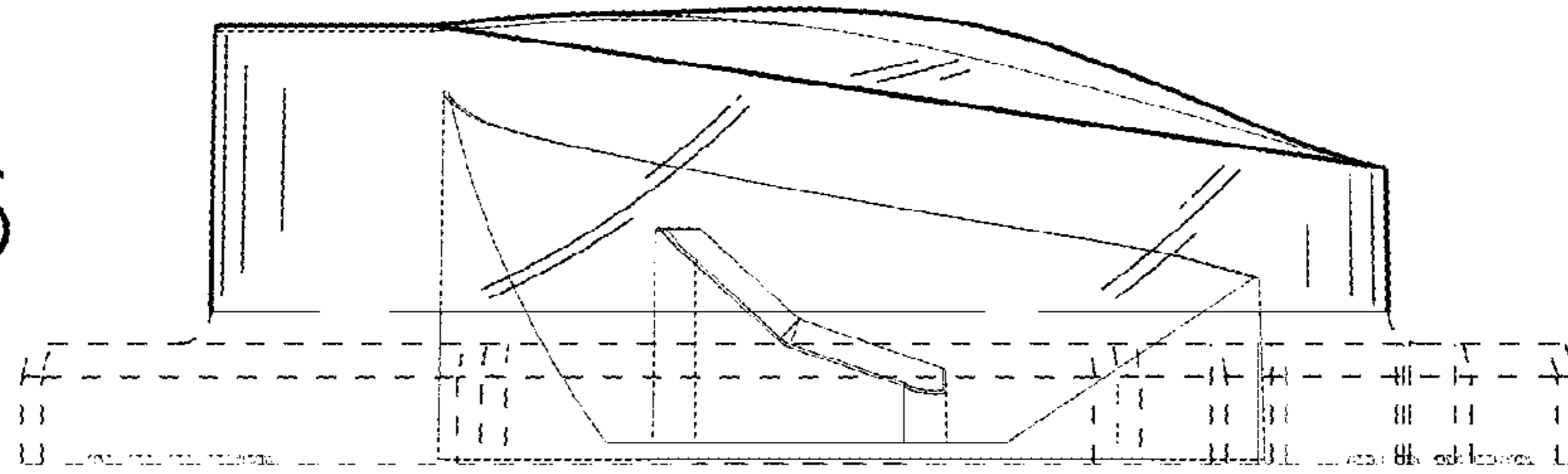


FIG. 6

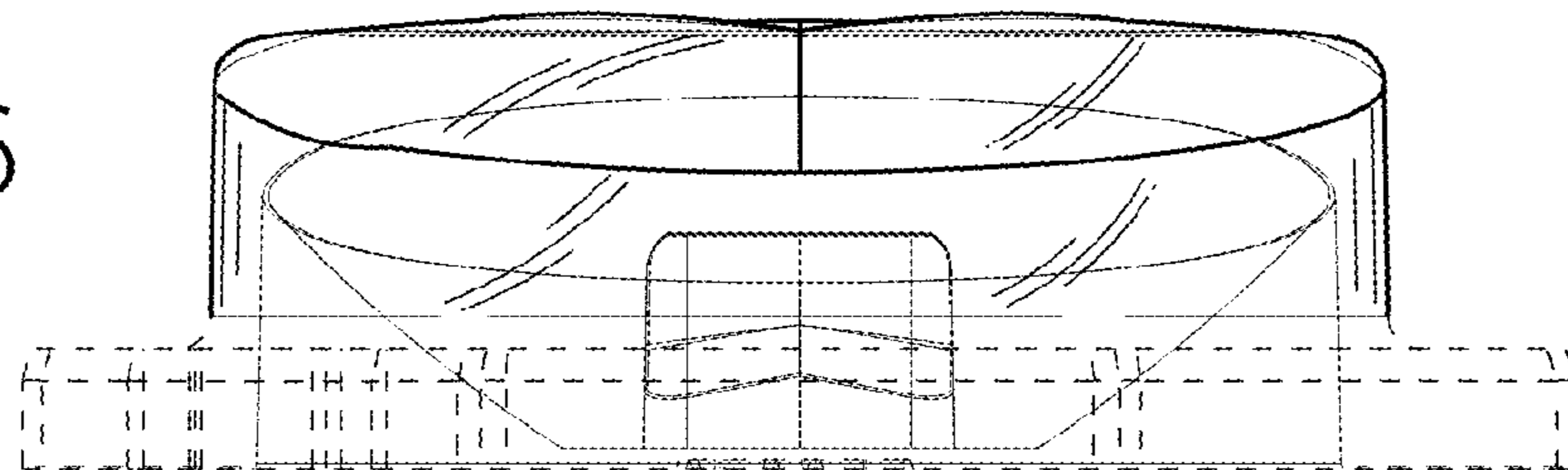
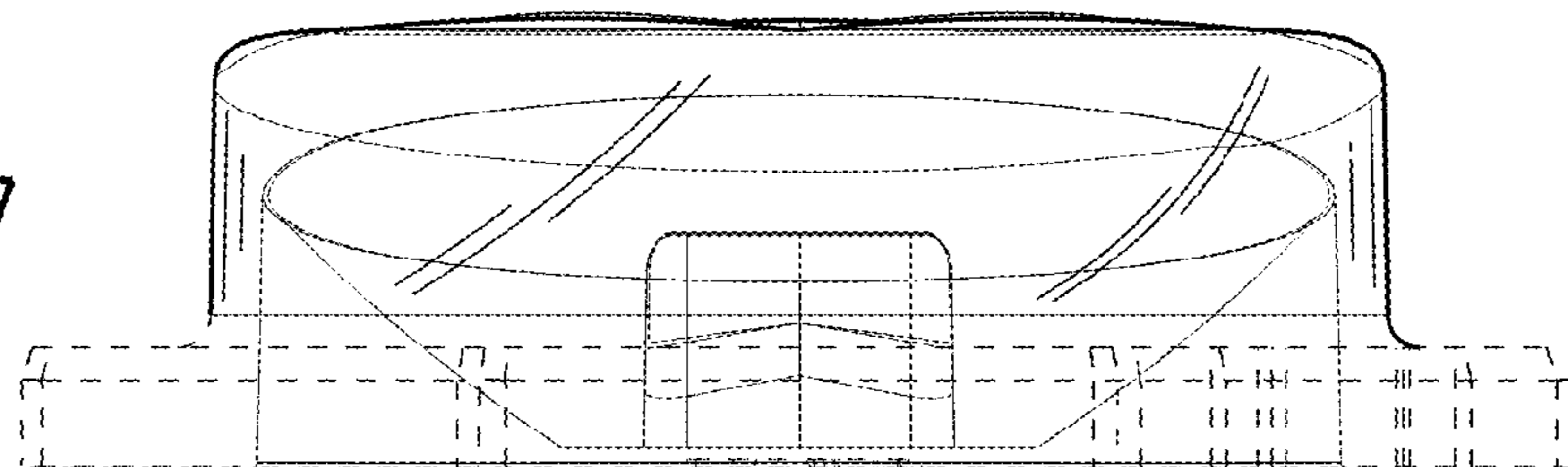


FIG. 7



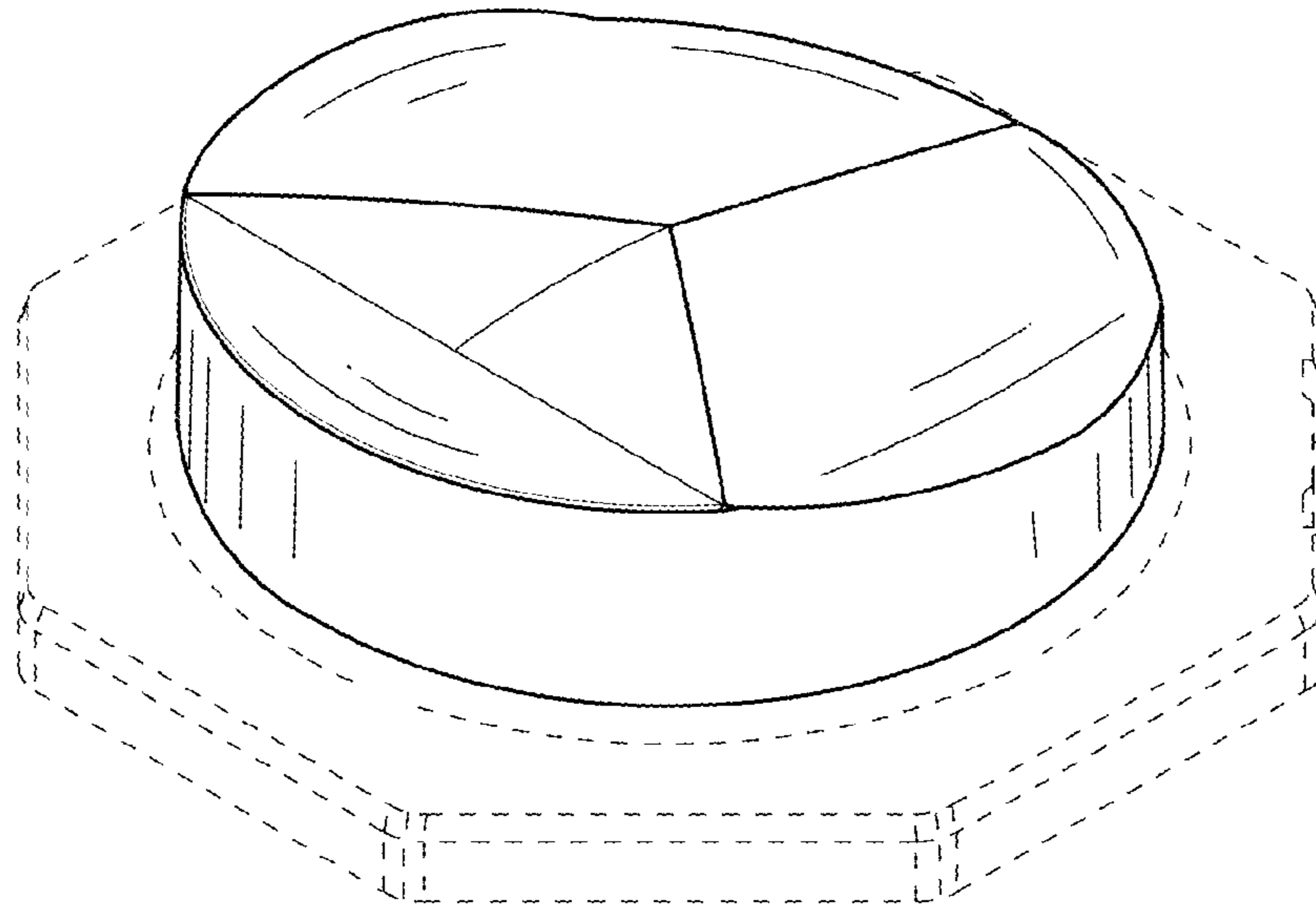


FIG. 8

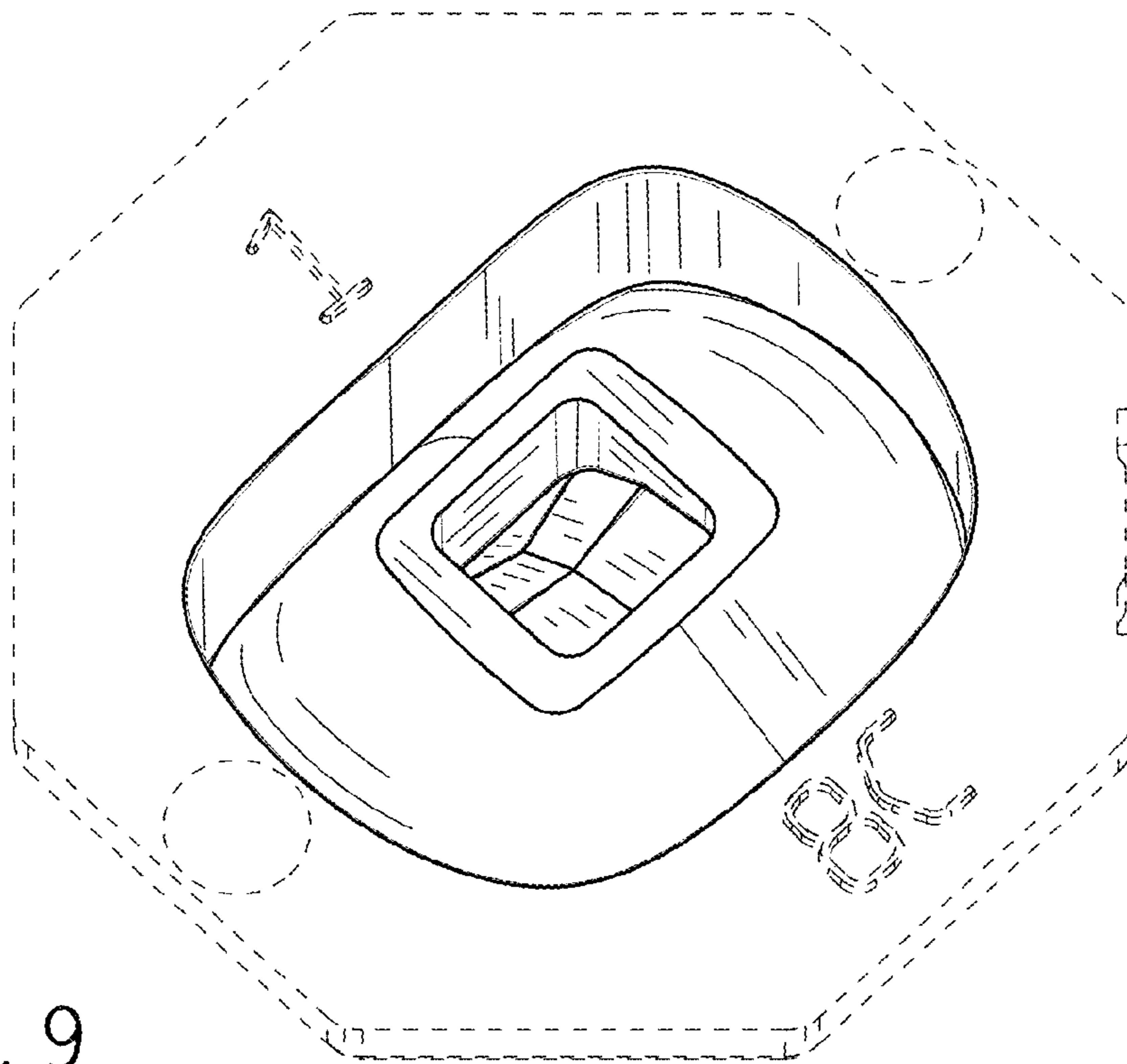


FIG. 9

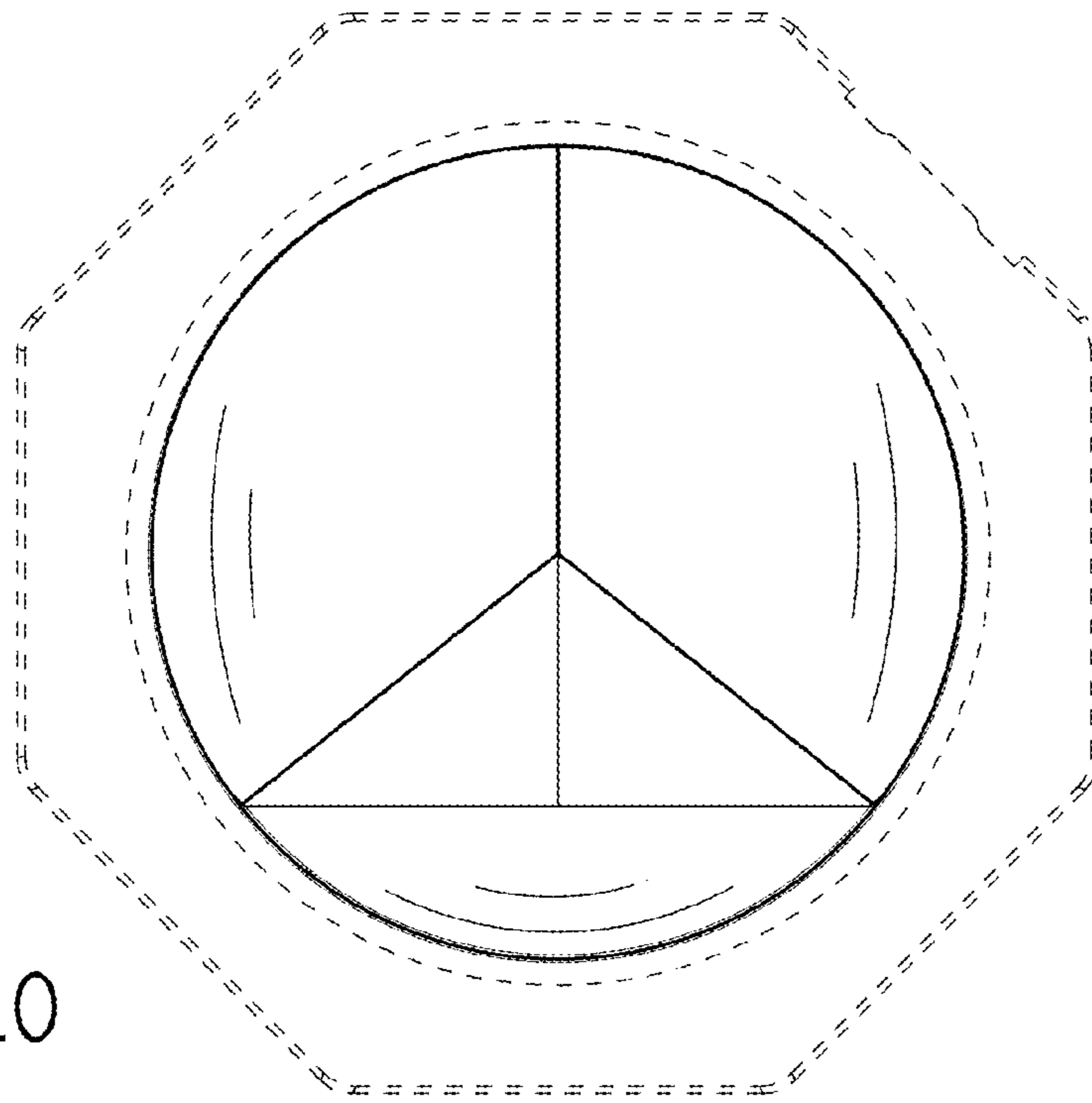


FIG. 10

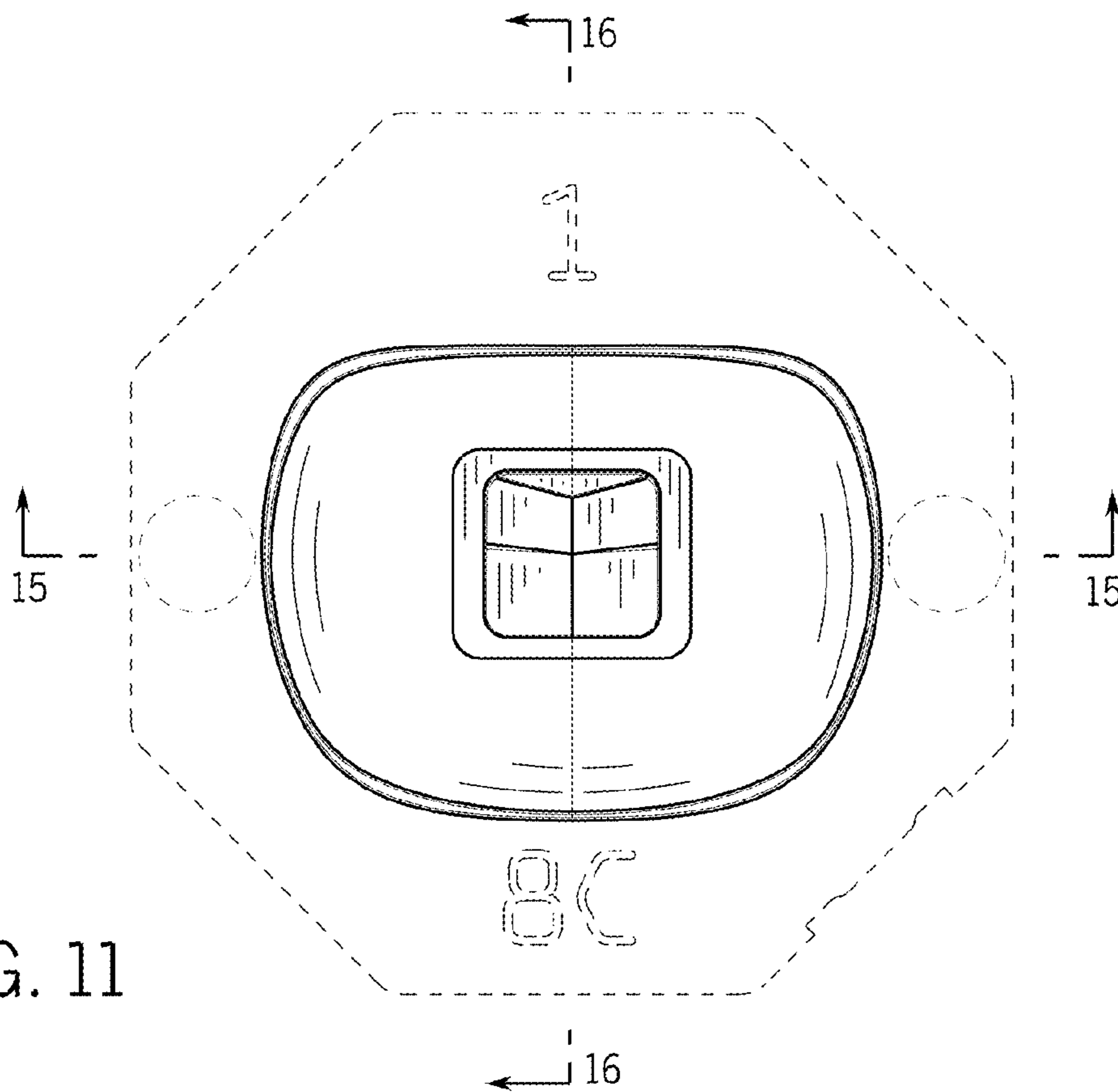


FIG. 11

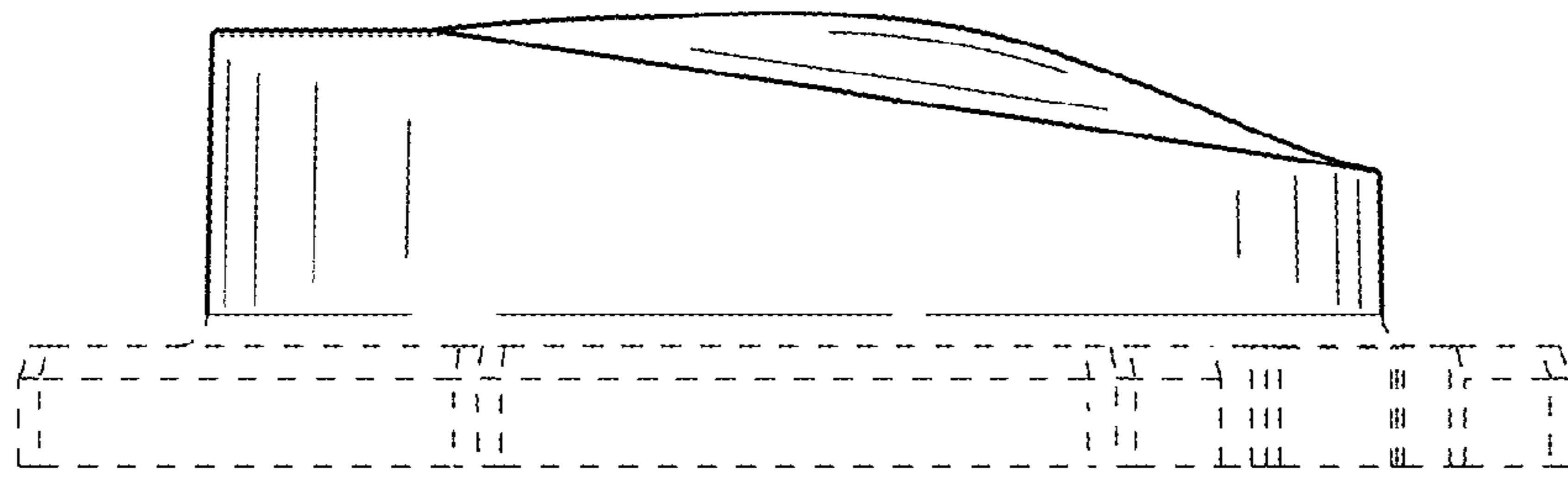


FIG. 12

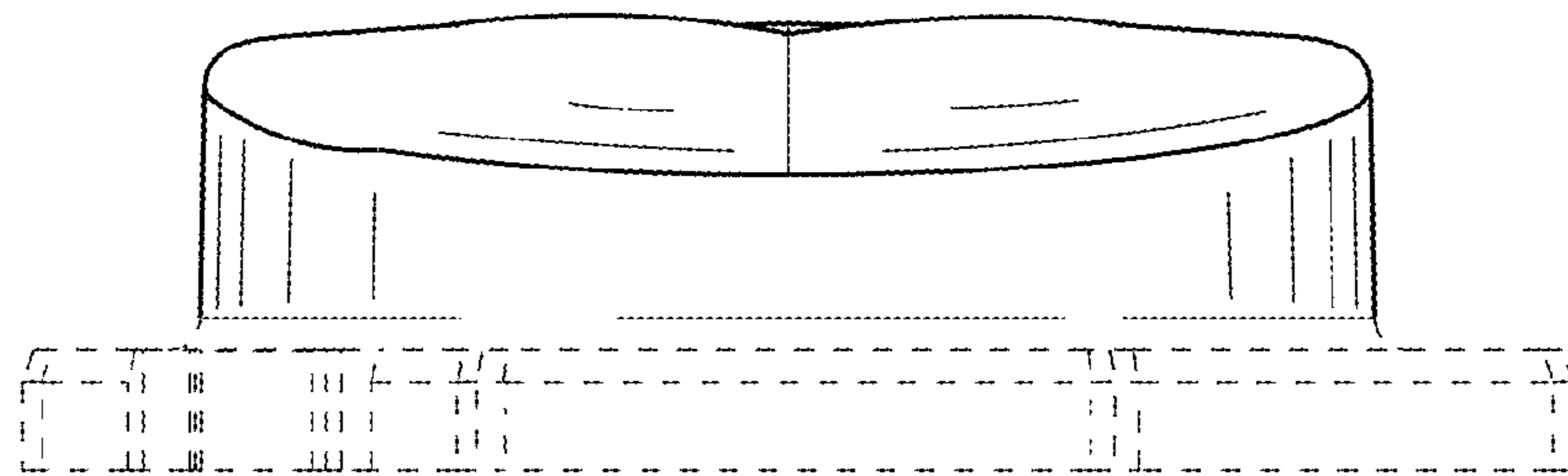


FIG. 13

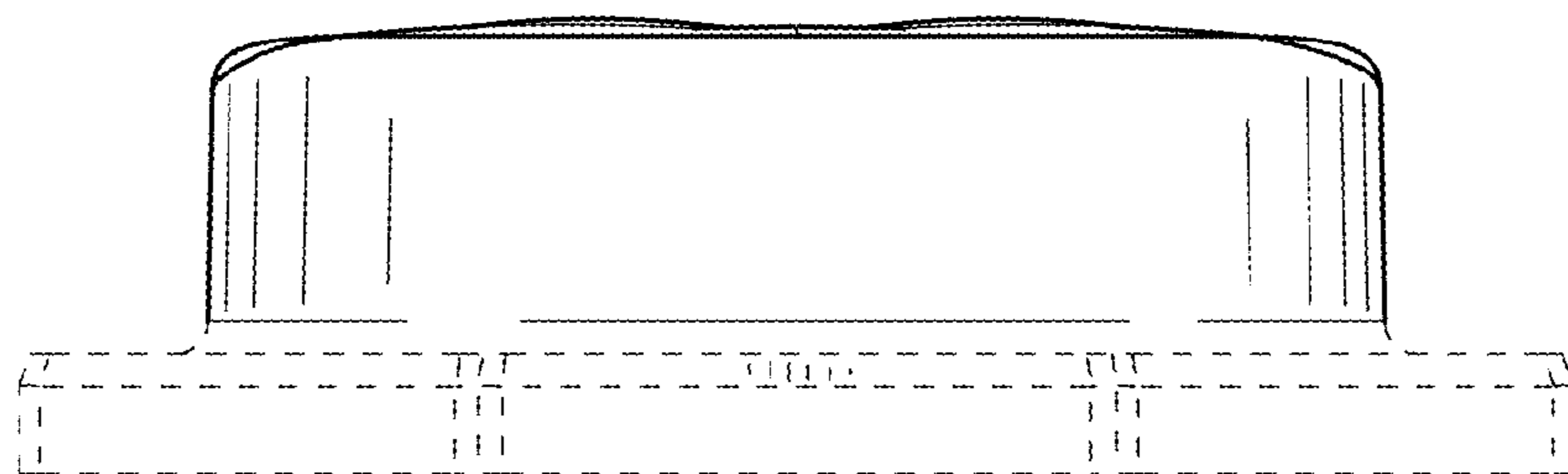


FIG. 14

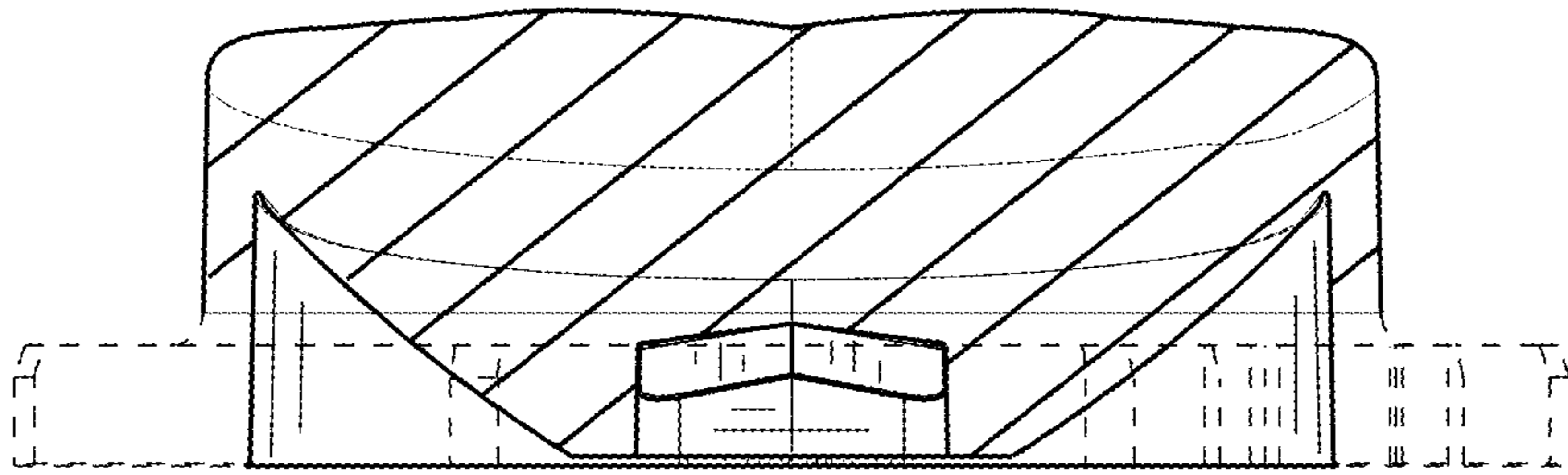


FIG. 15

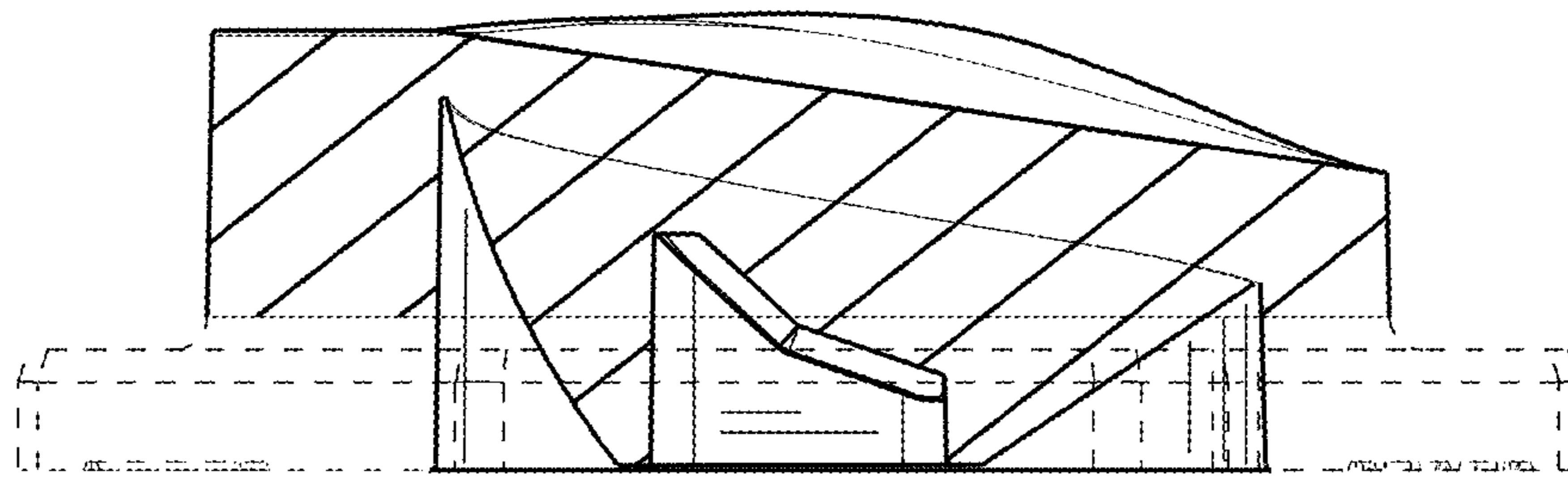


FIG. 16