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

(10) **Patent No.:** **US D844,576 S**

(45) **Date of Patent:** **** Apr. 2, 2019**

(54) **LIGHT EMITTING DIODE**

(71) Applicants: **CITIZEN ELECTRONICS CO., LTD.**, Fujiyoshida-shi, Yamanashi (JP);
CITIZEN WATCH CO., LTD., Nishitokyo-shi, Tokyo (JP)

(72) Inventor: **Yuichi Miura**, Fujiyoshida (JP)

(73) Assignees: **CITIZEN ELECTRONICS CO., LTD.**, Fujiyoshida-Shi, Yamanashi (JP);
CITIZEN WATCH CO., LTD., Tokyo (JP)

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

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(22) Filed: **Nov. 7, 2017**

(30) **Foreign Application Priority Data**

Jul. 25, 2017 (JP) 2017-016083

(51) **LOC (11) Cl.** **13-03**

(52) **U.S. Cl.**
USPC **D13/180; D26/1**

(58) **Field of Classification Search**
USPC D13/180; D26/1

(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

D568,830 S * 5/2008 Park D13/180
D615,504 S 5/2010 Keller et al.

(Continued)

FOREIGN PATENT DOCUMENTS

JP D1146343 S 7/2002
JP D1460431 S 1/2013

(Continued)

OTHER PUBLICATIONS

OSRAM Opto Semiconductors, Product Data Sheet, Product No: SFH4716S, Oslon Black Series (850 nm)—150, Version 1.5, Jan. 29, 2016, 13 pgs.

(Continued)

Primary Examiner — Selina Sikder

(74) *Attorney, Agent, or Firm* — Procopio, Cory, Hargreaves & Savitch LLP

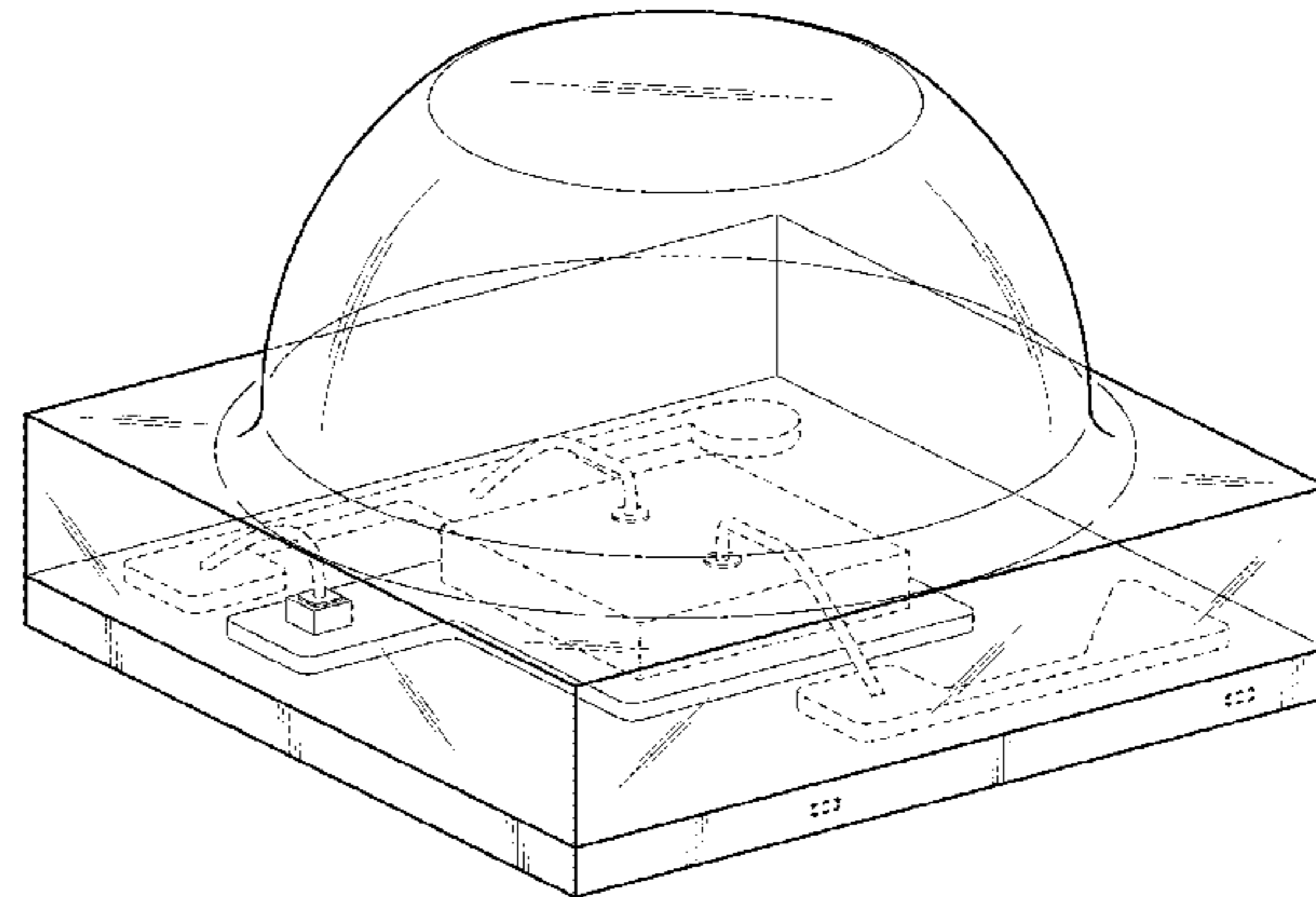
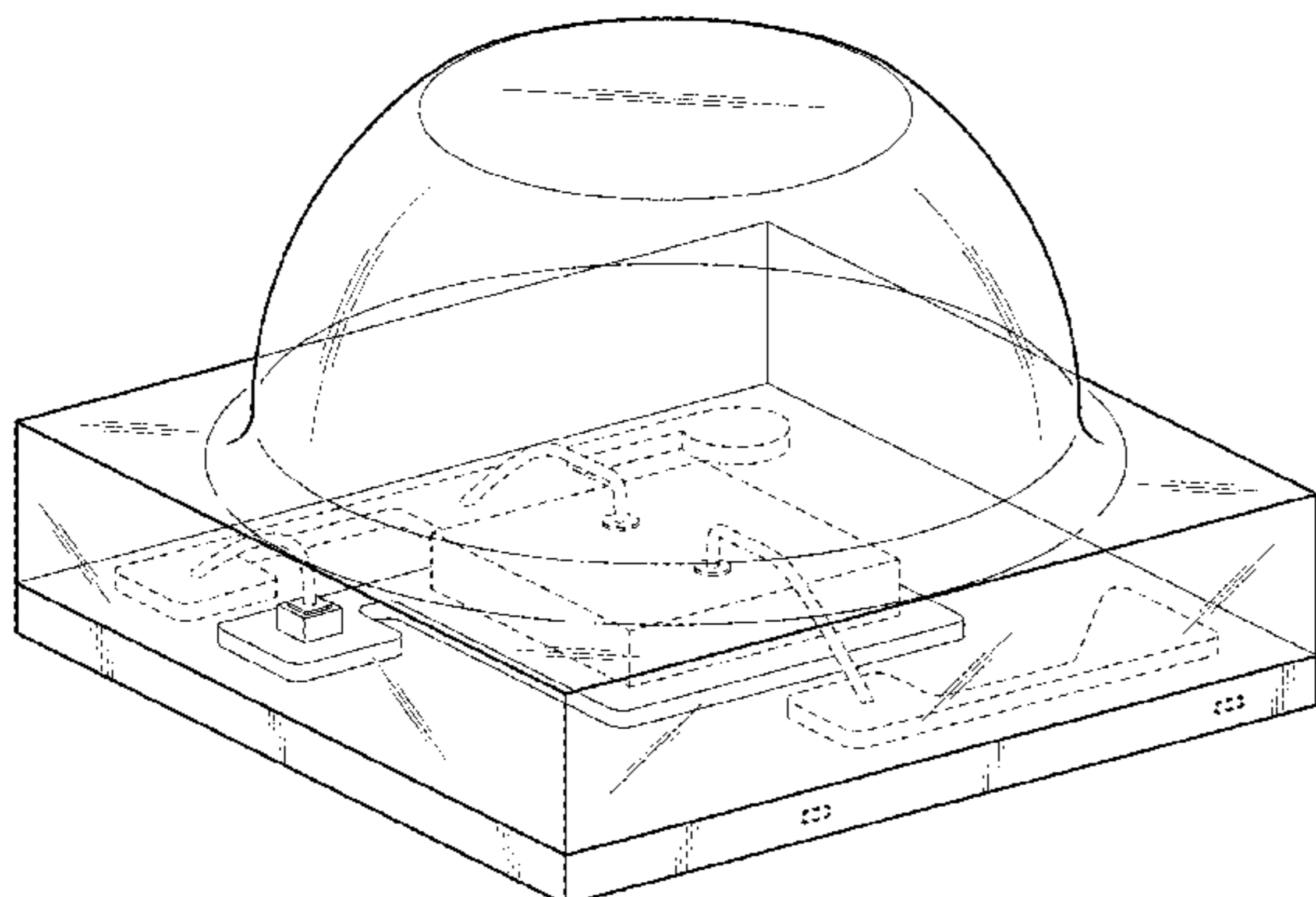
(57) **CLAIM**

The ornamental design for a light emitting diode, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a light emitting diode showing my new design;
FIG. 2 is a top plan view thereof;
FIG. 3 is a bottom plan view thereof;
FIG. 4 is a front elevational view thereof;
FIG. 5 is a rear elevational view thereof;
FIG. 6 is a left side elevational view thereof;
FIG. 7 is a right side elevational view thereof;
FIG. 8 is a perspective view of the second embodiment of a light emitting diode showing my new design;
FIG. 9 is a top plan view thereof;
FIG. 10 is a bottom plan view thereof;
FIG. 11 is a front elevational view thereof;
FIG. 12 is a rear elevational view thereof;
FIG. 13 is a left side elevational view thereof; and
FIG. 14 is a right side elevational view thereof.
FIG. 15 is a perspective view of the third embodiment of a light emitting diode showing my new design;
FIG. 16 is a top plan view thereof;
FIG. 17 is a bottom plan view thereof;
FIG. 18 is a front elevational view thereof;
FIG. 19 is a rear elevational view thereof;
FIG. 20 is a left side elevational view thereof; and,
FIG. 21 is a right side elevational view thereof.
The broken lines shown in the drawings are for illustrative purposes only and form no part of the claimed design.

1 Claim, 12 Drawing Sheets



(58) **Field of Classification Search**

CPC ... H01L 25/167; H01L 25/0753; H01L 27/15;
 H01L 27/156; H01L 31/02; H01L 33/00;
 H01L 33/04; H01L 33/08; H01L 33/10;
 H01L 33/20; H01L 33/38; H01L 33/42;
 H01L 33/48; H01L 33/54; H01L 33/58;
 H01L 33/62; H01L 33/483; H01L 33/486;
 F21K 9/00; F21K 9/30; F21K 9/54
 See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,748,873 B2 * 7/2010 Kim H01L 33/54
 257/100
 D649,943 S * 12/2011 Kuwaharada D13/180
 D656,906 S 4/2012 Leung
 D667,802 S * 9/2012 Otaki D13/180
 D689,210 S * 9/2013 Donofrio D13/180
 D691,973 S 10/2013 Donofrio et al.
 D698,741 S 2/2014 Kobayashi et al.
 D703,348 S 4/2014 Reihherzer et al.
 D709,464 S 7/2014 Abare et al.
 D712,849 S 9/2014 Britt et al.
 D713,804 S 9/2014 Britt et al.
 D738,832 S * 9/2015 Hussell D13/180
 D741,821 S 10/2015 Song
 D746,240 S * 12/2015 Bergmann D13/180
 D749,051 S 2/2016 Clark et al.
 D753,612 S 4/2016 Hussell et al.

D763,473 S * 8/2016 Watson-Levack D13/180
 9,559,267 B2 * 1/2017 Amo H01L 33/483
 10,074,785 B2 * 9/2018 Tokunaga H01L 33/58
 2005/0263785 A1 * 12/2005 Kim H01L 33/54
 257/100
 2011/0089453 A1 * 4/2011 Min H01L 33/58
 257/98
 2011/0291154 A1 * 12/2011 Noichi H01L 33/486
 257/99
 2013/0105835 A1 * 5/2013 Wu H01L 25/0753
 257/89
 2015/0311249 A1 * 10/2015 Weng H01L 25/0753
 257/88
 2016/0293813 A1 * 10/2016 Aruga H01L 33/58
 2017/0084803 A1 * 3/2017 Iwaki H01L 33/58

FOREIGN PATENT DOCUMENTS

KR 30-0604101 7/2011
 KR 30-0703807 8/2013

OTHER PUBLICATIONS

OSRAM Opto Semiconductors, Product Data Sheet, Product No. SFH4725S, Osilon Black Series (940 nm)—90, Version 1.5, Jan. 29, 2016, 13 pgs.
 Unpublished Design U.S. Appl. No. 29/594,659, filed Feb. 21, 2017, Citizen Electronics Co., Ltd. & Citizen Watch Co., Ltd.

* cited by examiner

FIG. 1

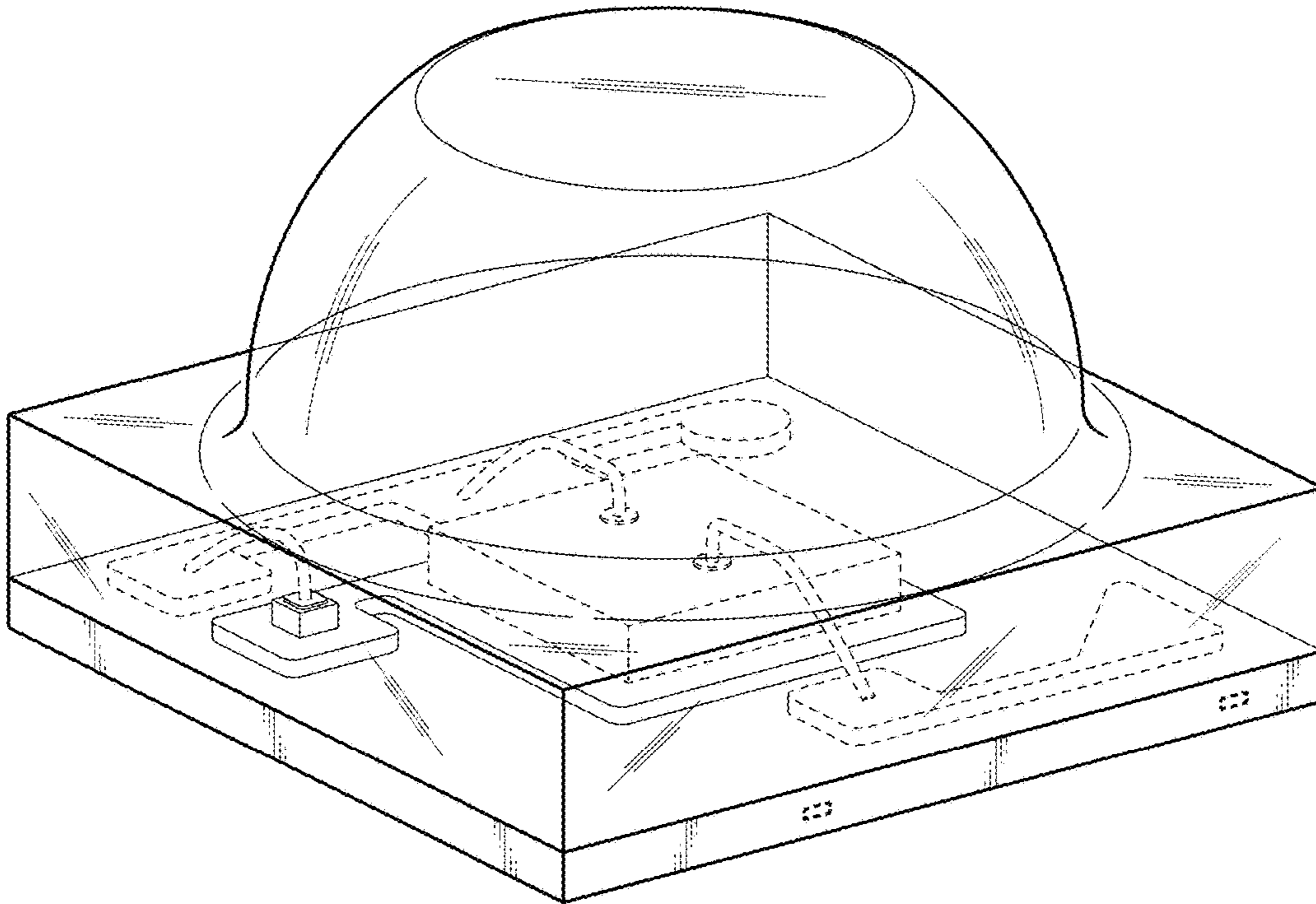


FIG. 2

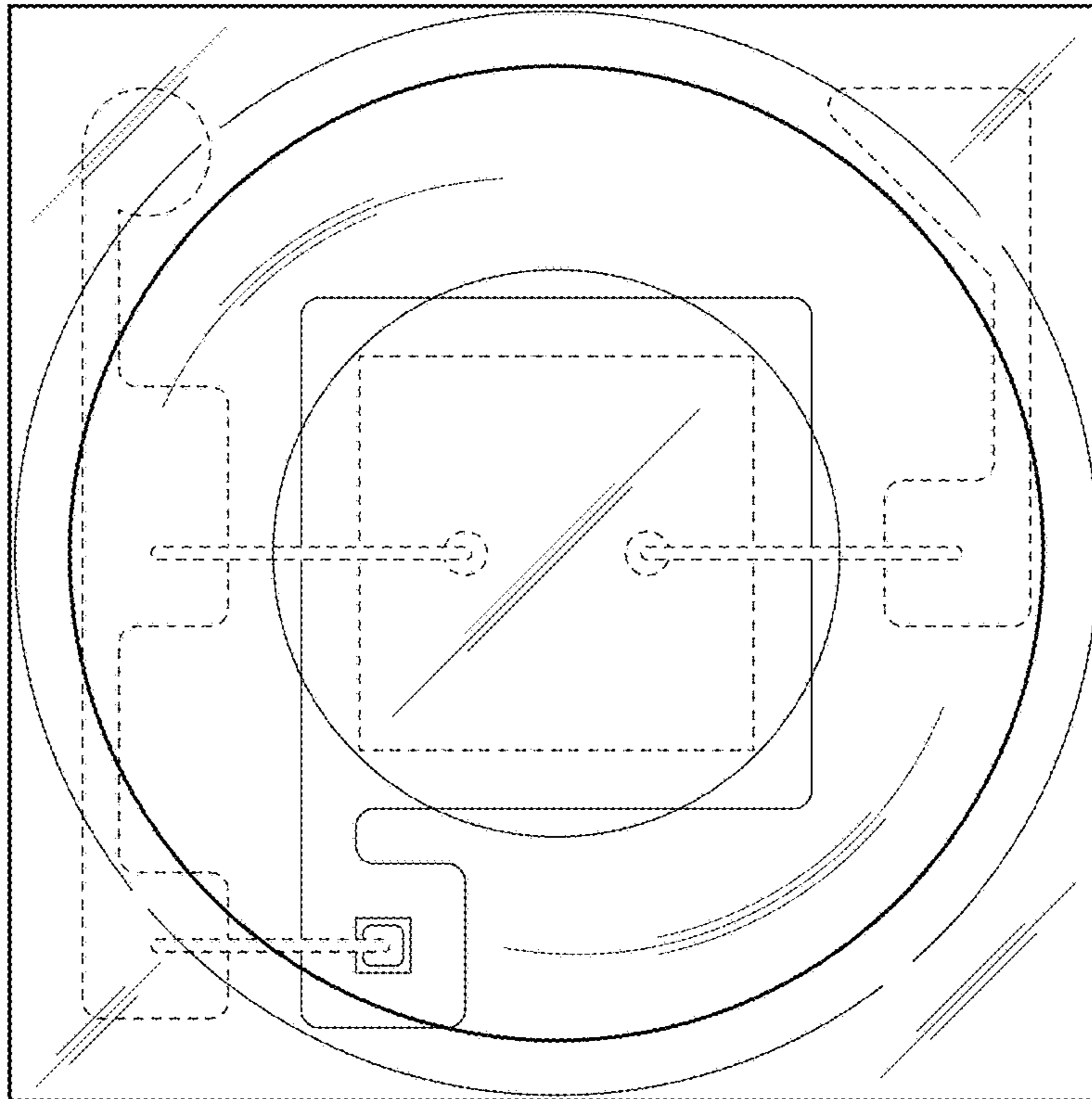


FIG. 3

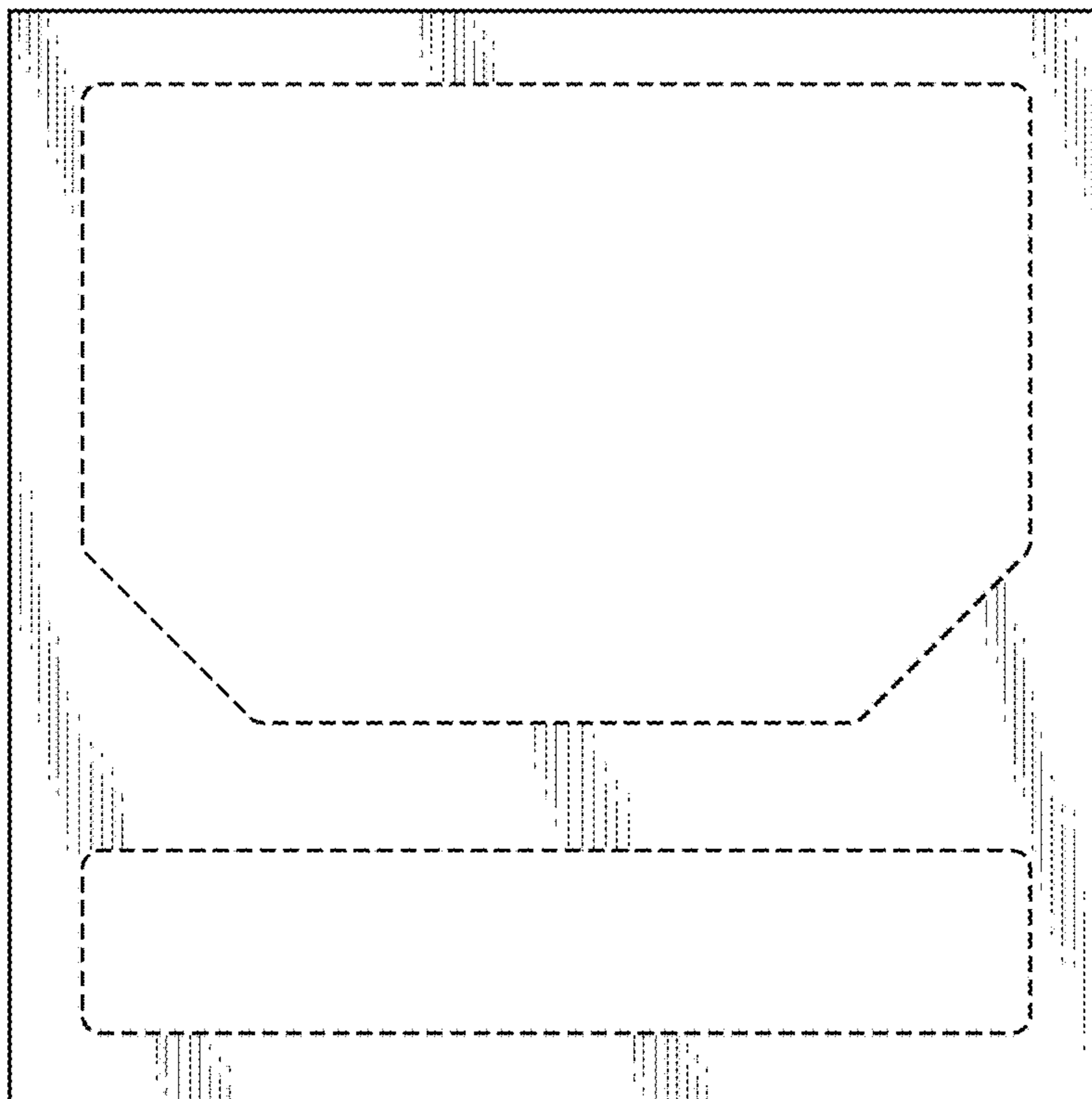


FIG. 4

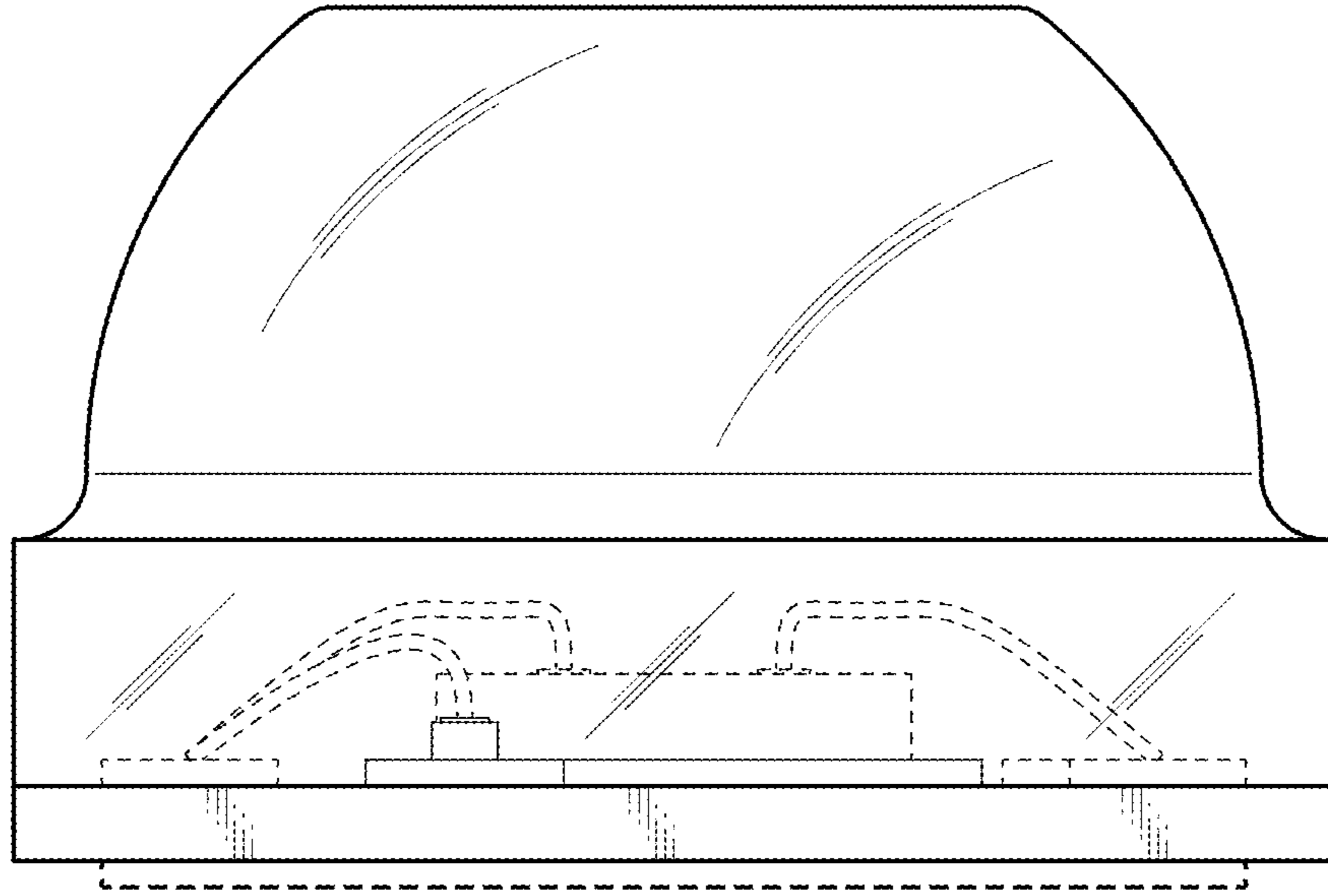


FIG. 5

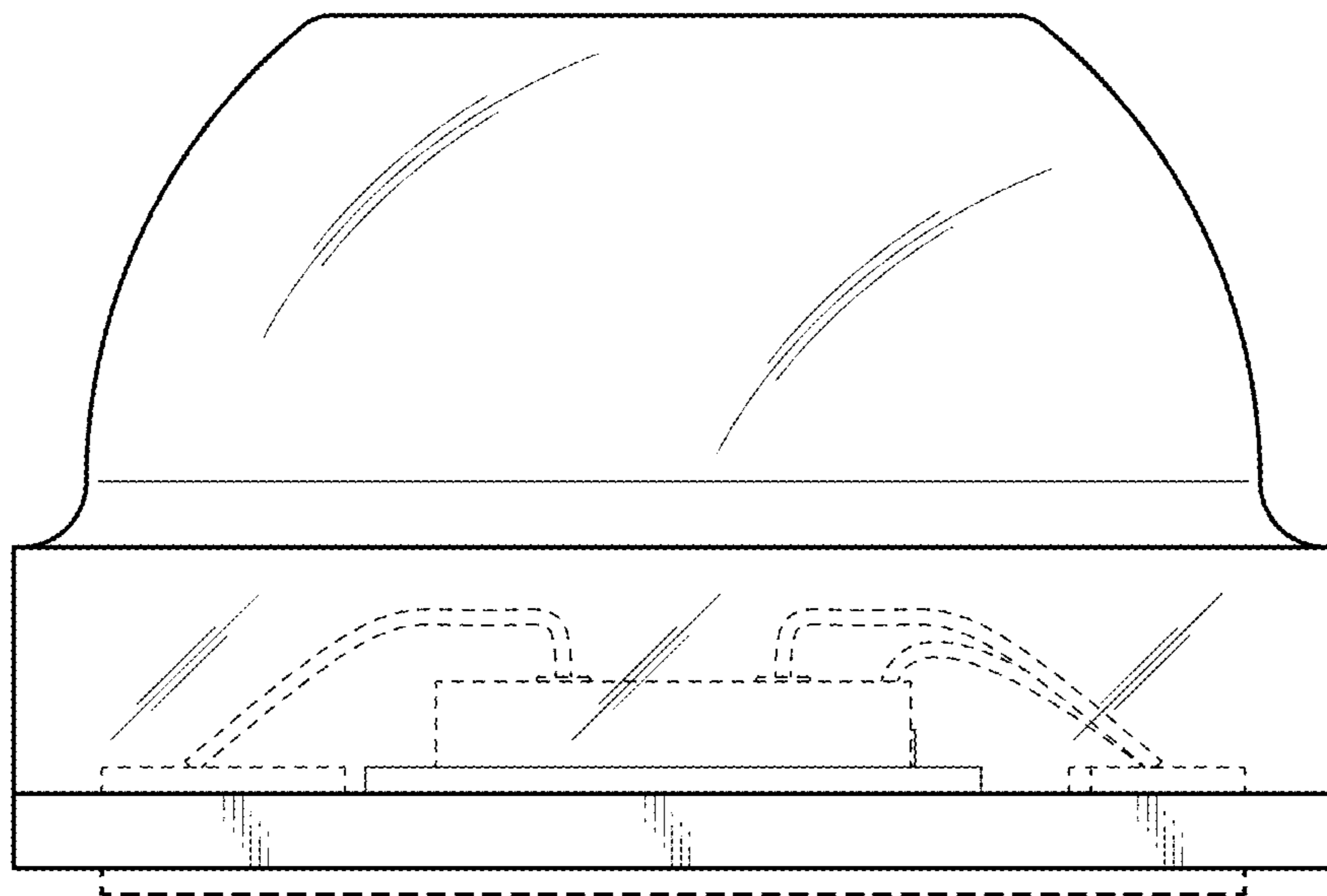


FIG. 6

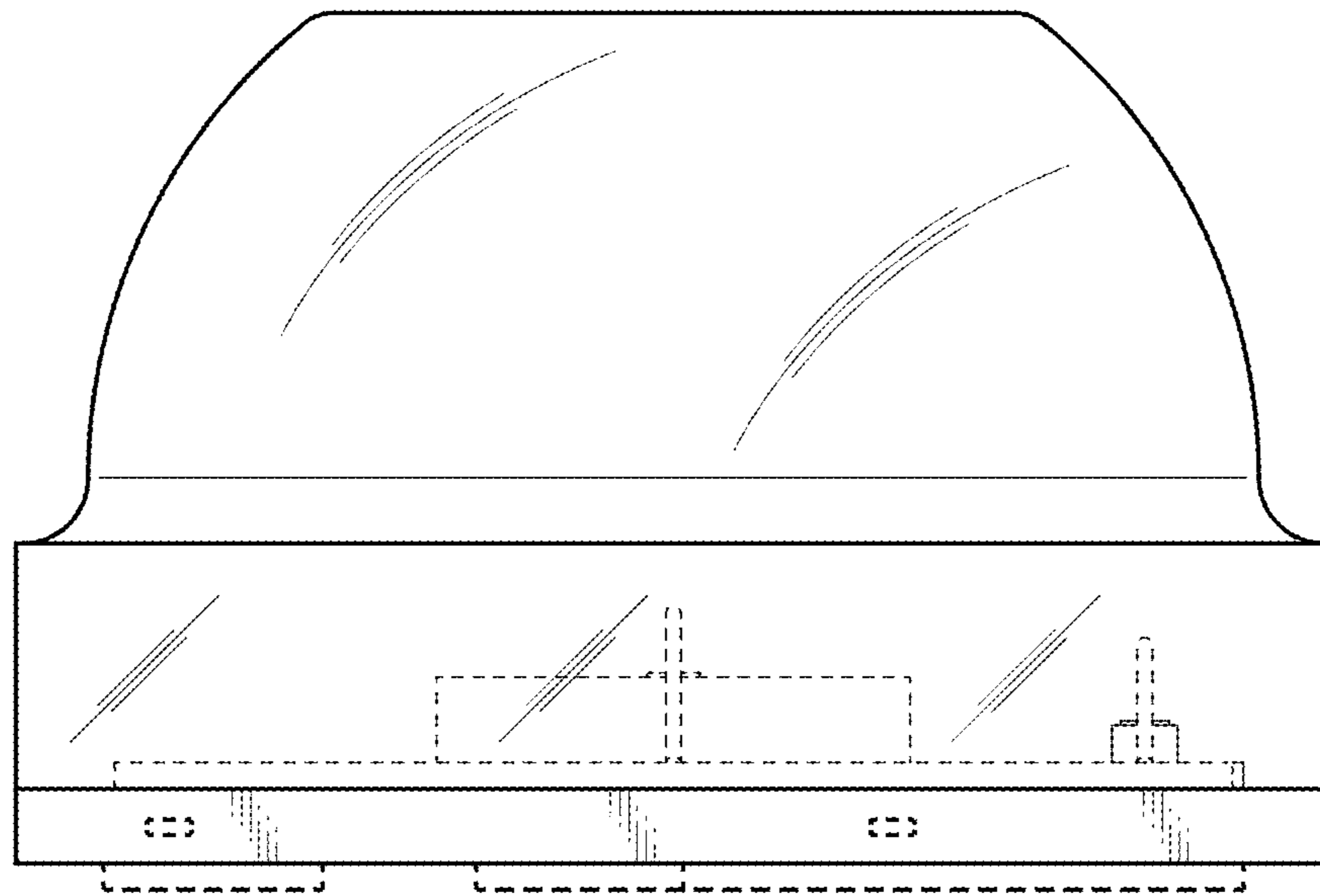


FIG. 7

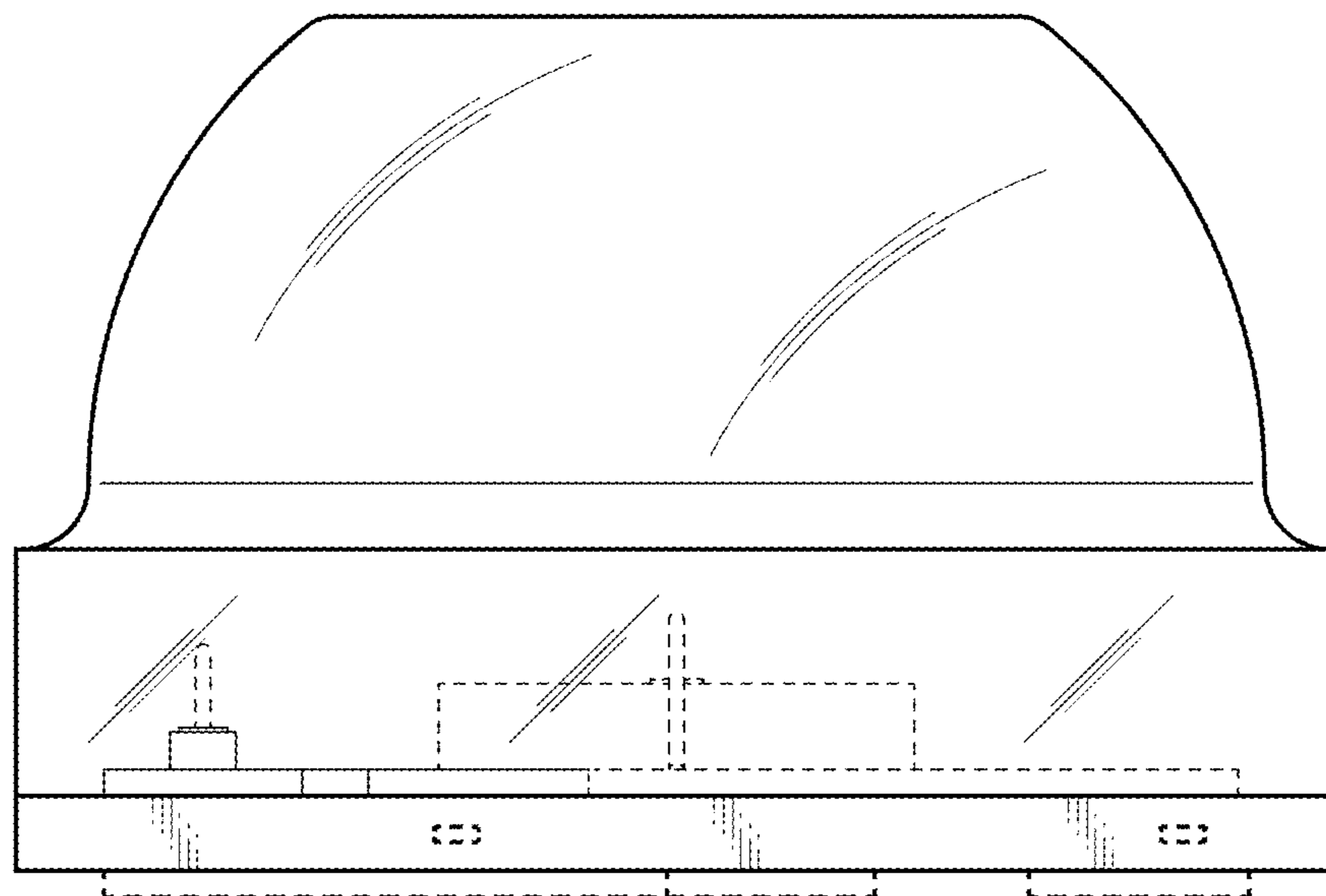


FIG. 8

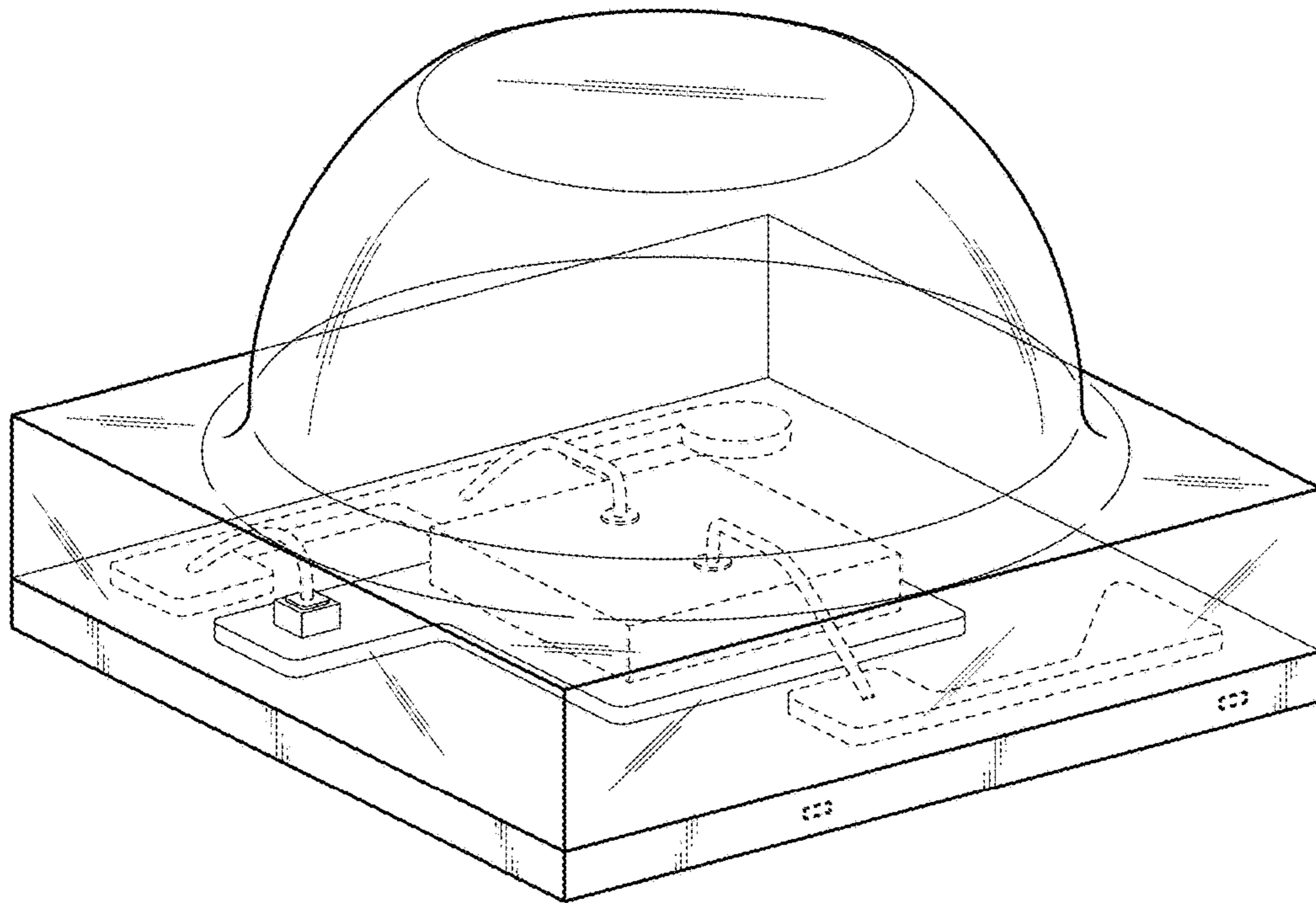


FIG. 9

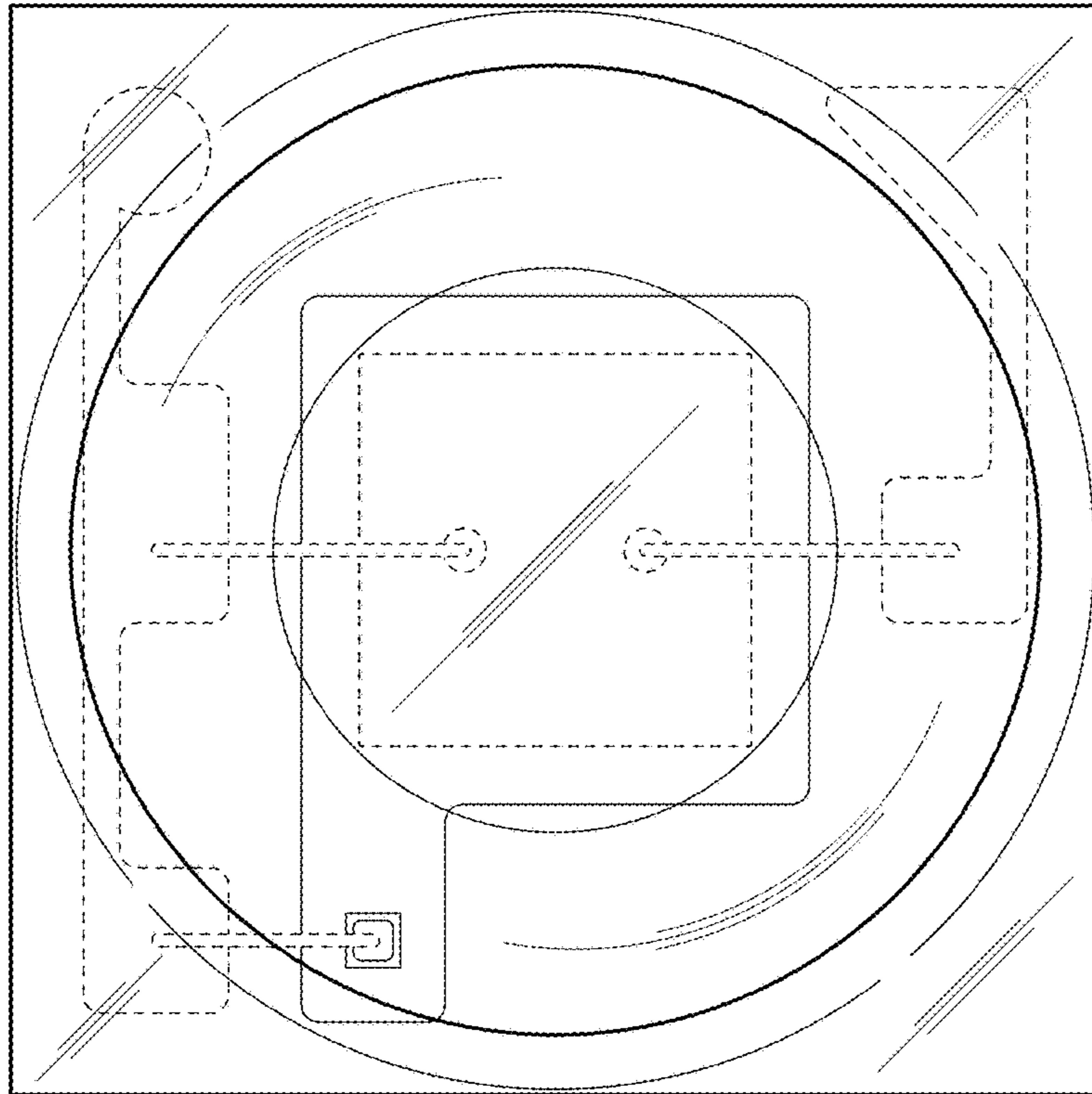


FIG. 10

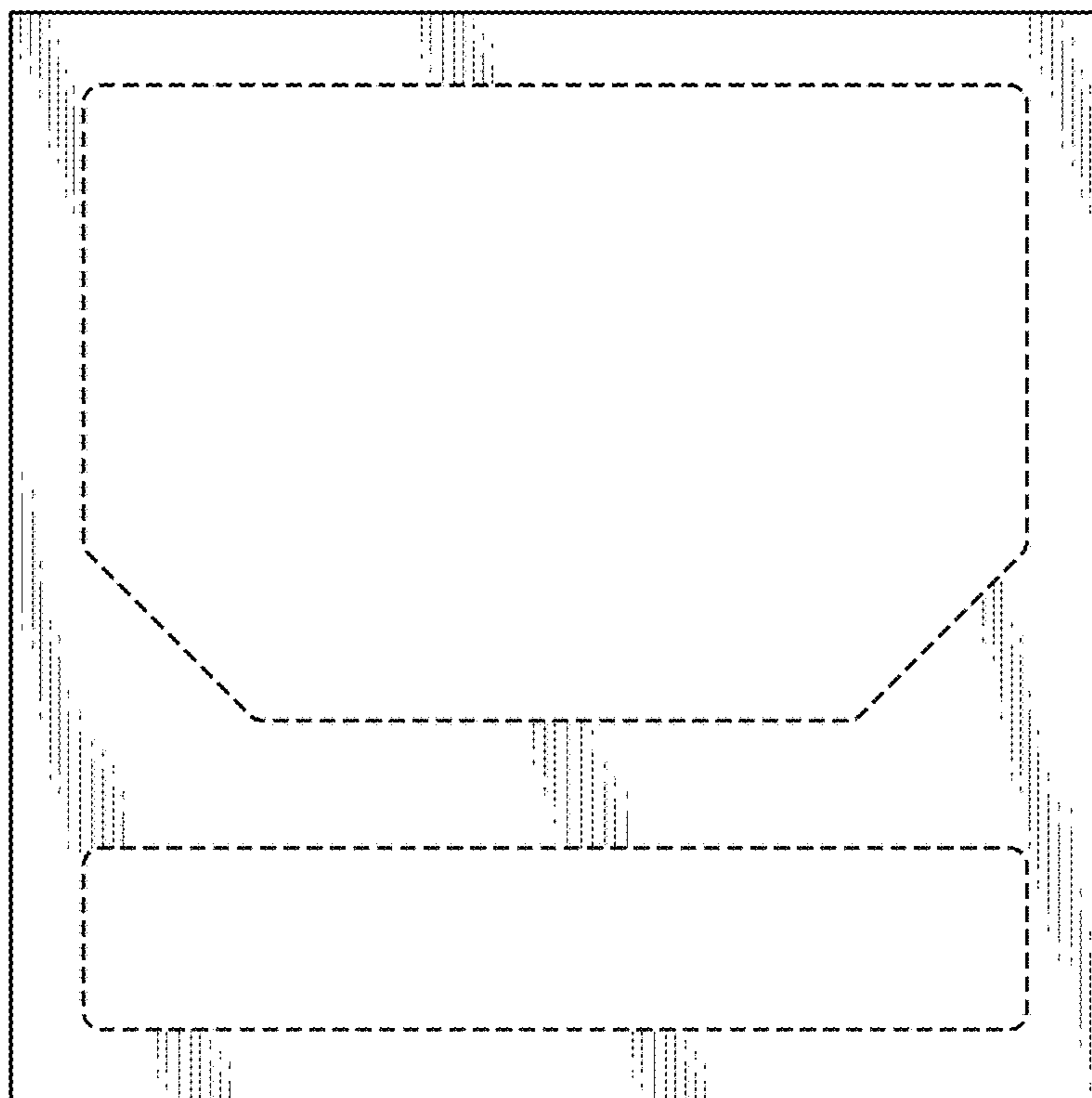


FIG. 11

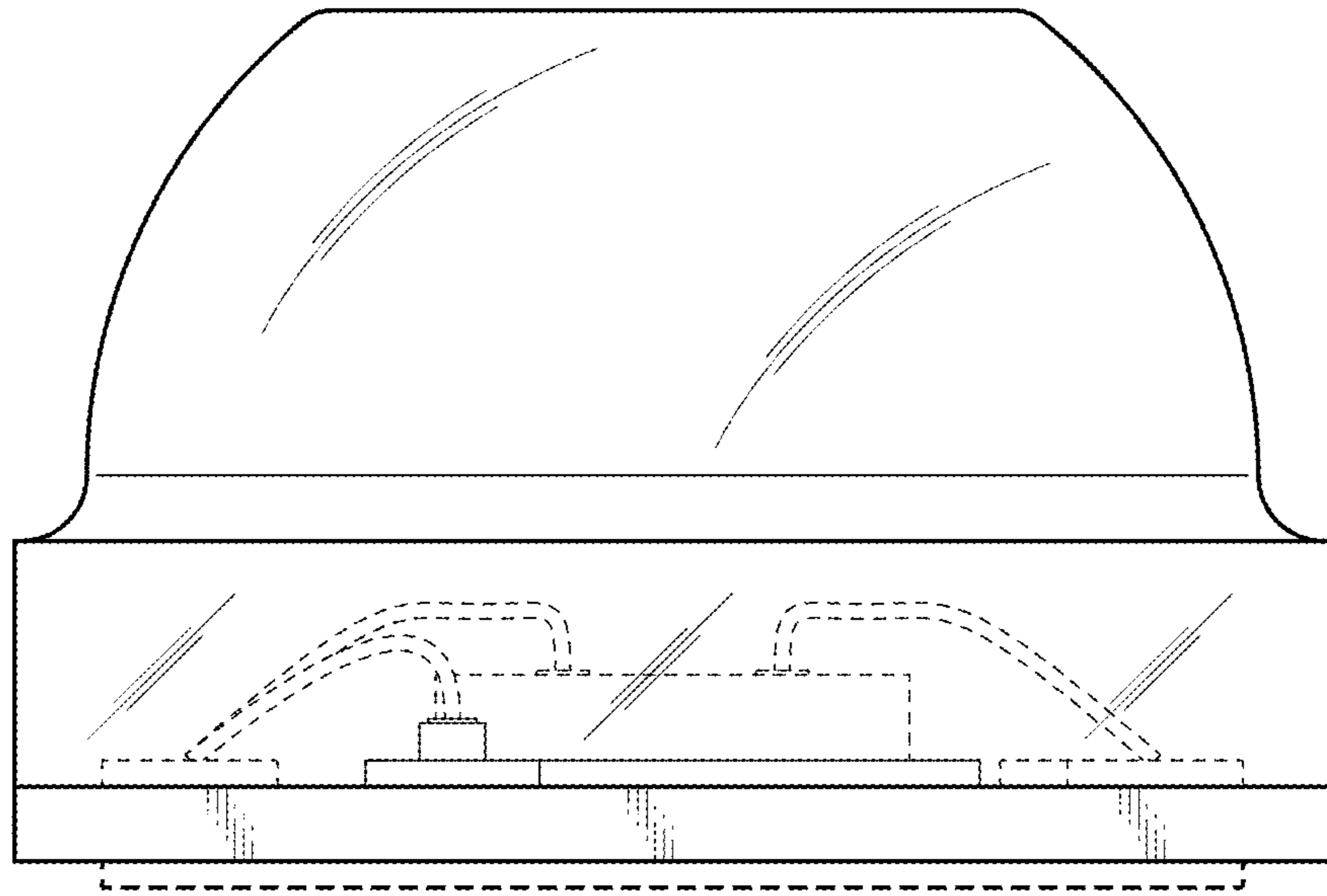


FIG. 12

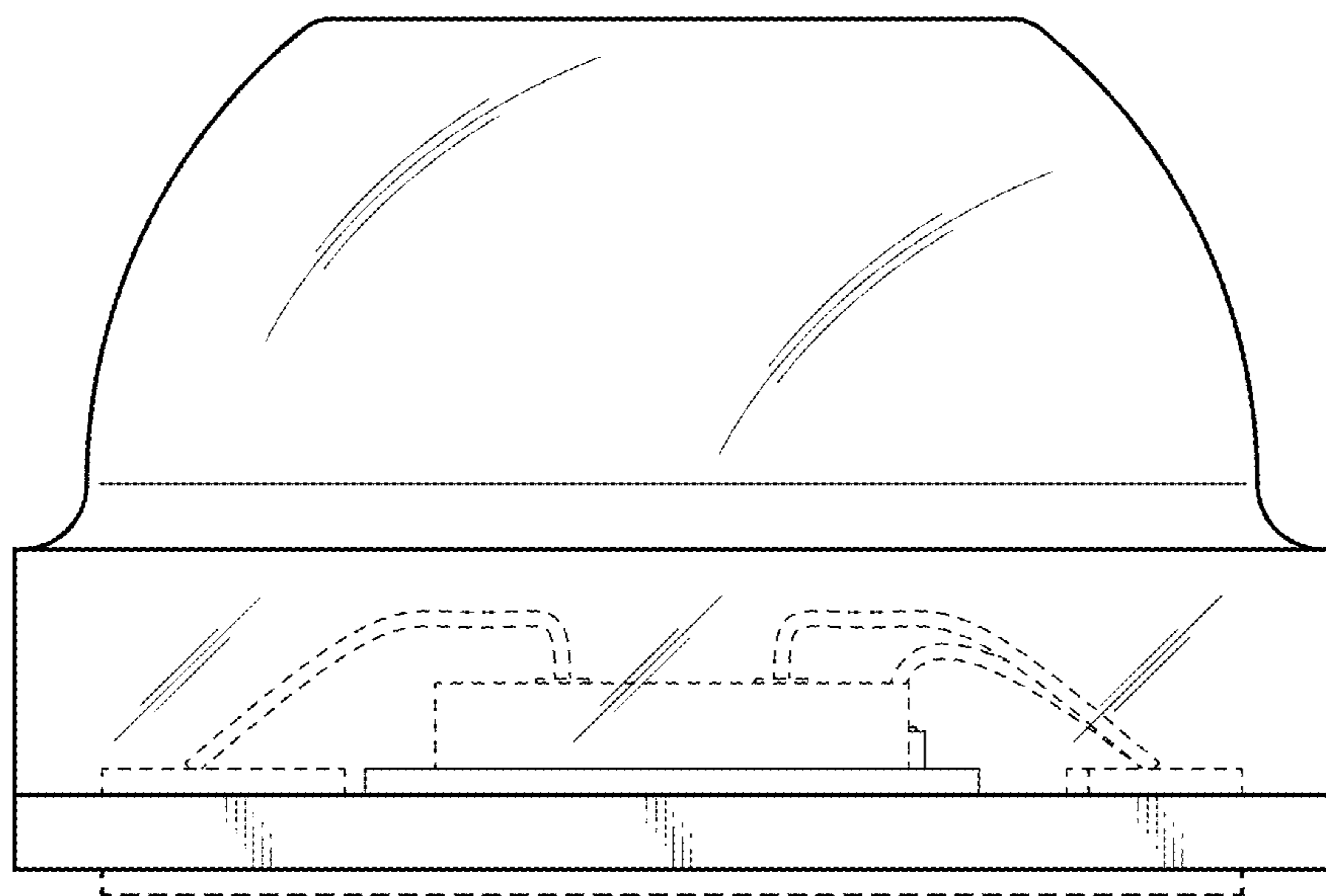


FIG. 13

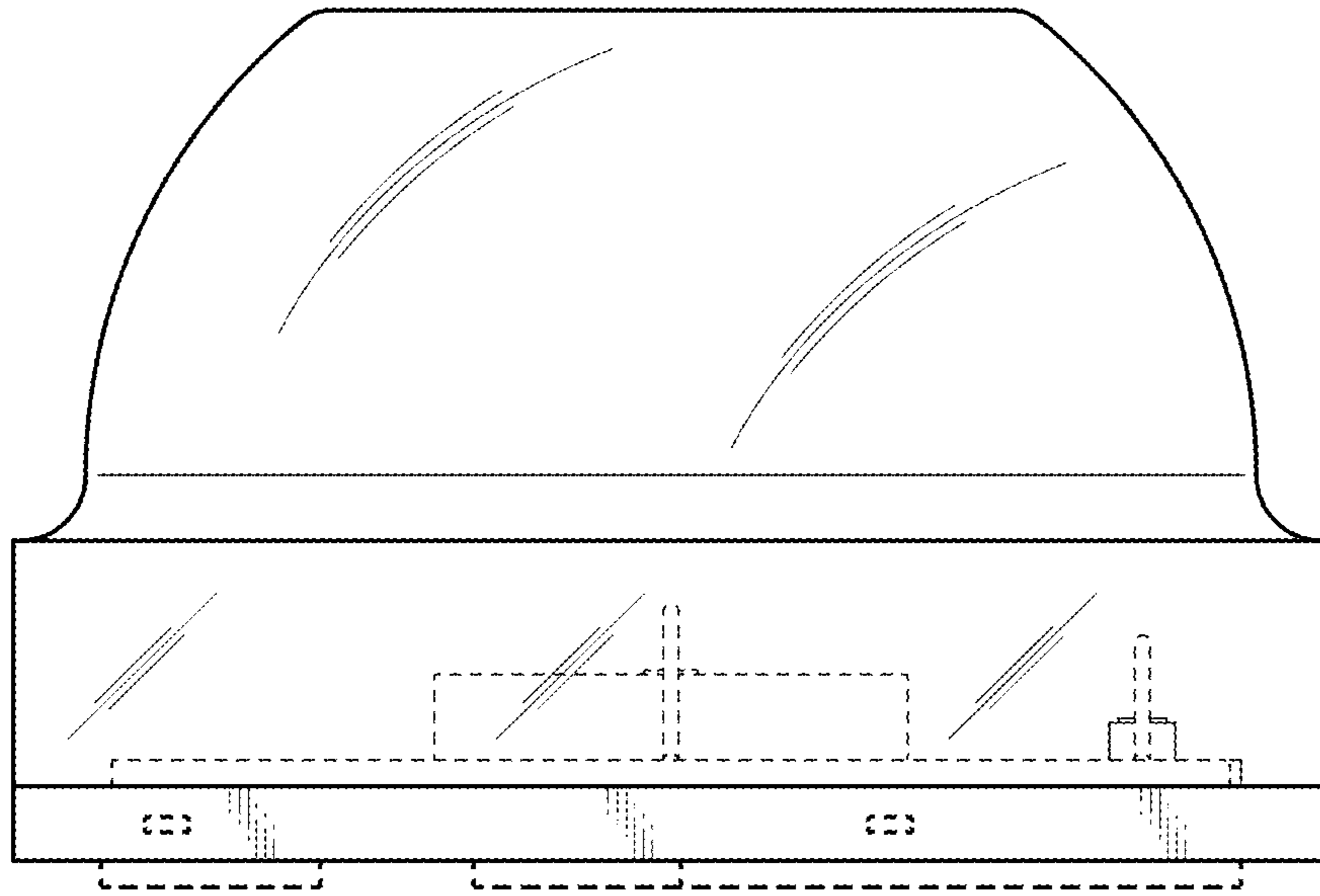


FIG. 14

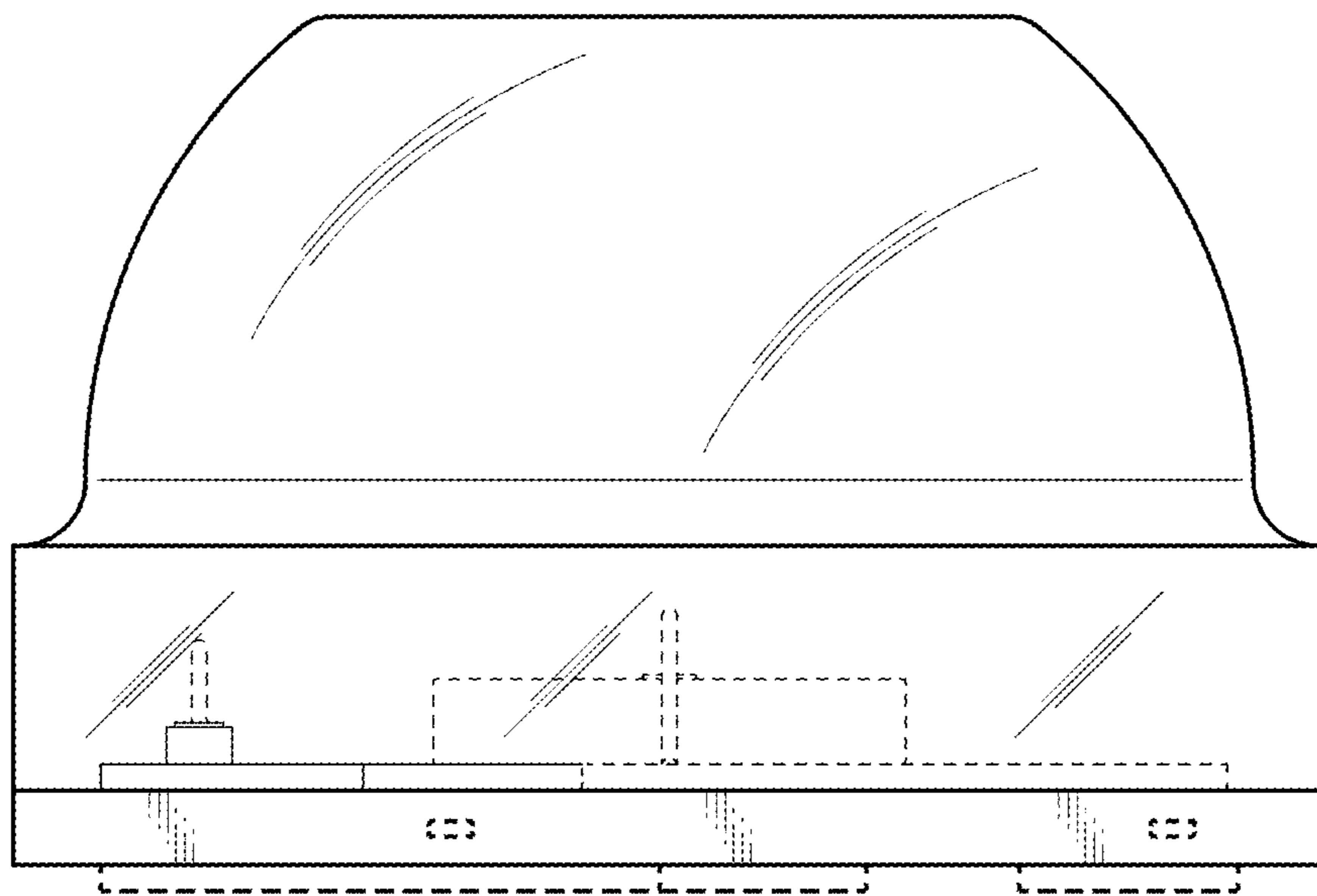


FIG. 15

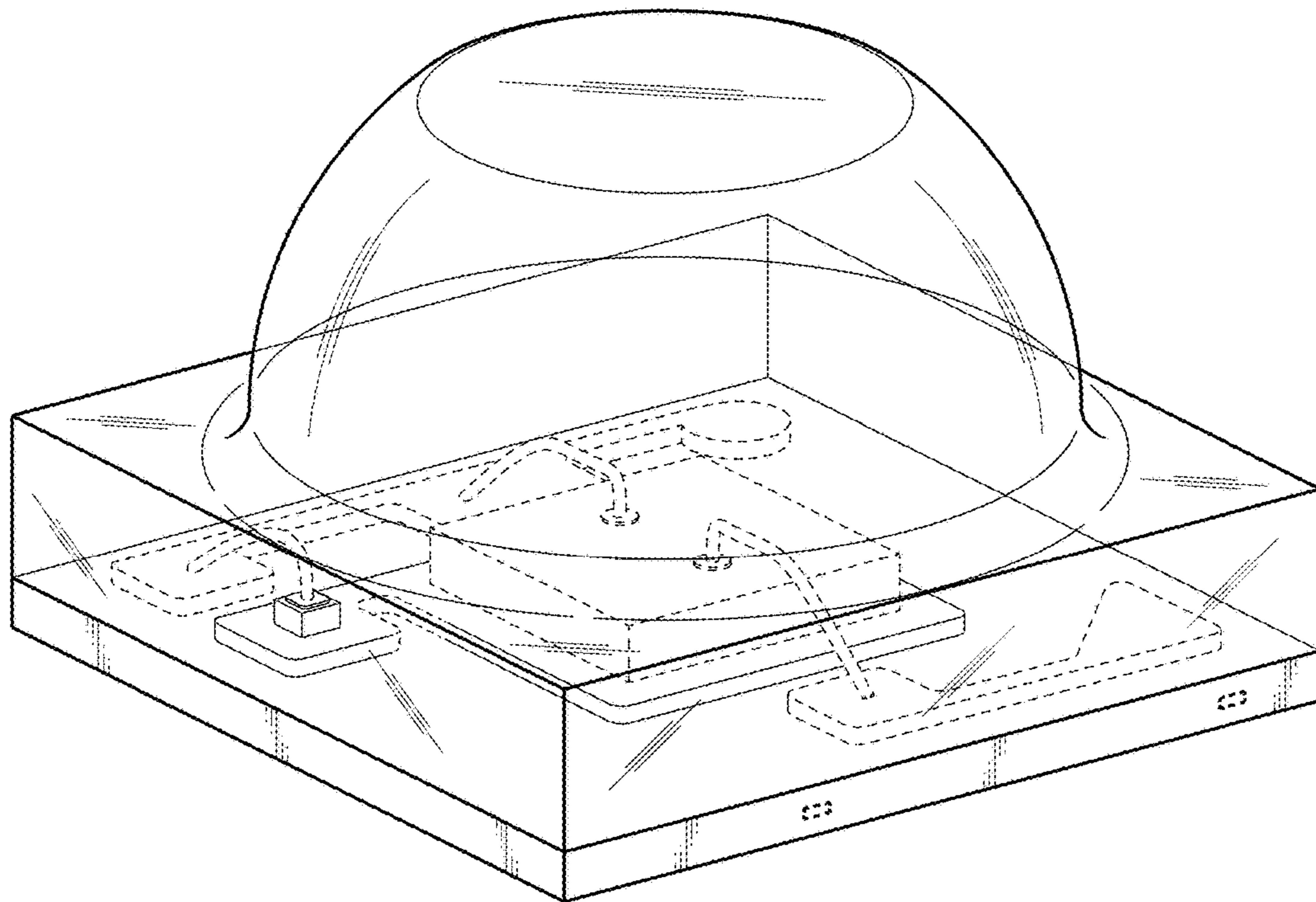


FIG. 16

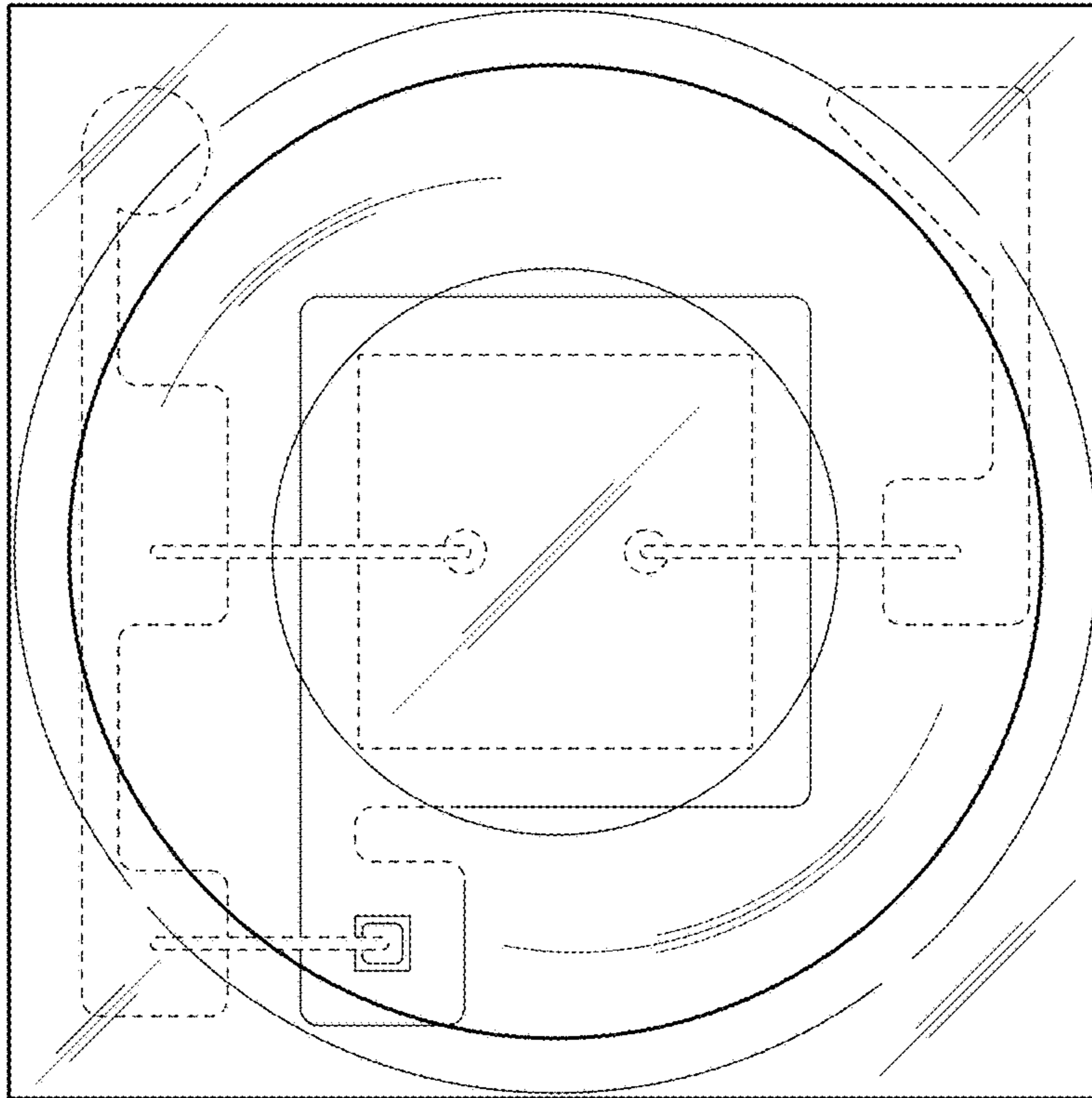


FIG. 17

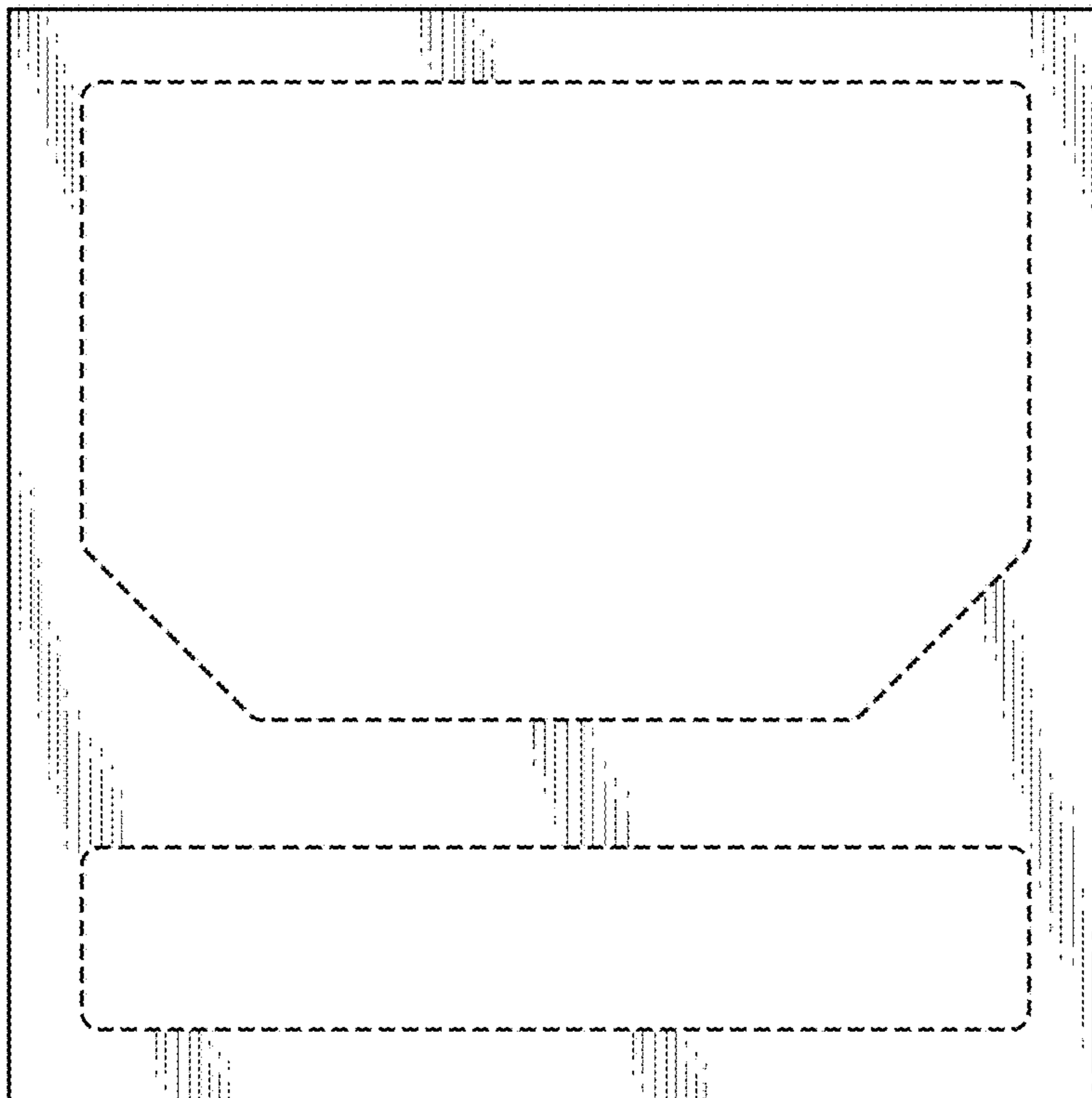


FIG. 18

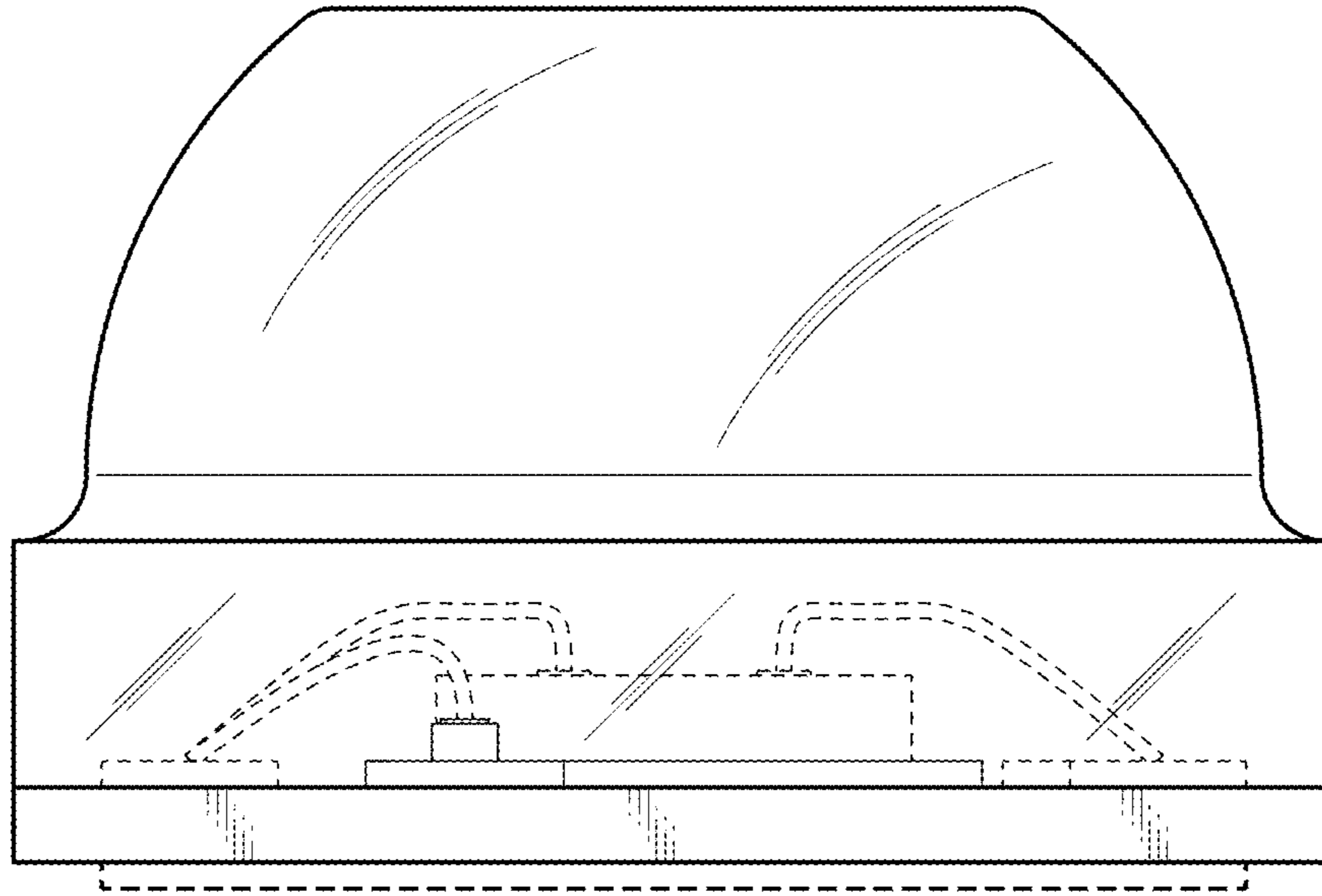


FIG. 19

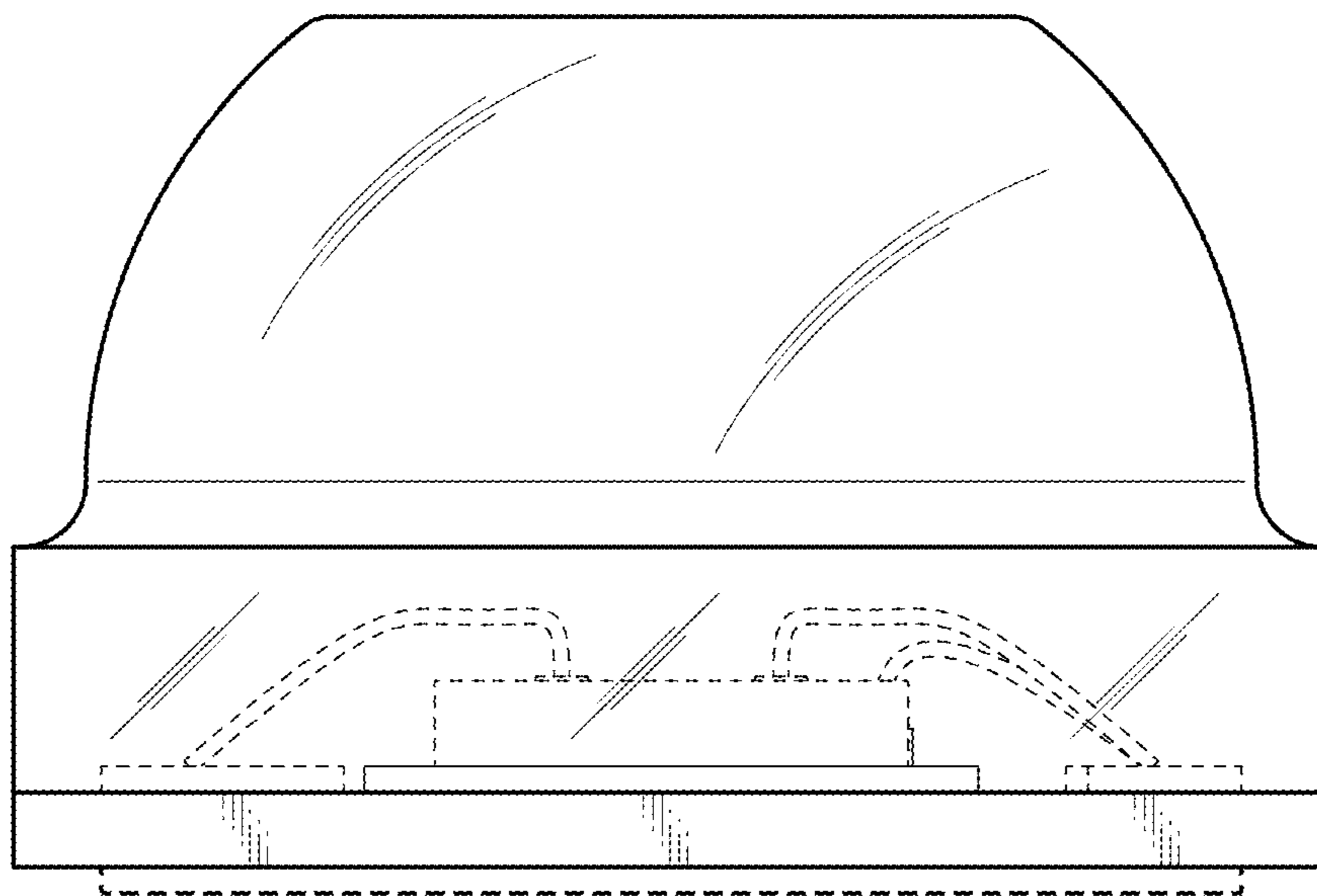


FIG. 20

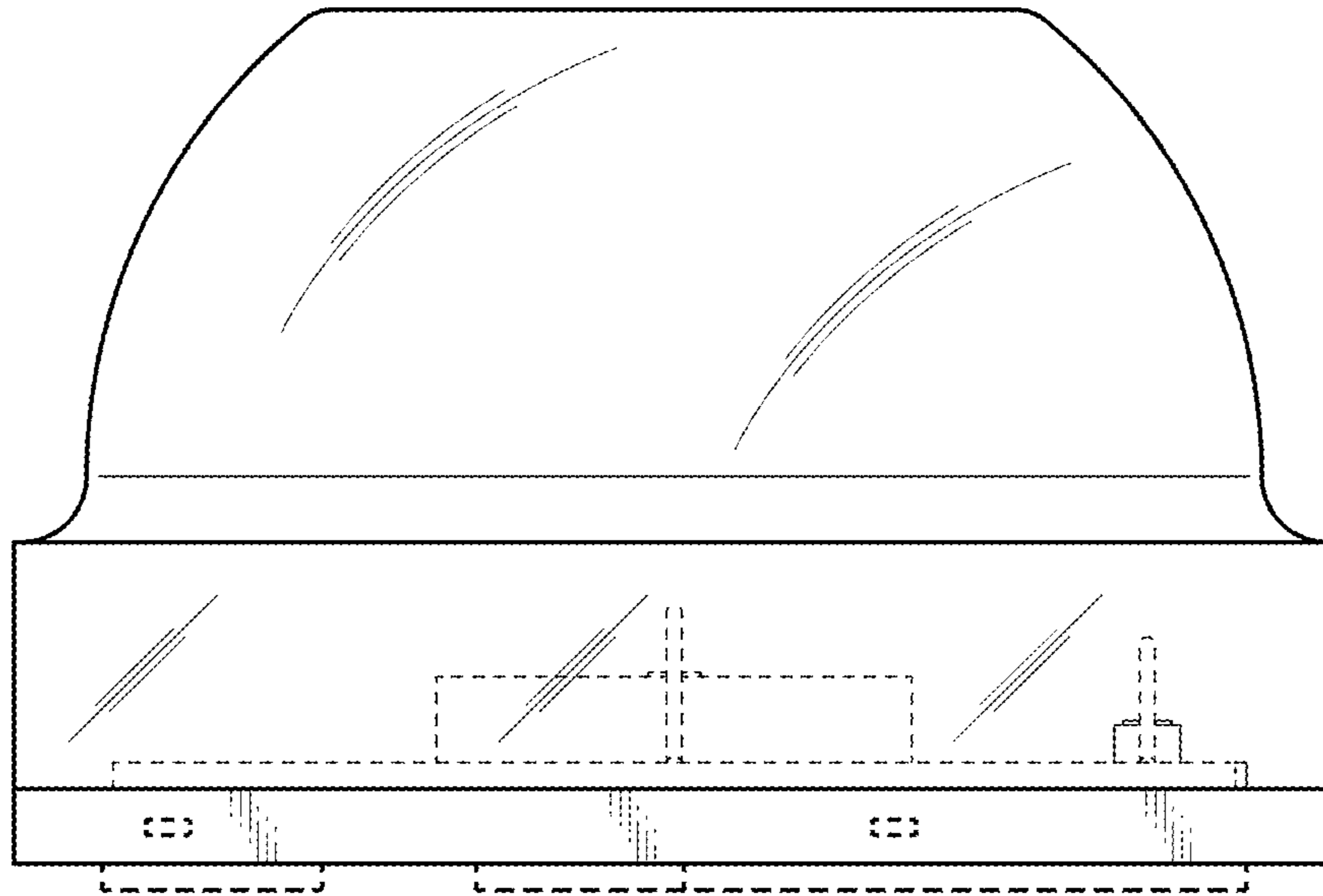


FIG. 21

