



US00D881814S

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

(10) **Patent No.:** **US D881,814 S**
(45) **Date of Patent:** **** Apr. 21, 2020**

(54) **OPTICAL FIBER CONNECTOR**

(71) Applicant: **SUMITOMO ELECTRIC INDUSTRIES, LTD.**, Osaka-shi, Osaka (JP)

(72) Inventors: **Takuro Watanabe**, Osaka (JP); **Dai Sasaki**, Osaka (JP); **Yoshikyo Tamekuni**, Osaka (JP); **Takako Hosokawa**, Osaka (JP)

(73) Assignee: **SUMITOMO ELECTRIC INDUSTRIES, LTD.**, Osaka-shi, Osaka (JP)

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

(21) Appl. No.: **29/634,398**

(22) Filed: **Jan. 22, 2018**

(30) **Foreign Application Priority Data**

Aug. 2, 2017 (JP) 2017-016725

(51) **LOC (12) Cl.** **13-03**

(52) **U.S. Cl.**
USPC **D13/133; D13/147**

(58) **Field of Classification Search**
USPC D13/110, 123, 133, 146, 147, 149, 153, D13/154, 156, 173, 177, 178, 184, 199; D14/480.1, 480.5, 480.6, 480.7, 484.1
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,397,513 A * 8/1983 Clark H05K 5/026
439/357
D587,266 S * 2/2009 Deguchi D14/480.7
(Continued)

OTHER PUBLICATIONS

LC Fiber Optic Adapter With Shutter, dated Jul. 23, 2017, [online], [site visited Dec. 3, 2019]. Available from Internet, URL: <http://www.springoptical.com/fiber-optic-adapters/lc-fiber-adapters/lc-fiber-optic-adapter-with-shutter.html> (Year: 2017).*

www.springoptical.com/fiber-optic-adapters/lc-fiber-adapters/lc-fiber-optic-adapter-with-shutter.html (Year: 2017).*

(Continued)

Primary Examiner — Angela J Lee

Assistant Examiner — Shawn T Gingrich

(74) *Attorney, Agent, or Firm* — Faegre Drinker Biddle & Reath LLP

(57) **CLAIM**

The ornamental design for an optical fiber connector, as shown and described.

DESCRIPTION

FIG. 1 is a front view of an optical fiber connector of the present invention;
FIG. 2 is a rear view thereof;
FIG. 3 is a top plan view thereof;
FIG. 4 is a bottom plan view thereof;
FIG. 5 is a right side view thereof;
FIG. 6 is a left side view thereof;
FIG. 7 is a front, top plan and left side perspective view thereof;
FIG. 8 is a rear, bottom plan and right side perspective view thereof;
FIG. 9 is a cross-sectional view along the line 9-9 in FIG. 1;
FIG. 10 is a cross-sectional view along the line 10-10 in FIG. 6;
FIG. 11 is a front view in the first alternate position thereof;
FIG. 12 is a left side view in the first alternate position thereof;
FIG. 13 is a cross-sectional view along the line 13-13 in FIG. 12;
FIG. 14 is a front view in the second alternate position thereof;
FIG. 15 is a left side view in the second alternate position thereof;
FIG. 16 is a cross-sectional view along the line 16-16 in FIG. 15;
FIG. 17 is a front view in the third alternate position thereof;
FIG. 18 is a rear view in the third alternate position thereof;

(Continued)

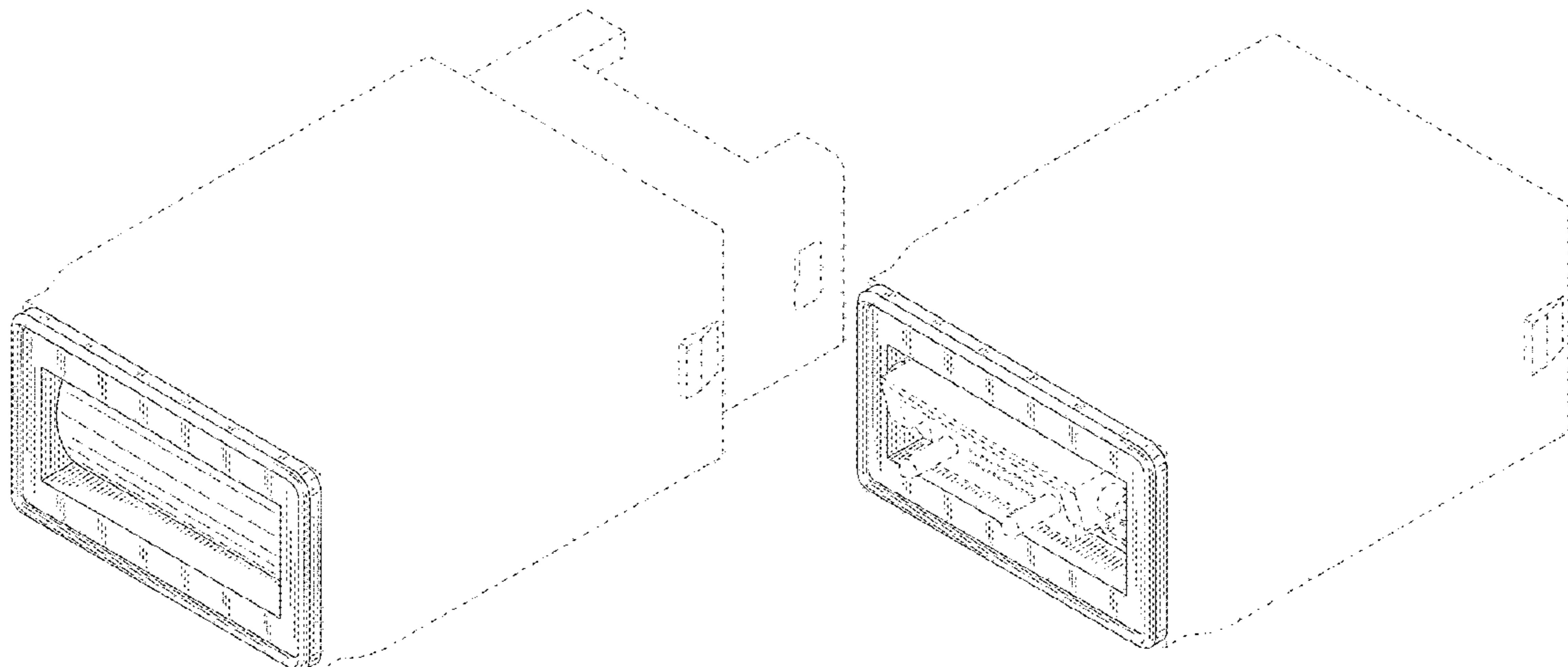


FIG. 19 is a top plan view in the third alternate position thereof;
 FIG. 20 is a bottom plan view in the third alternate position thereof;
 FIG. 21 is a right side view in the third alternate position thereof;
 FIG. 22 is a left side view in the third alternate position thereof;
 FIG. 23 is a front, top plan and left side perspective view in the third alternate position thereof;
 FIG. 24 is a rear, bottom plan and right side perspective view in the third alternate position thereof;
 FIG. 25 is a cross-sectional view along the line 25-25 in FIG. 22;
 FIG. 26 is an enlarged left side view of the seal, the housing and shutter have been removed for illustrative clarity;
 FIG. 27 is an enlarged perspective view showing the right side part of the seal;
 FIG. 28 is a cross-sectional view along the line 28-28 in FIG. 26;
 FIG. 29 is a cross-sectional view along the line 29-29 in FIG. 26;
 FIG. 30 is an enlarged perspective view showing the left side part of the shutter, the housing and seal have been removed for illustrative clarity;
 FIG. 31 is an enlarged top plan view of the shutter; and,
 FIG. 32 is an enlarged left side view of the shutter.
 The features shown in evenly-dashed broken lines depict environmental subject matter only and form no part of the claimed design. The dot-dash broken lines in the drawings represent the bounds of the claimed subject matter, the dot-dash lines, themselves forming no part thereof.

1 Claim, 32 Drawing Sheets

(58) **Field of Classification Search**
 CPC . G02B 6/32; G02B 6/38; G02B 6/382; G02B 6/3831; G02B 6/3849; G02B 6/3885;

G02B 6/3887; H01R 12/24; H01R 13/00;
 H01R 13/24; H01R 13/458; H01R 13/64
 See application file for complete search history.

(56)

References Cited

U.S. PATENT DOCUMENTS

D616,371	S *	5/2010	Ma	.....	D13/147
D617,331	S *	6/2010	Lo	.....	D14/480.7
D618,623	S *	6/2010	Peng	.....	D13/147
D675,568	S *	2/2013	Drew	.....	D13/133
D746,779	S *	1/2016	Kato	.....	D13/147
9,453,963	B2 *	9/2016	Sato	.....	G02B 6/241
D828,305	S *	9/2018	Tsai	.....	D13/147
D829,175	S *	9/2018	Terajima	.....	D13/133
D834,518	S *	11/2018	Hung	.....	D13/133
D839,198	S *	1/2019	Chadbourne	.....	D13/133
D842,814	S *	3/2019	Tsai	.....	D13/147
2003/0169974	A1 *	9/2003	Ngo	.....	G02B 6/3825 385/72
2007/0217749	A1 *	9/2007	Jong	.....	G02B 6/3849 385/88
2011/0058774	A1 *	3/2011	Gurreri	.....	G02B 6/3831 385/78
2013/0108233	A1 *	5/2013	Lin	.....	G02B 6/3849 385/139
2015/0104135	A1 *	4/2015	Bushnell	.....	G02B 6/3885 385/79
2016/0259135	A1 *	9/2016	Gniadek	.....	G02B 6/3885
2016/0349459	A1 *	12/2016	Collier	.....	G02B 6/3849
2019/0187385	A1 *	6/2019	Watanabe	.....	G02B 6/38
2019/0346630	A1 *	11/2019	Yang	.....	G02B 6/3866

OTHER PUBLICATIONS

SC shutter patch cord, dated Aug. 29, 2018, [online], [site visited Dec. 3, 2019]. Available from Internet, URL: http://www.wirenet-tech.com/index.php/products_v_20_178.html (Year: 2018).*
 Fiberwe SC adapter with shutter, dated Aug. 18, 2018, [online], [site visited Dec. 3, 2019]. Available from Internet, URL: <http://fiberwe.com/products/fiber-optic-components/converters-adapters/sc-connector-adapter.htm> (Year: 2018).*

* cited by examiner

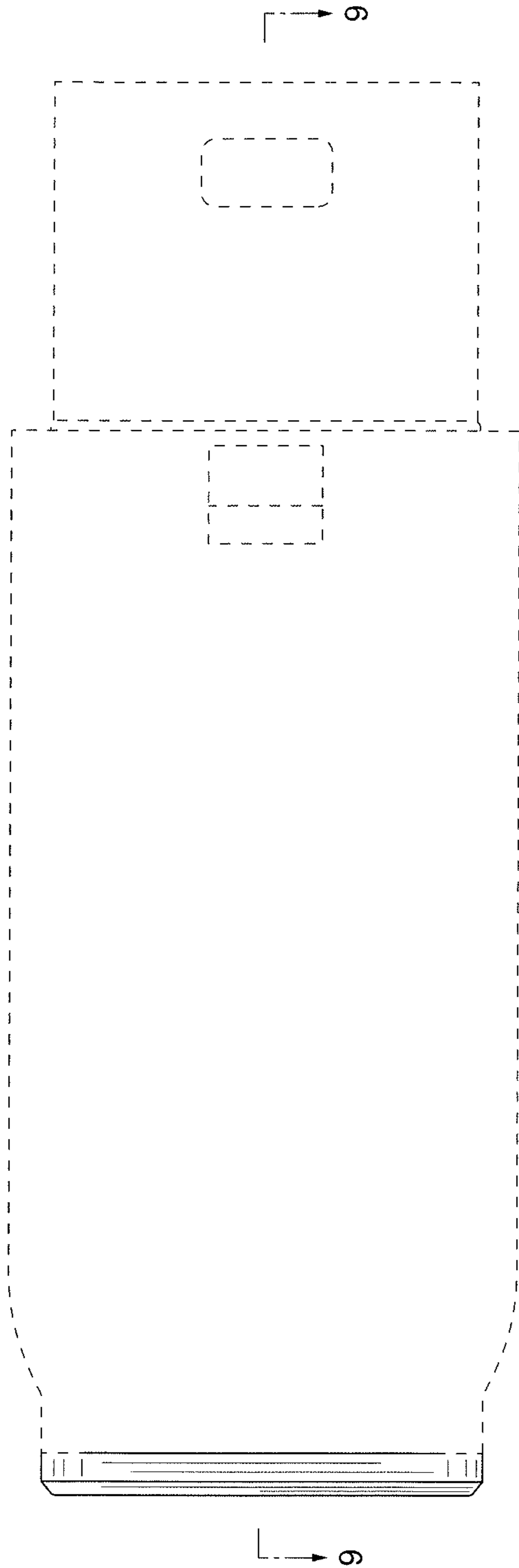


FIG. 1

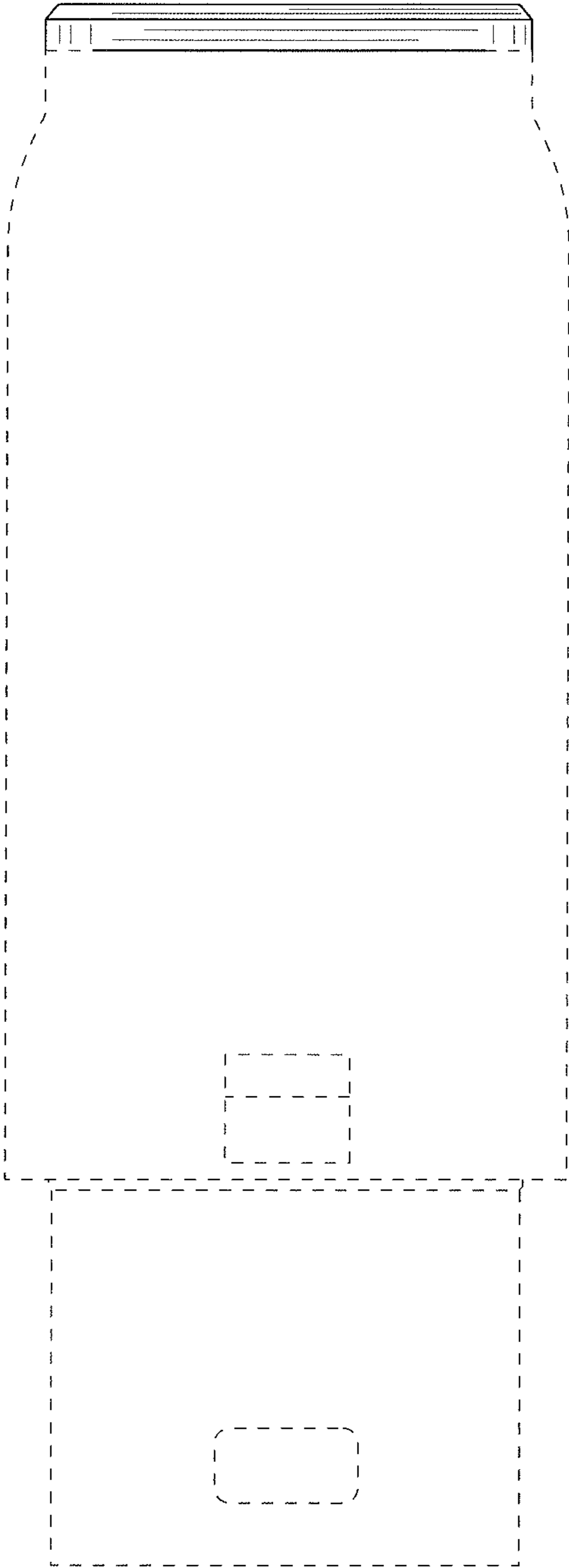


FIG. 2

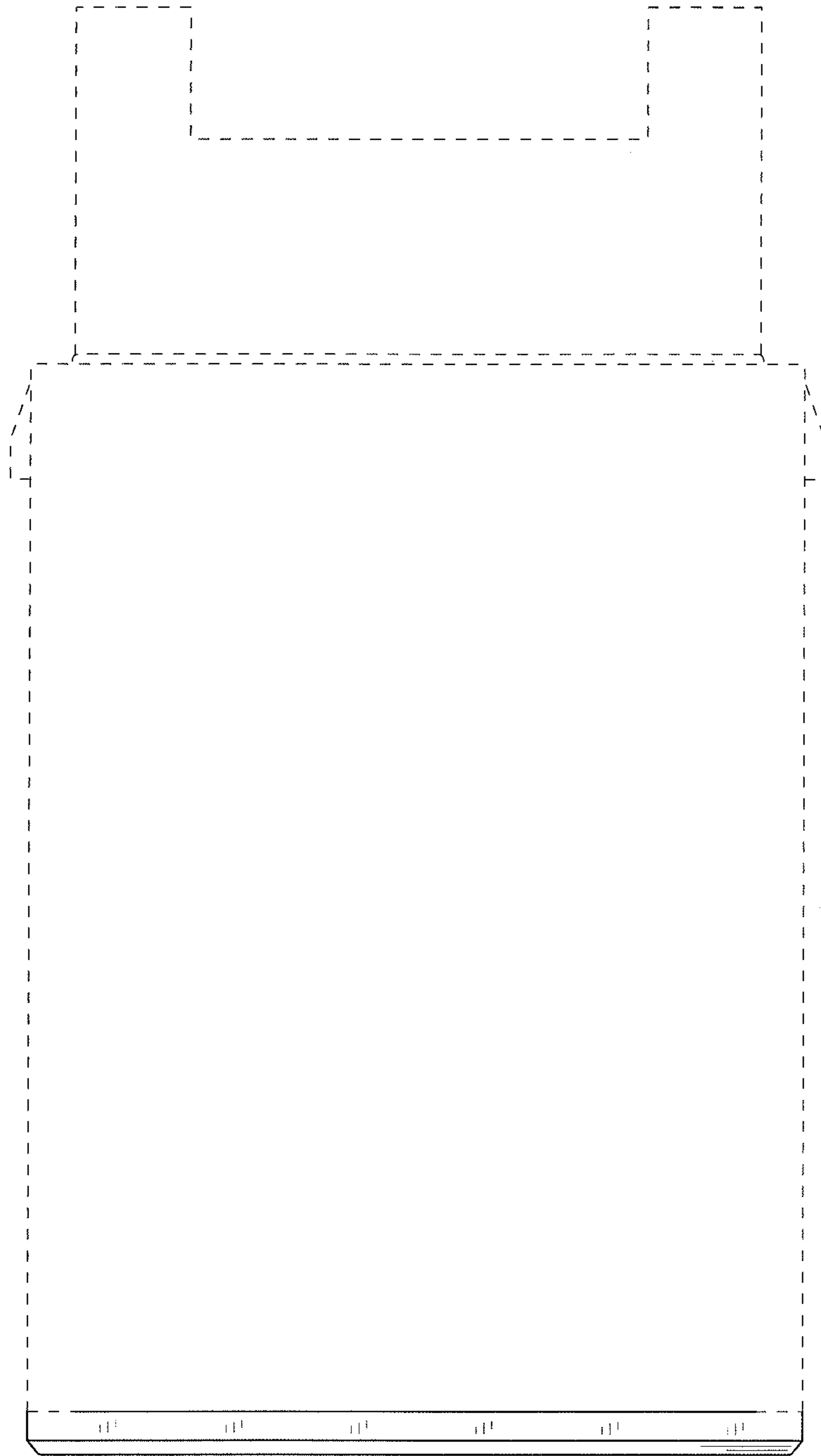


FIG. 3

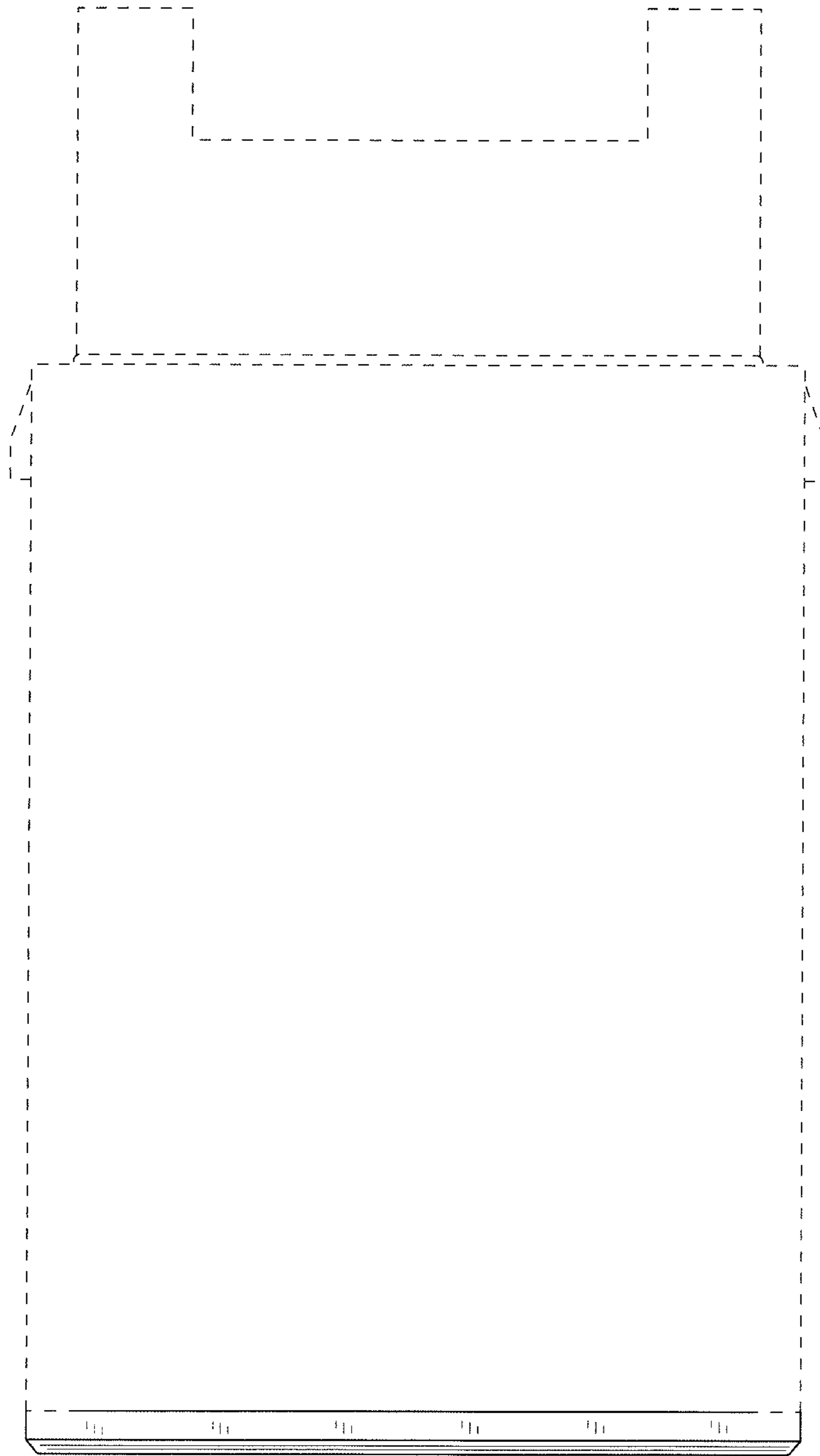


FIG. 4

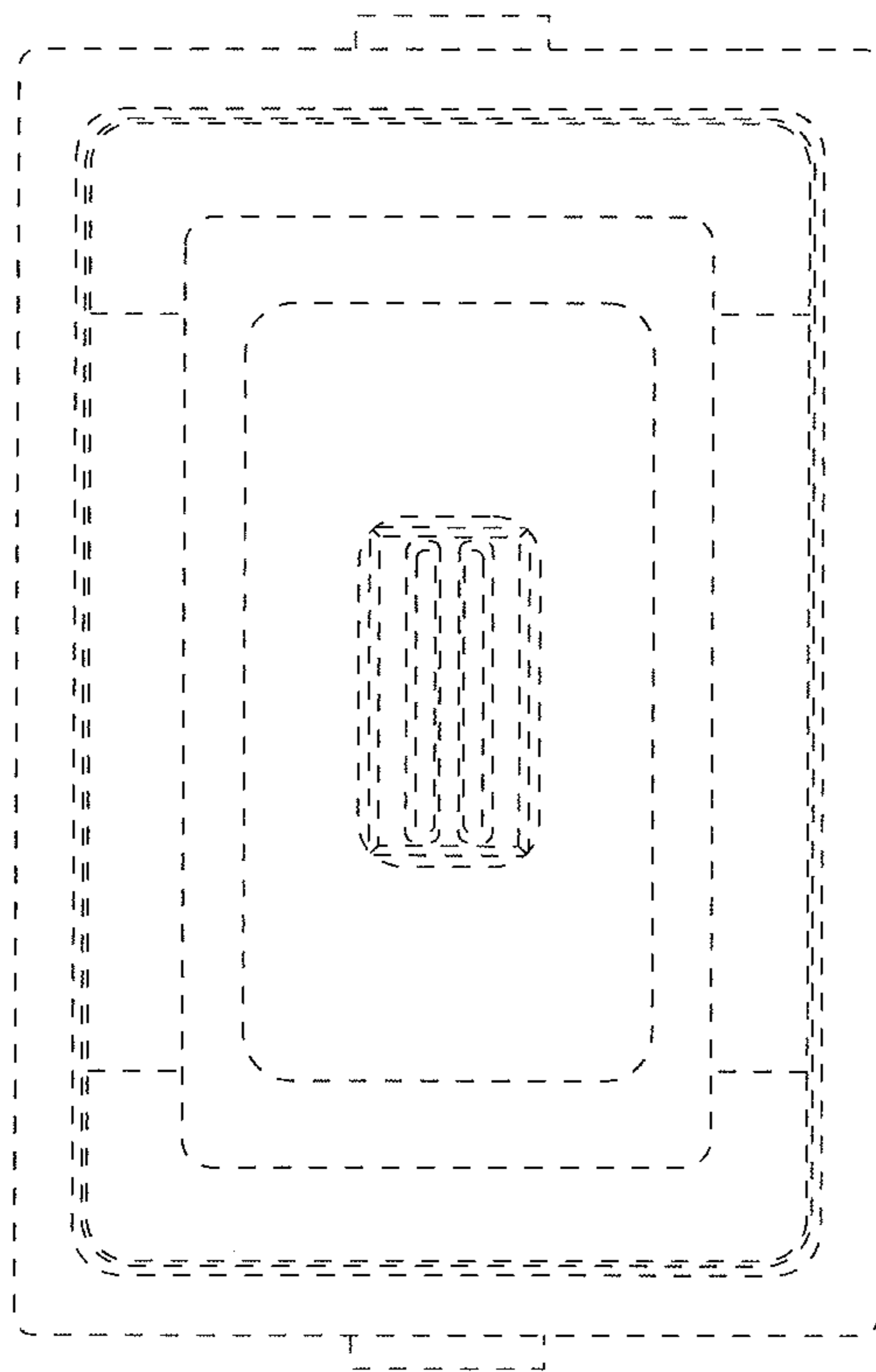


FIG. 5

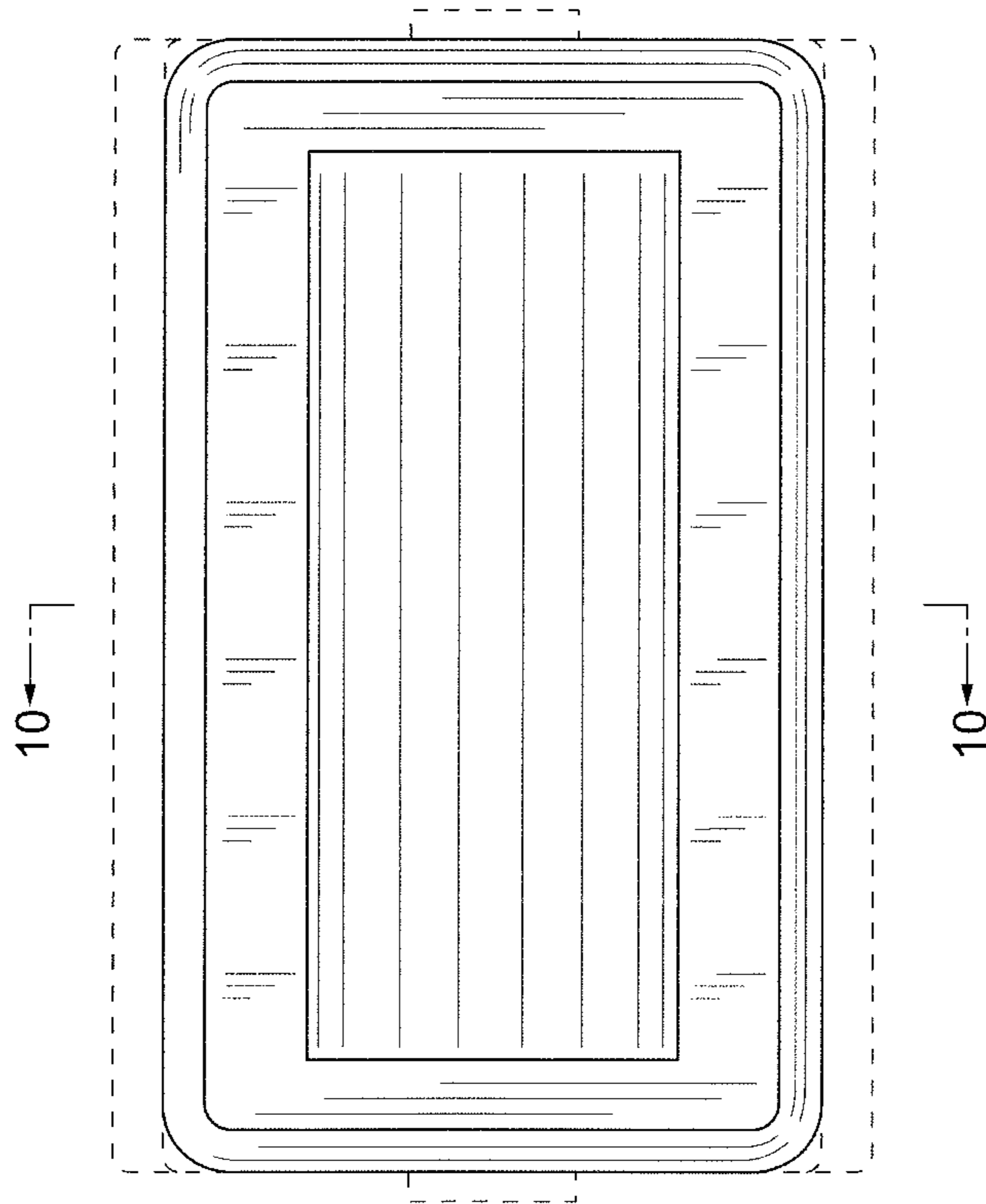


FIG. 6

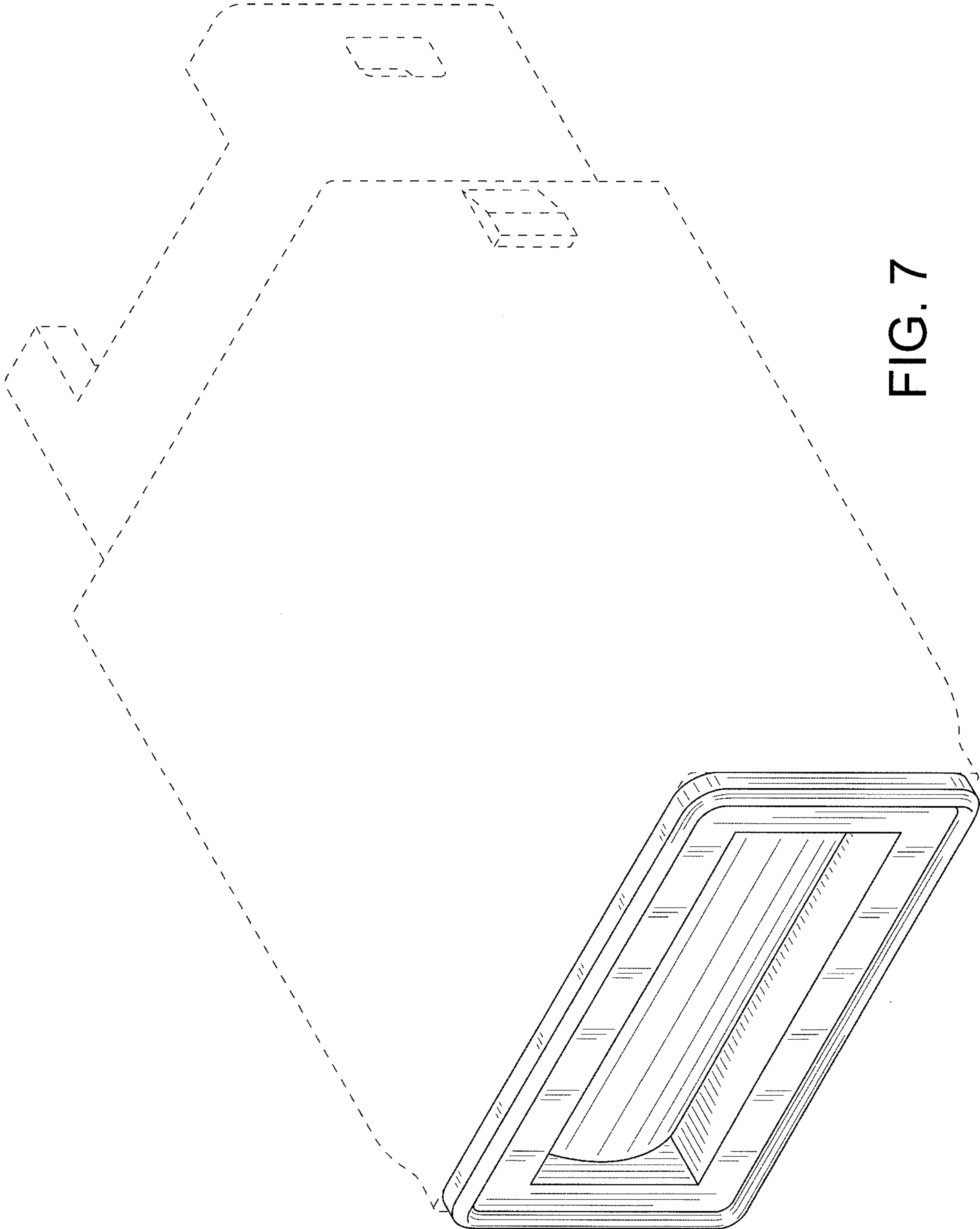


FIG. 7

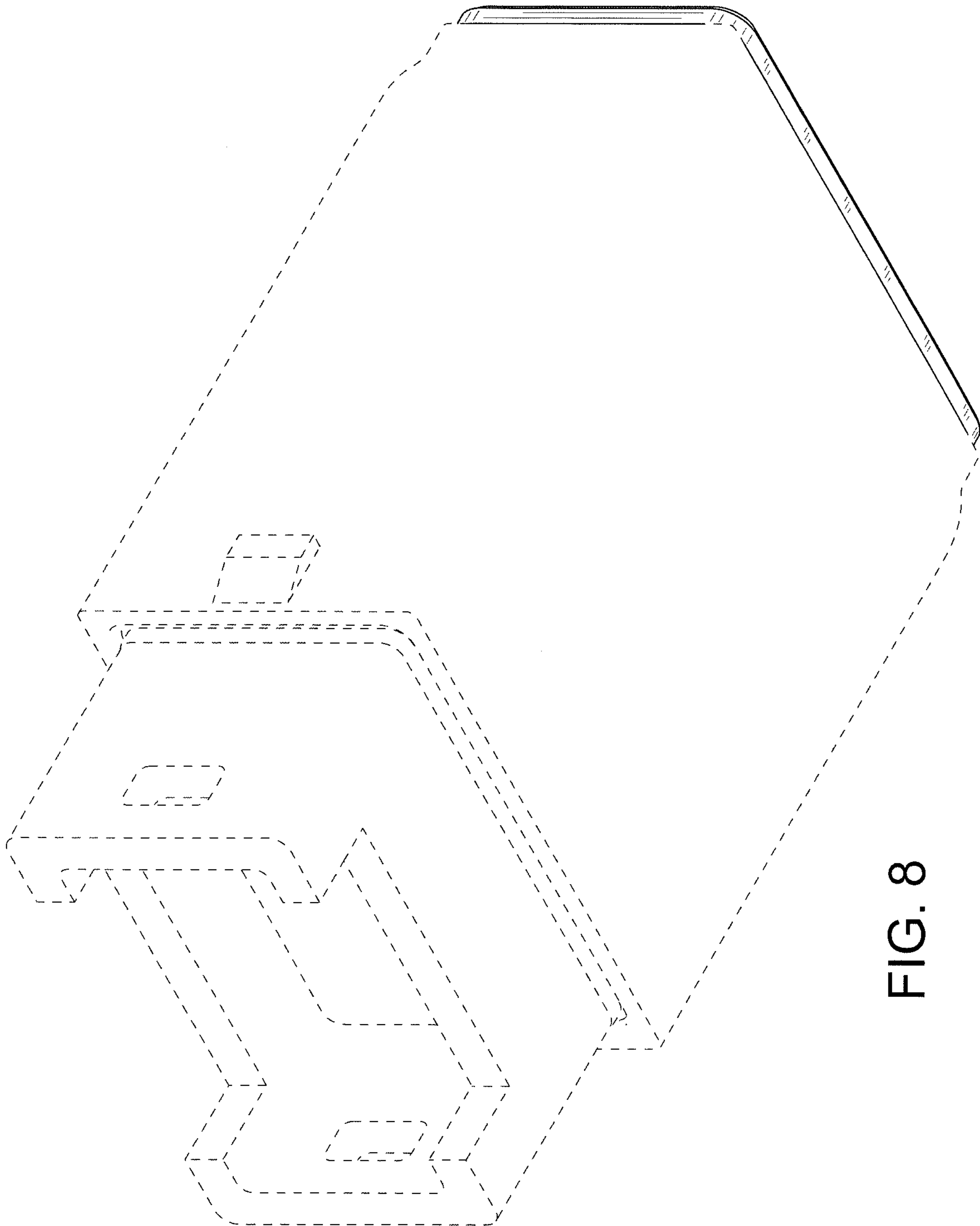


FIG. 8

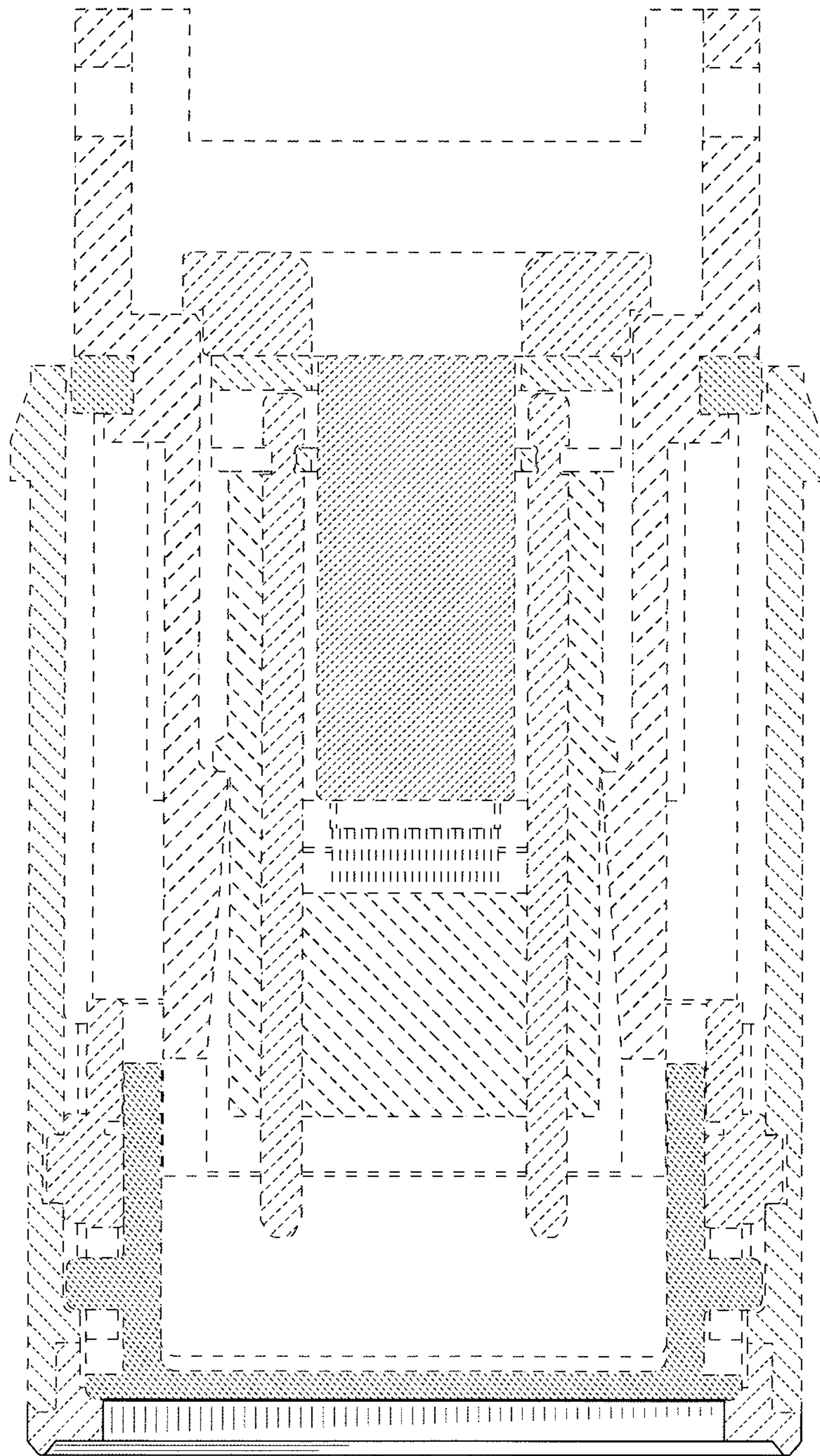


FIG. 9

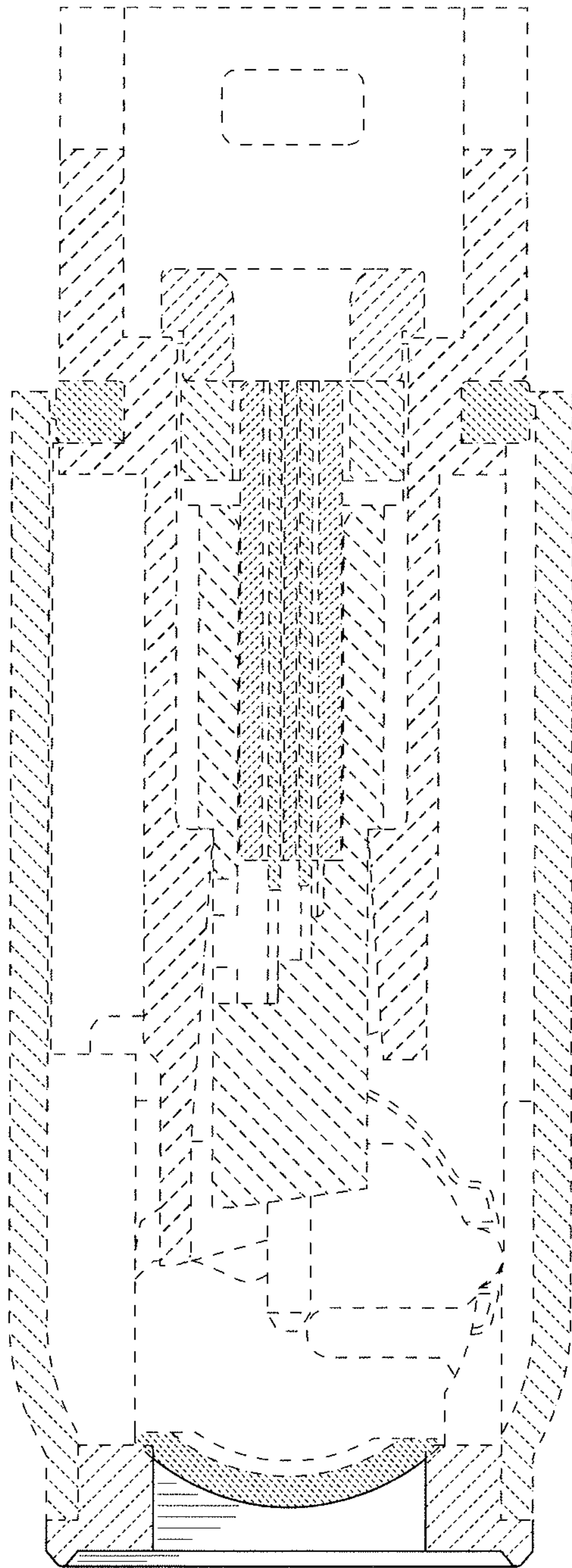


FIG. 10

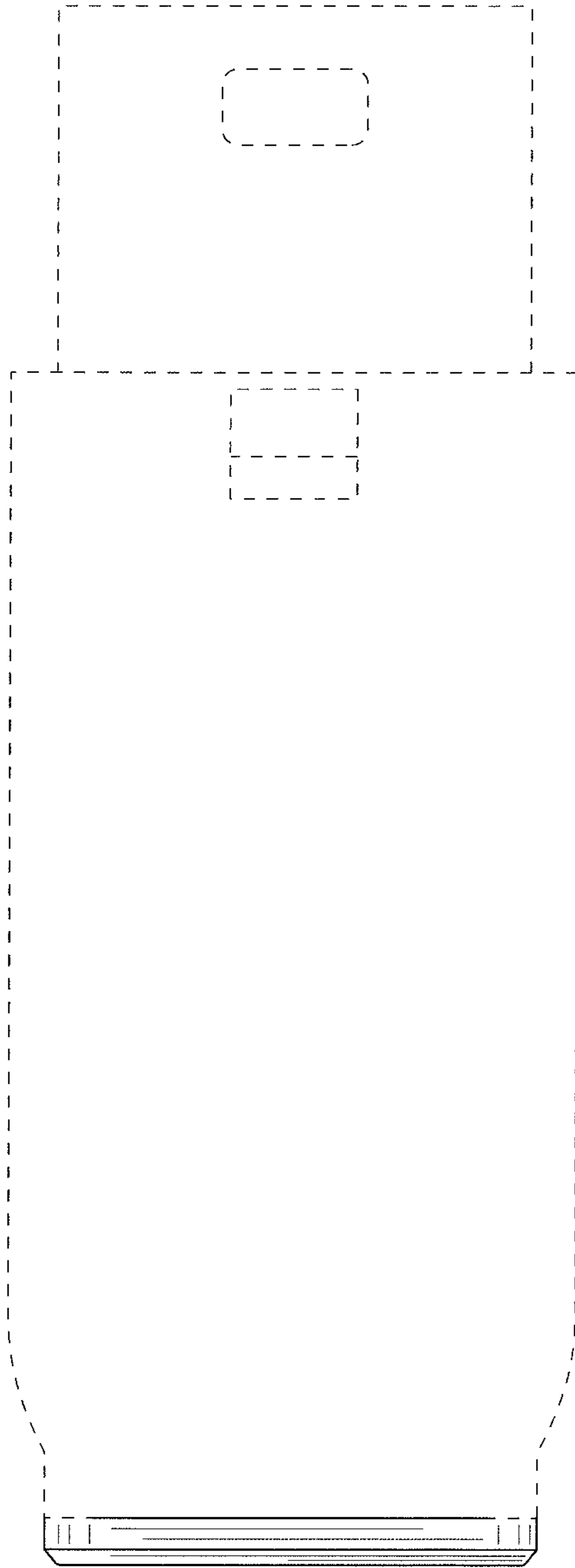


FIG. 11

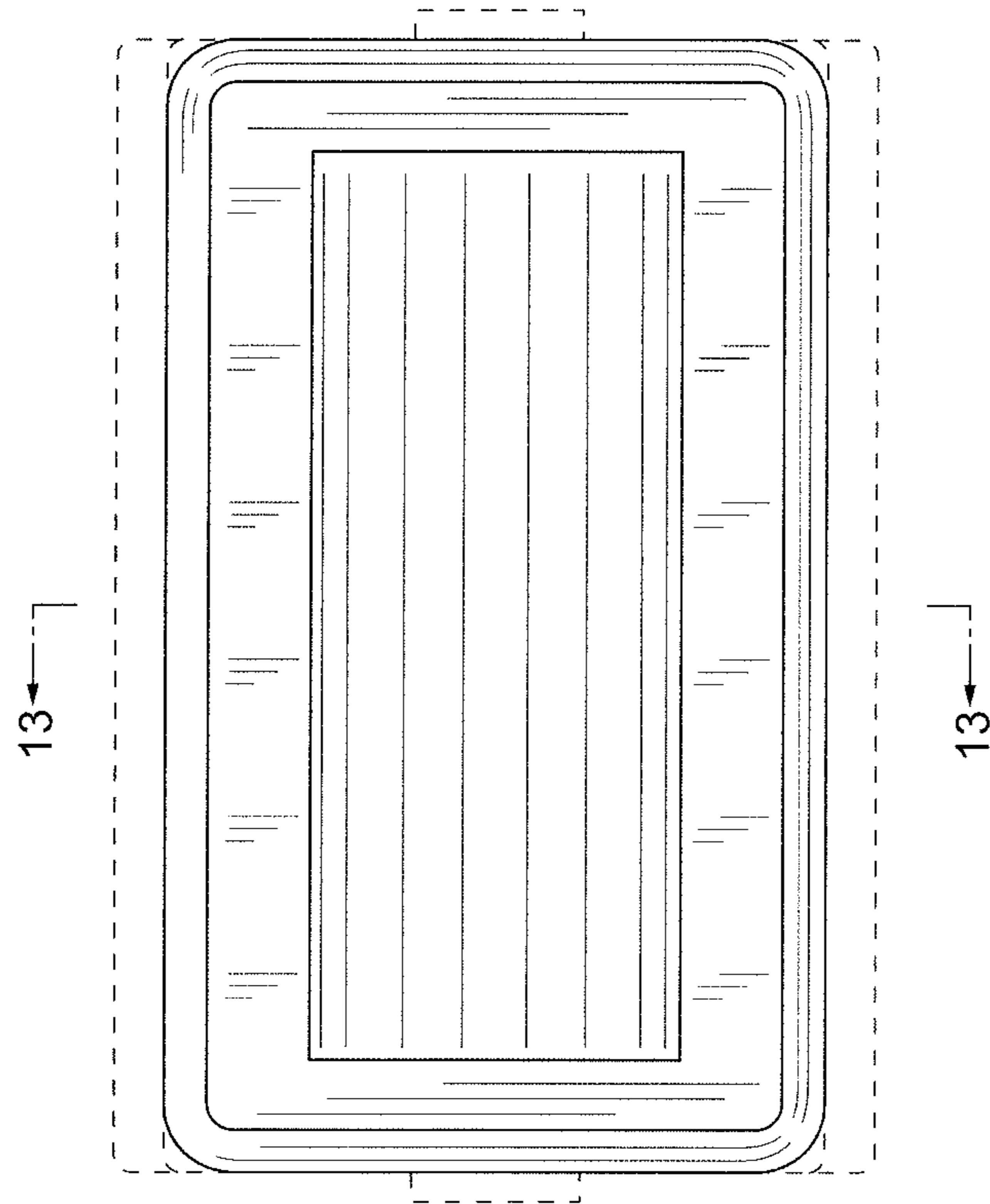


FIG. 12

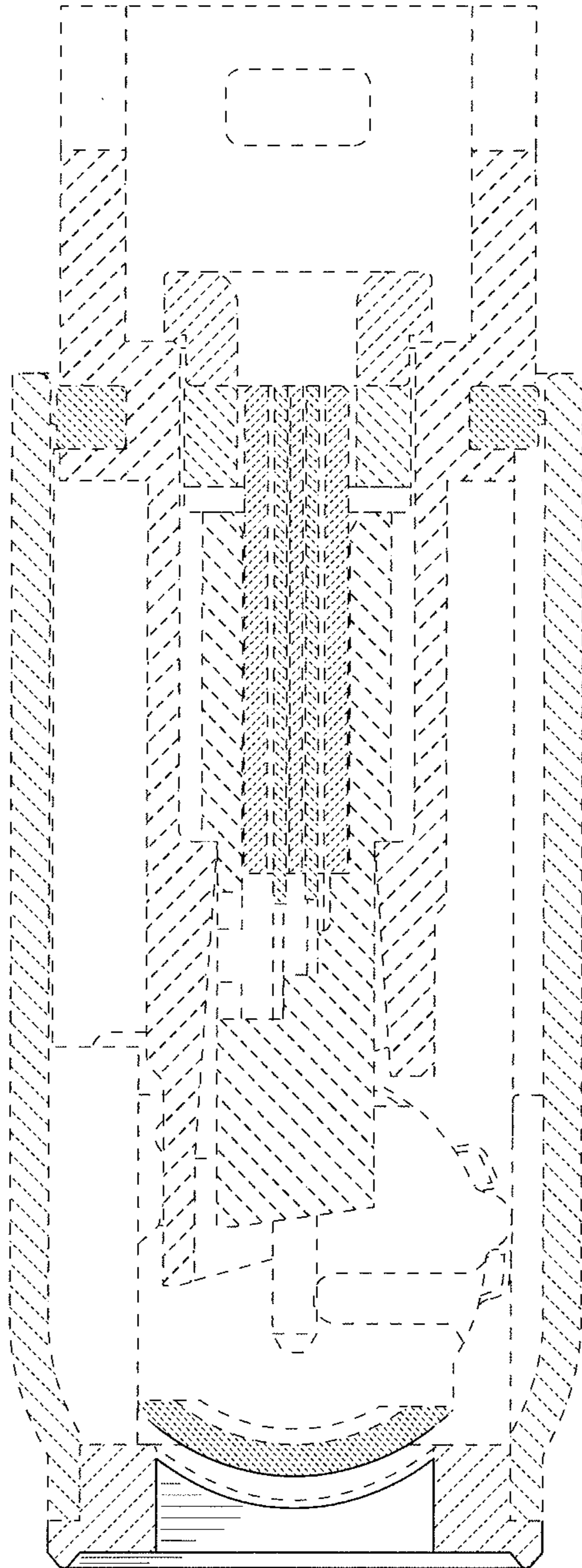


FIG. 13

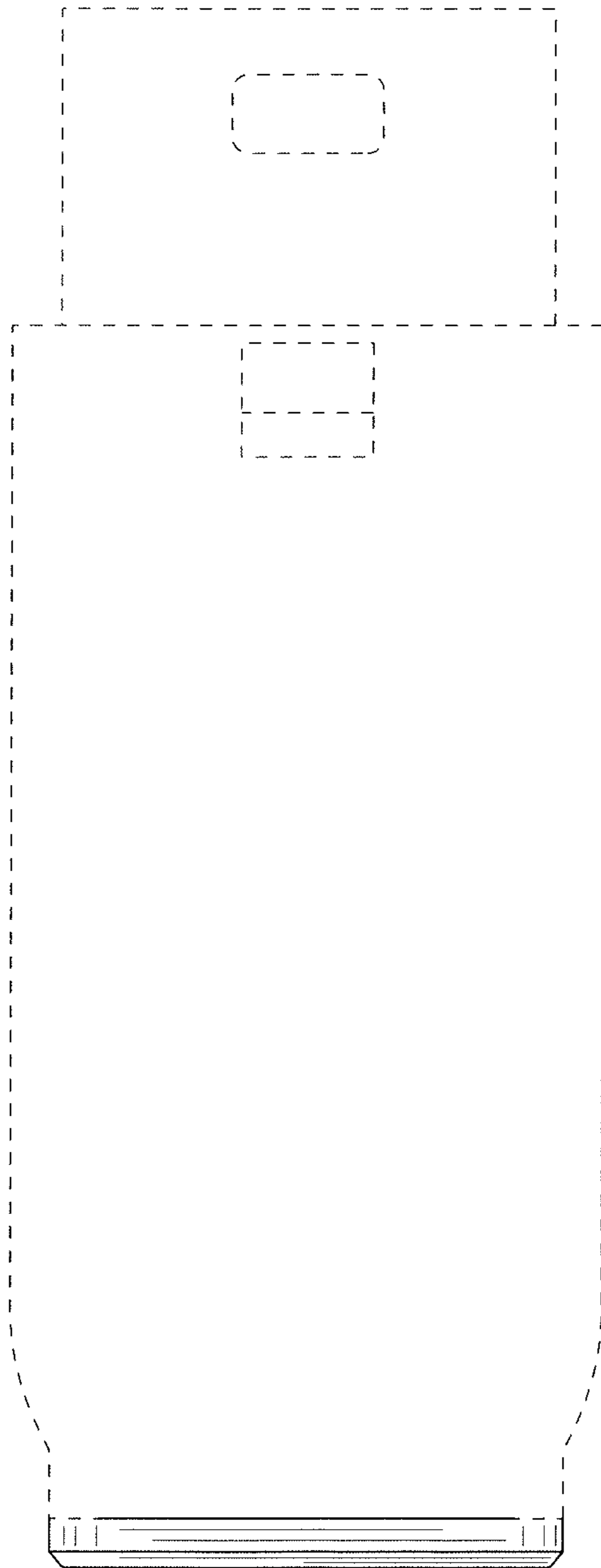


FIG. 14

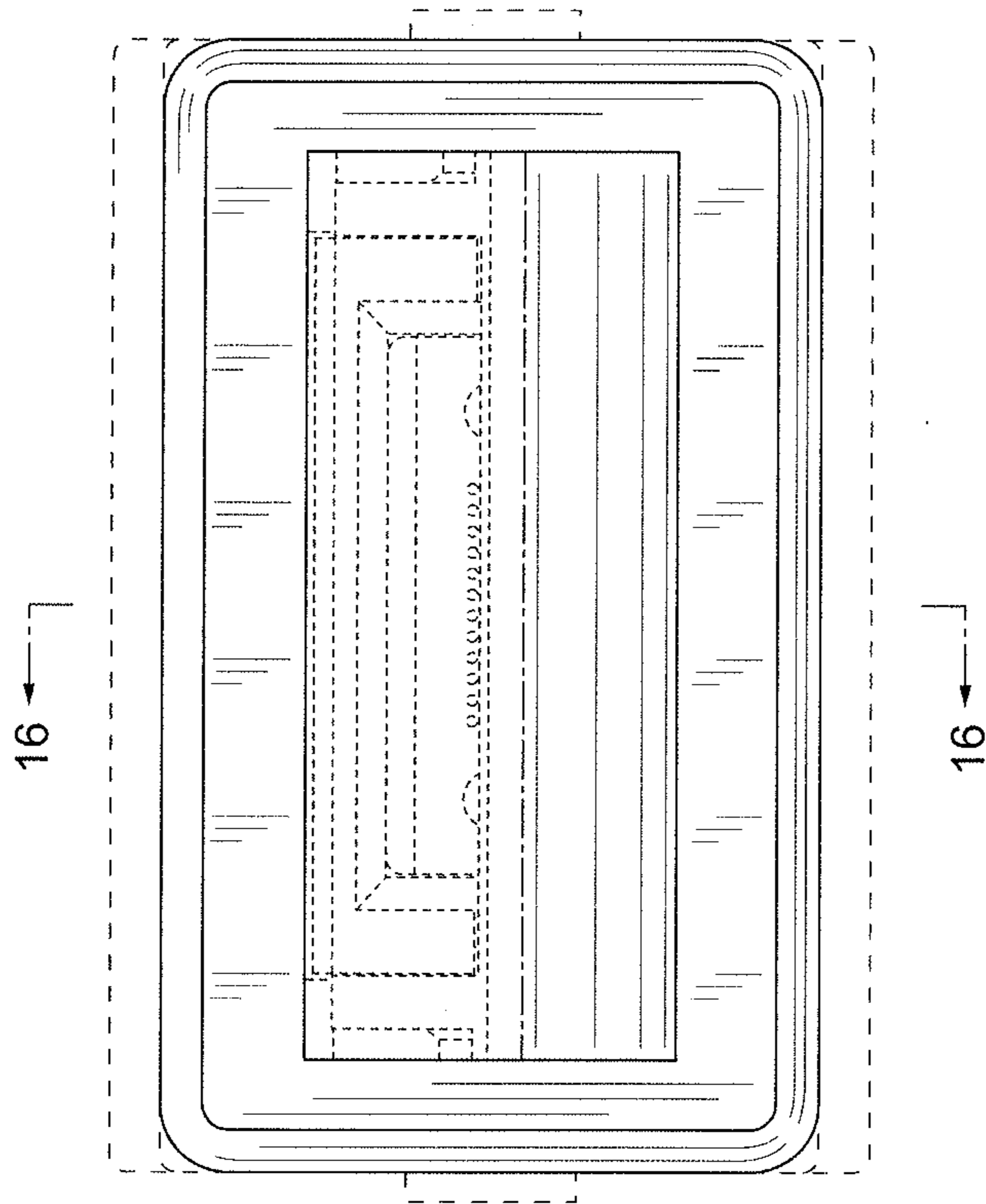


FIG. 15

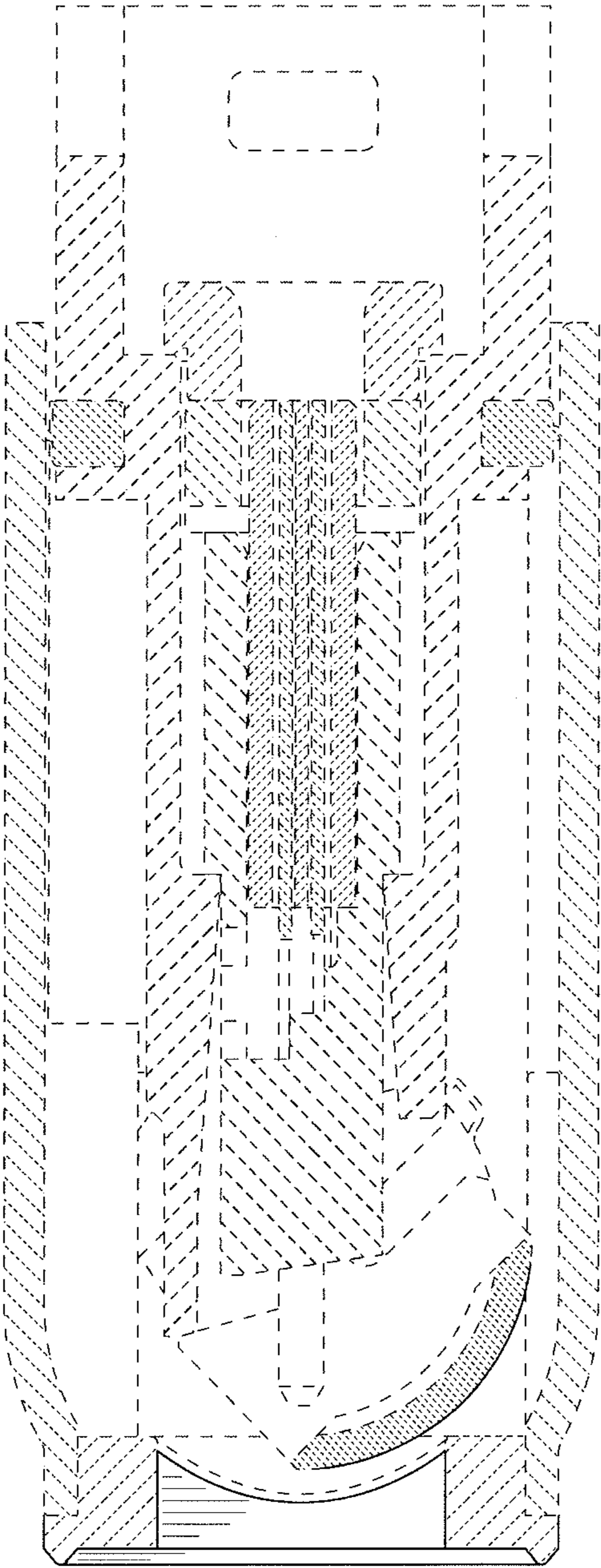


FIG. 16

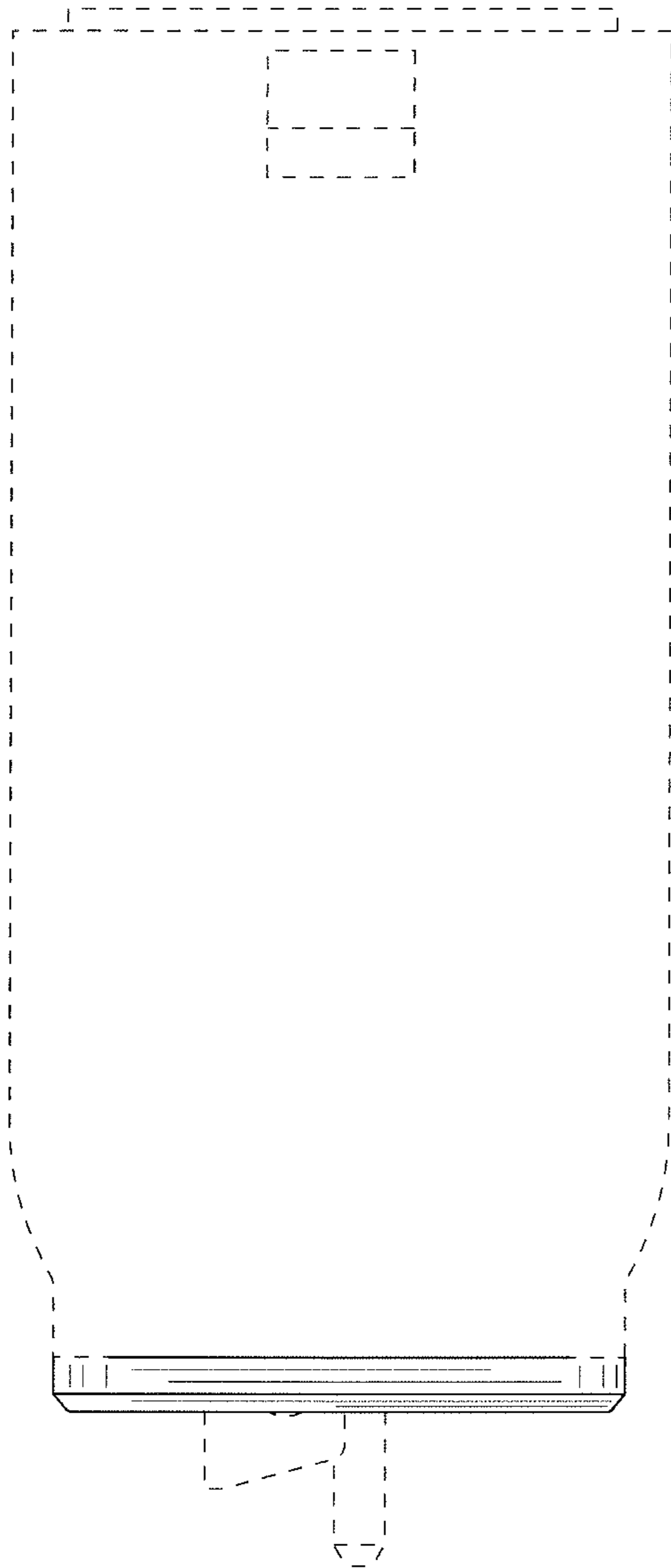


FIG. 17

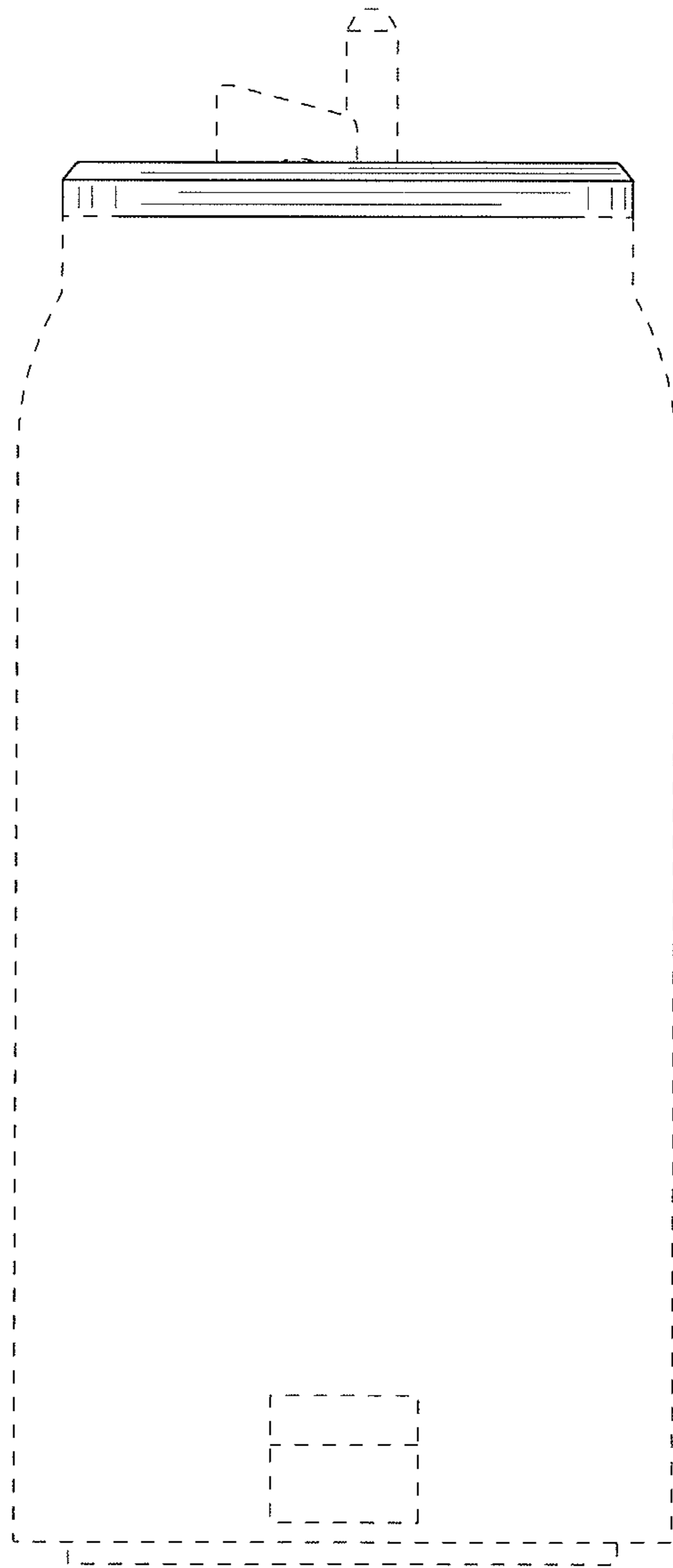


FIG. 18

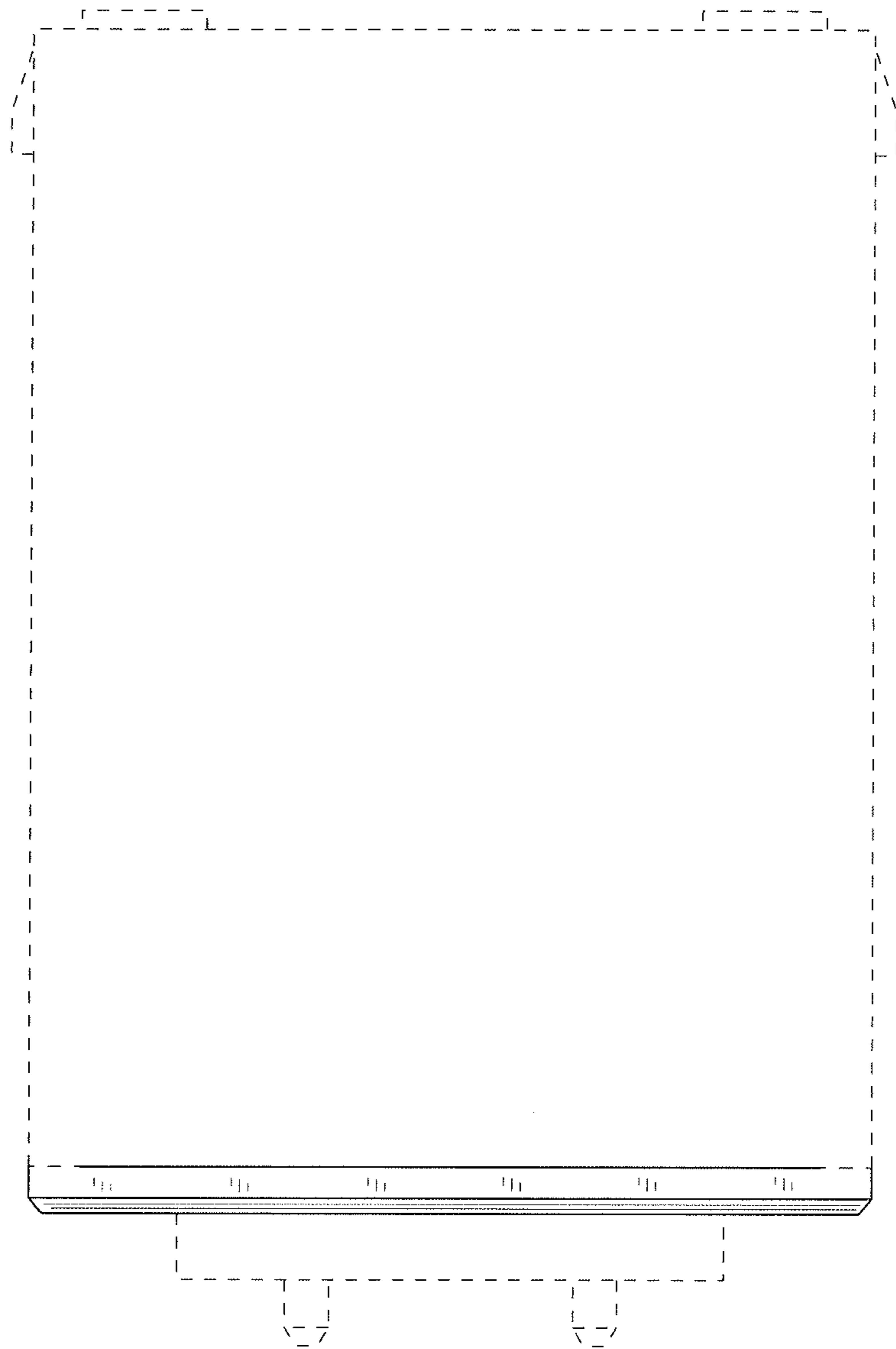


FIG. 19

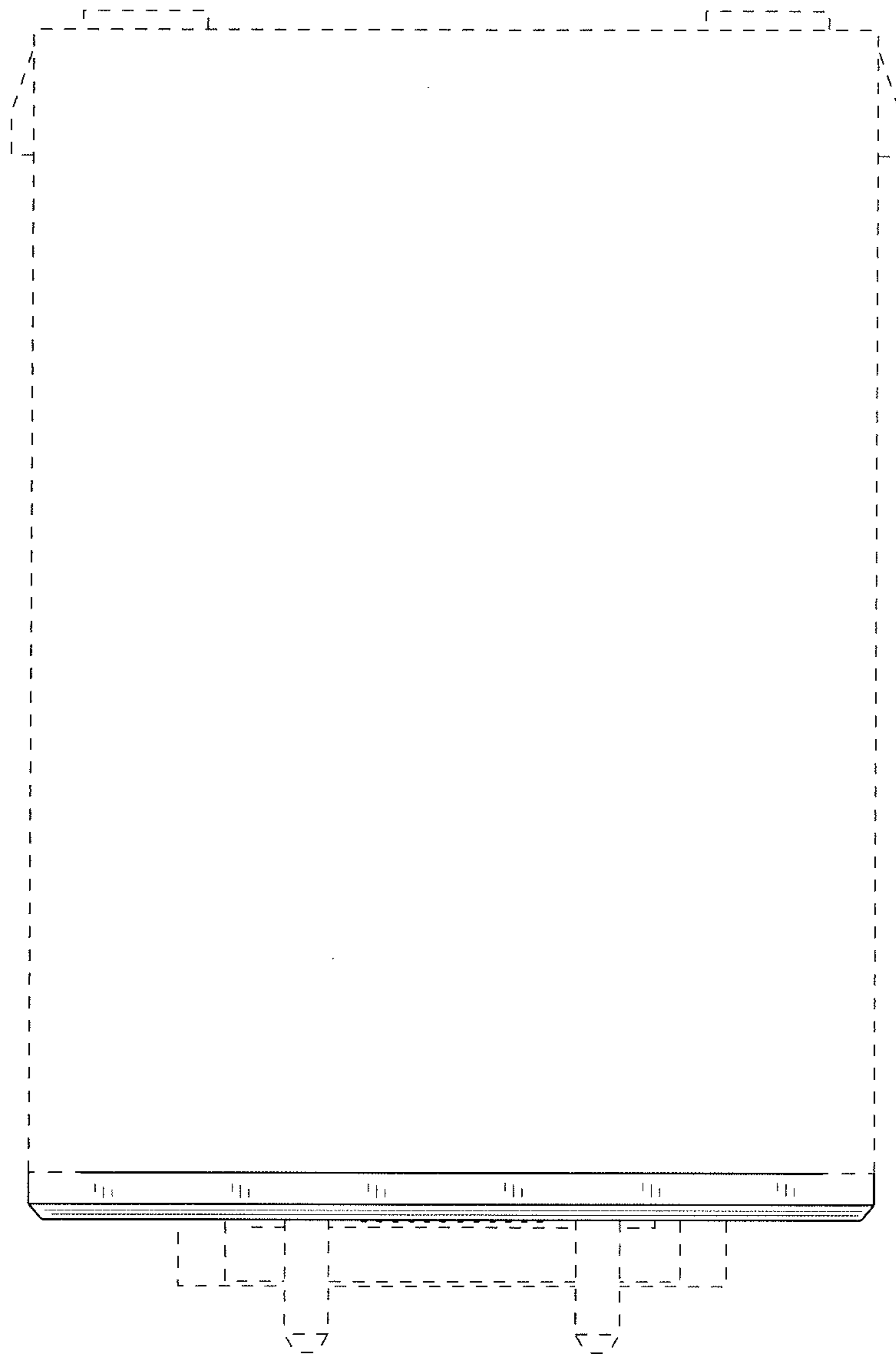


FIG. 20

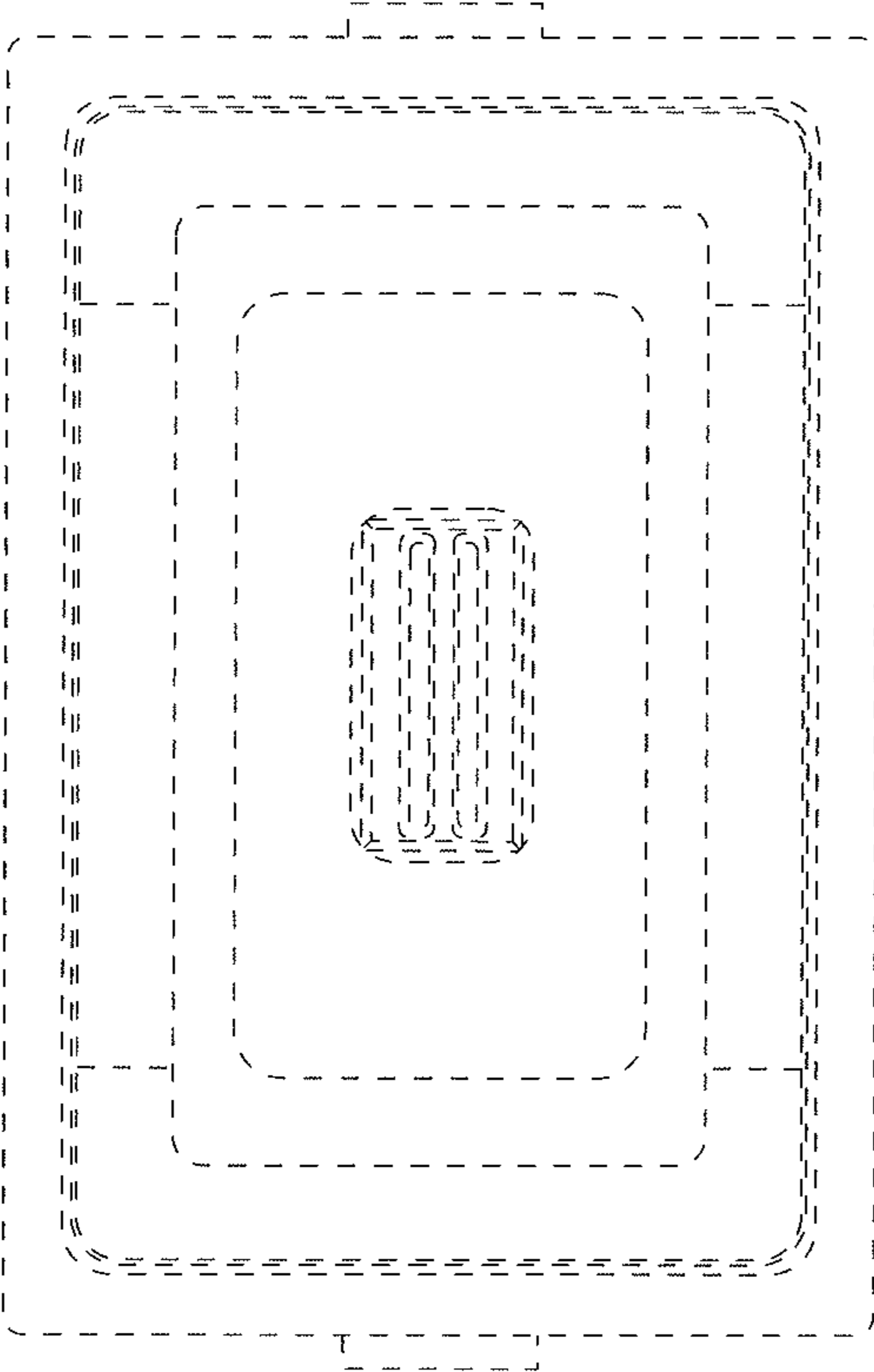


FIG. 21

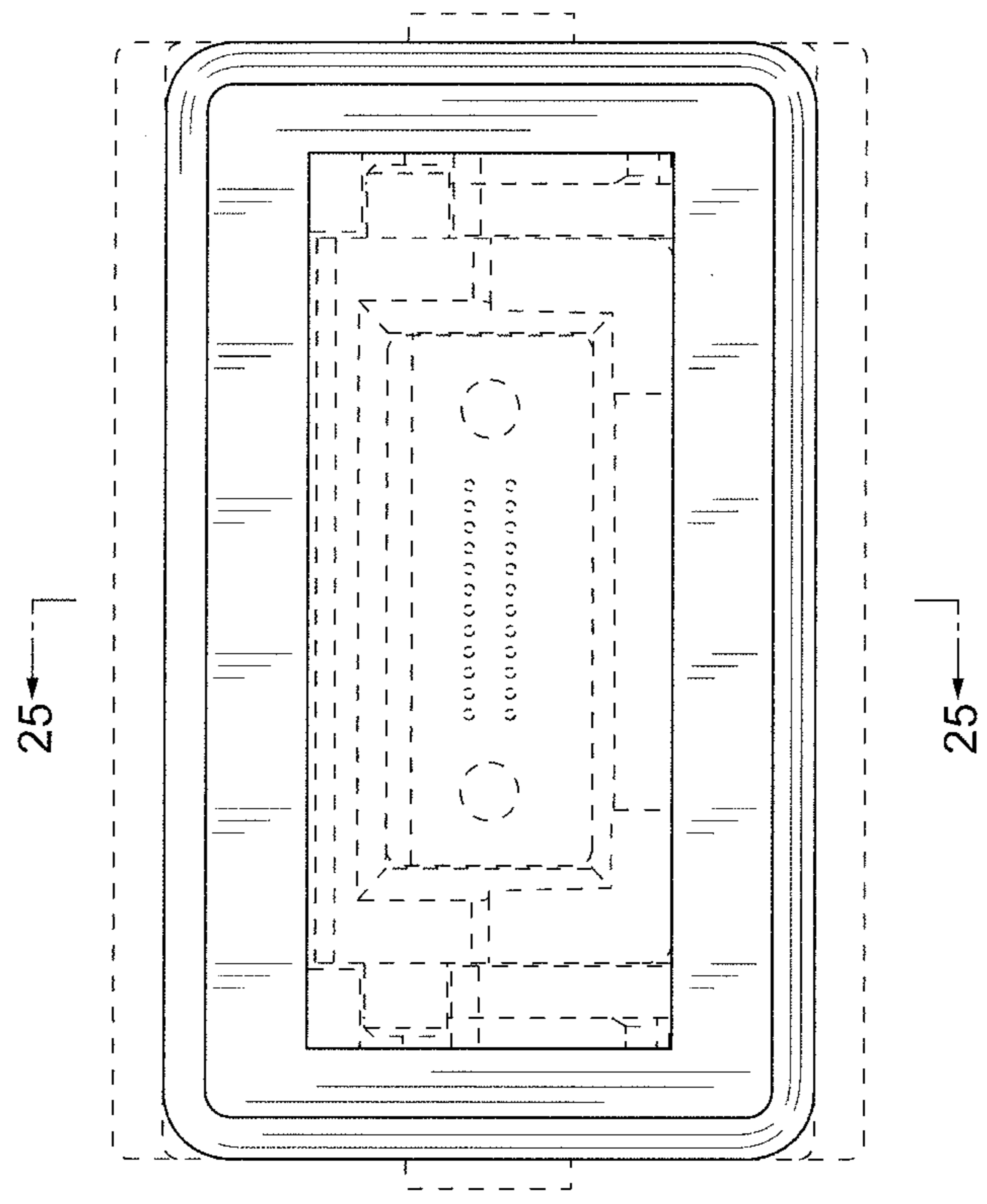


FIG. 22

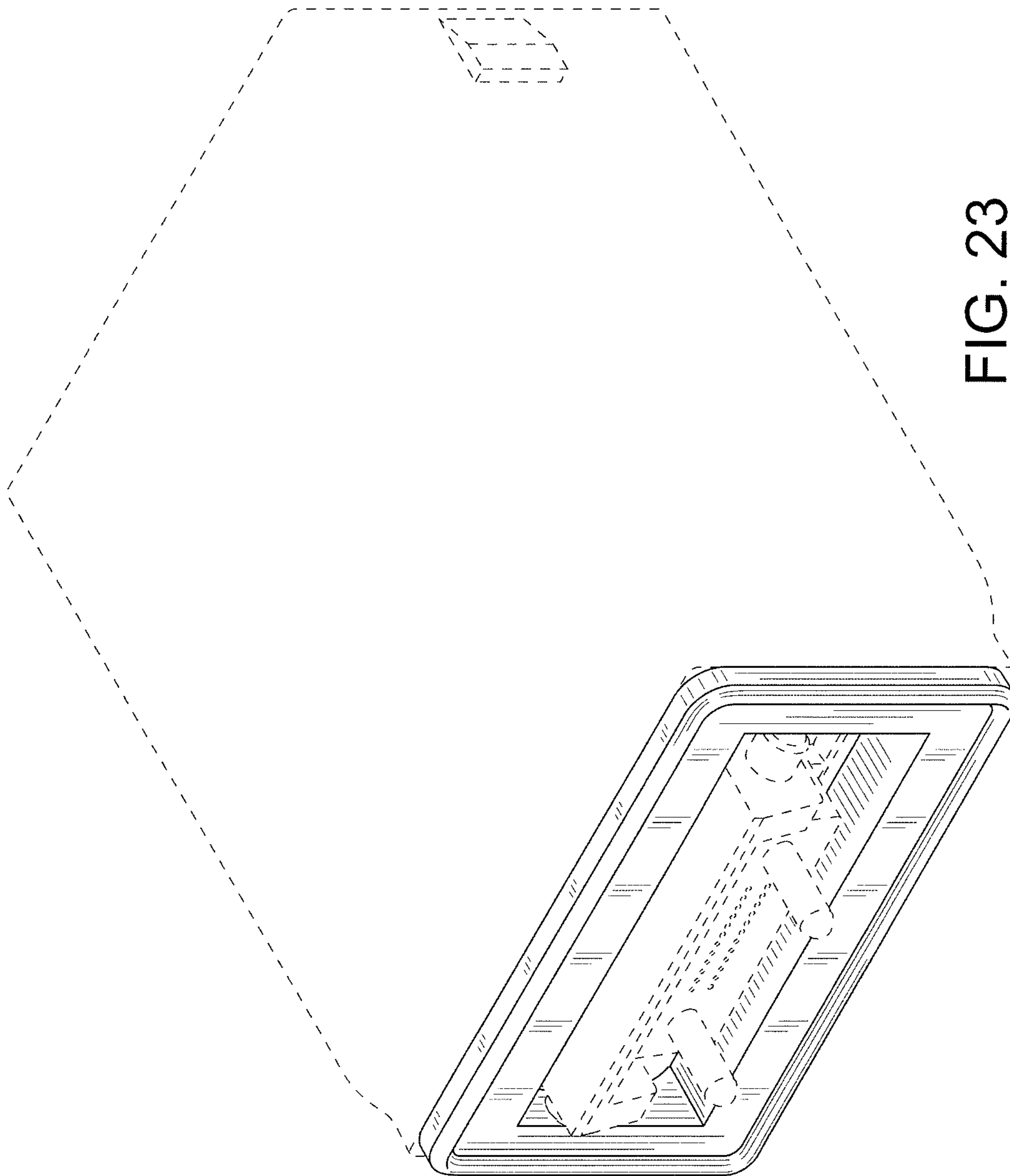


FIG. 23

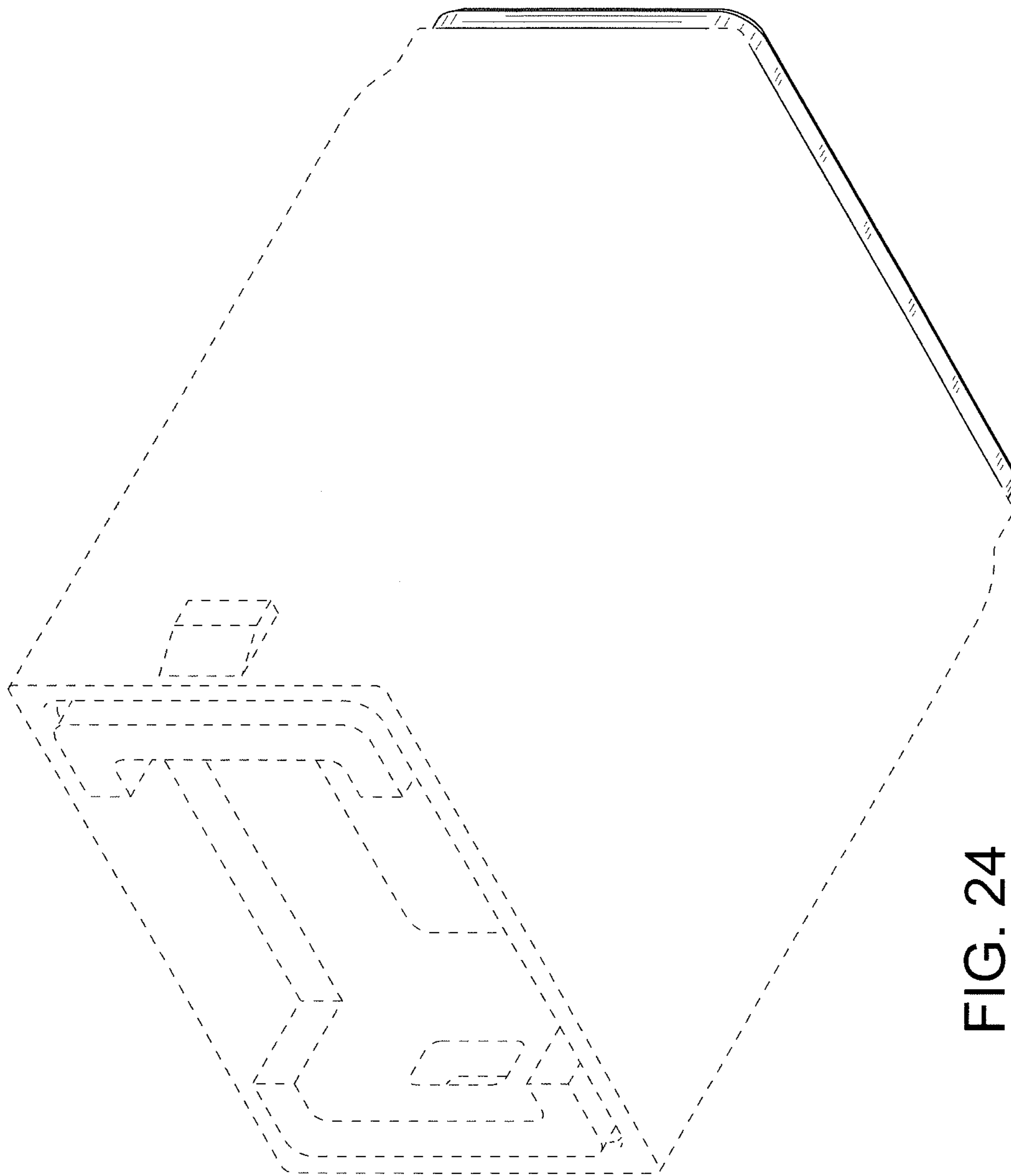


FIG. 24

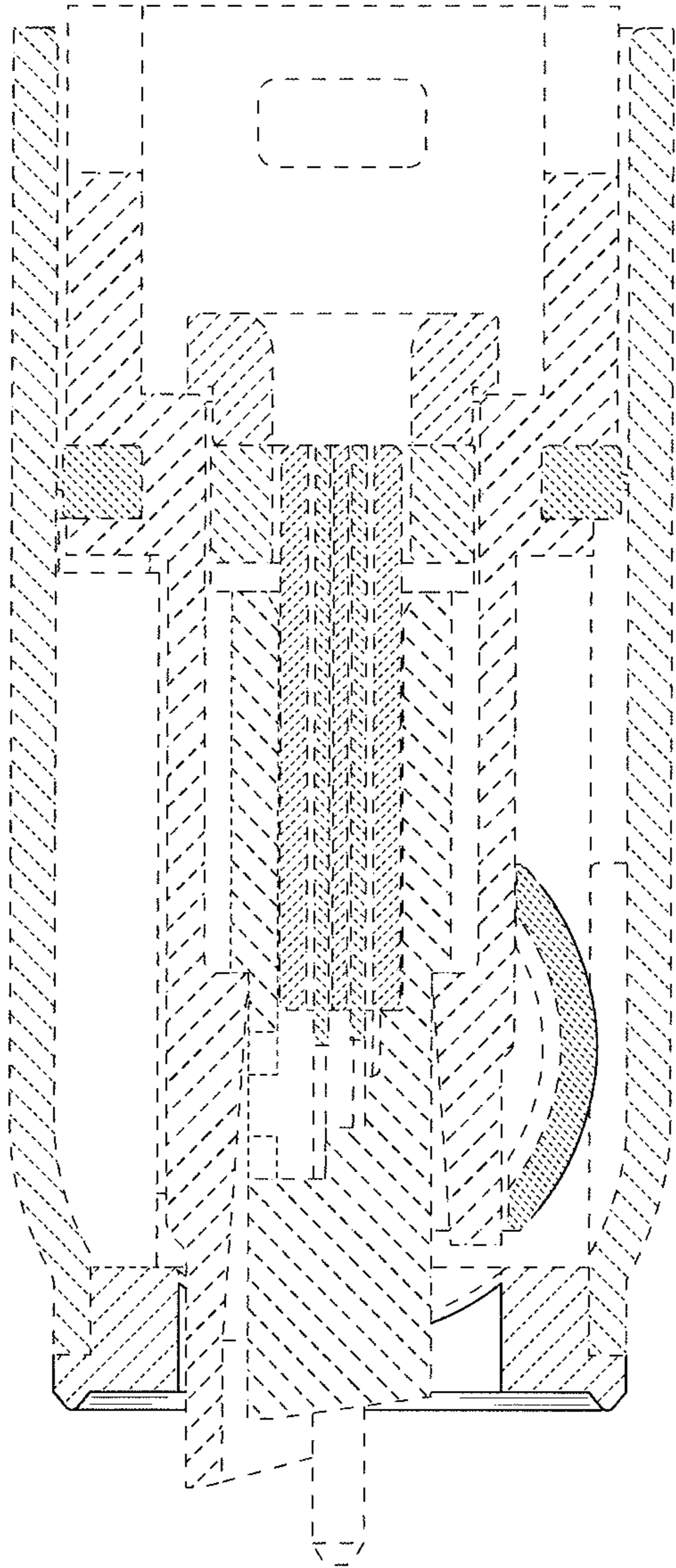


FIG. 25

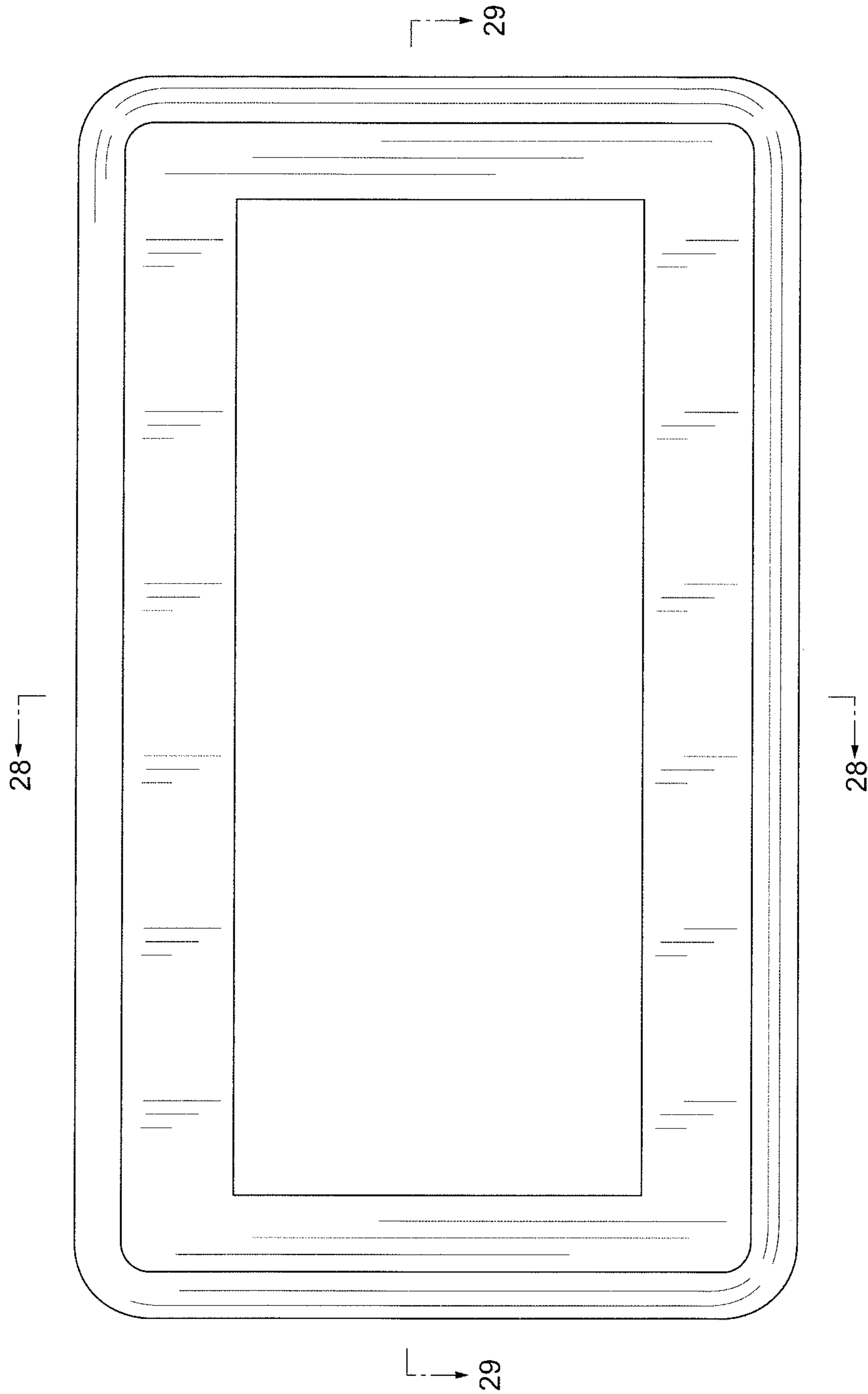


FIG. 26

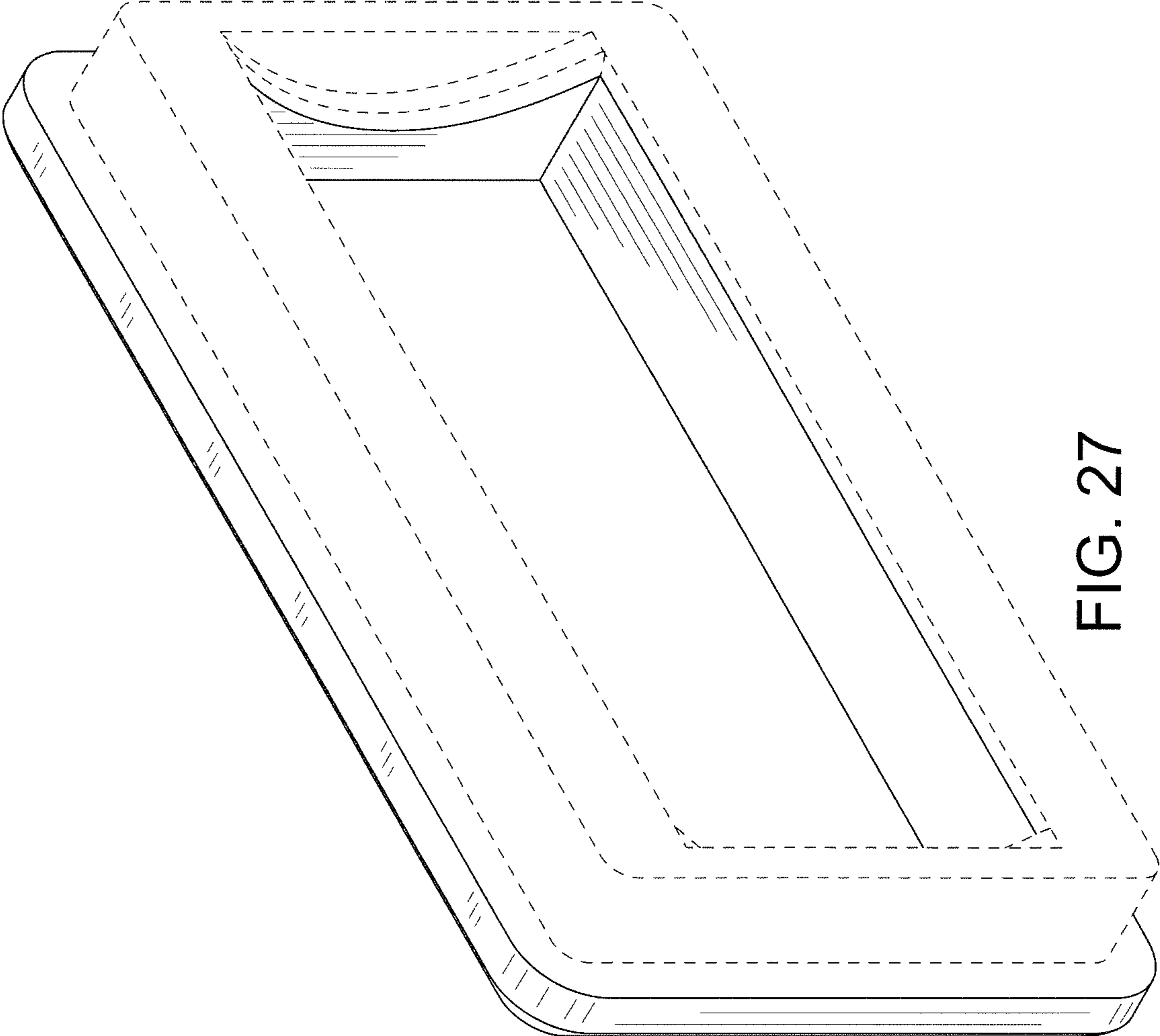


FIG. 27

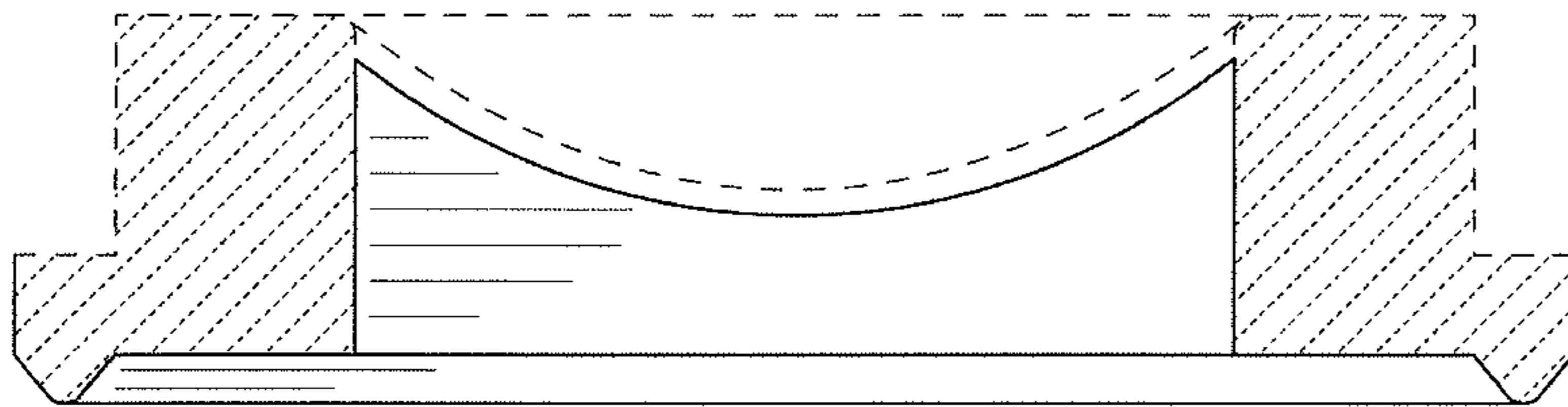


FIG. 28

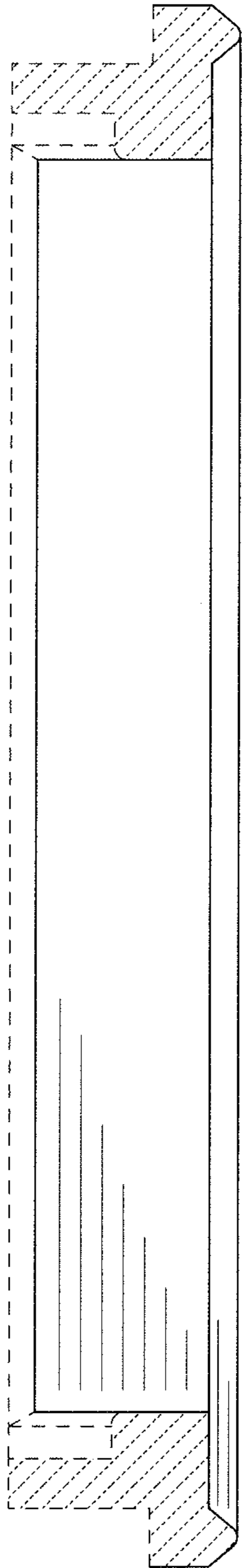


FIG. 29

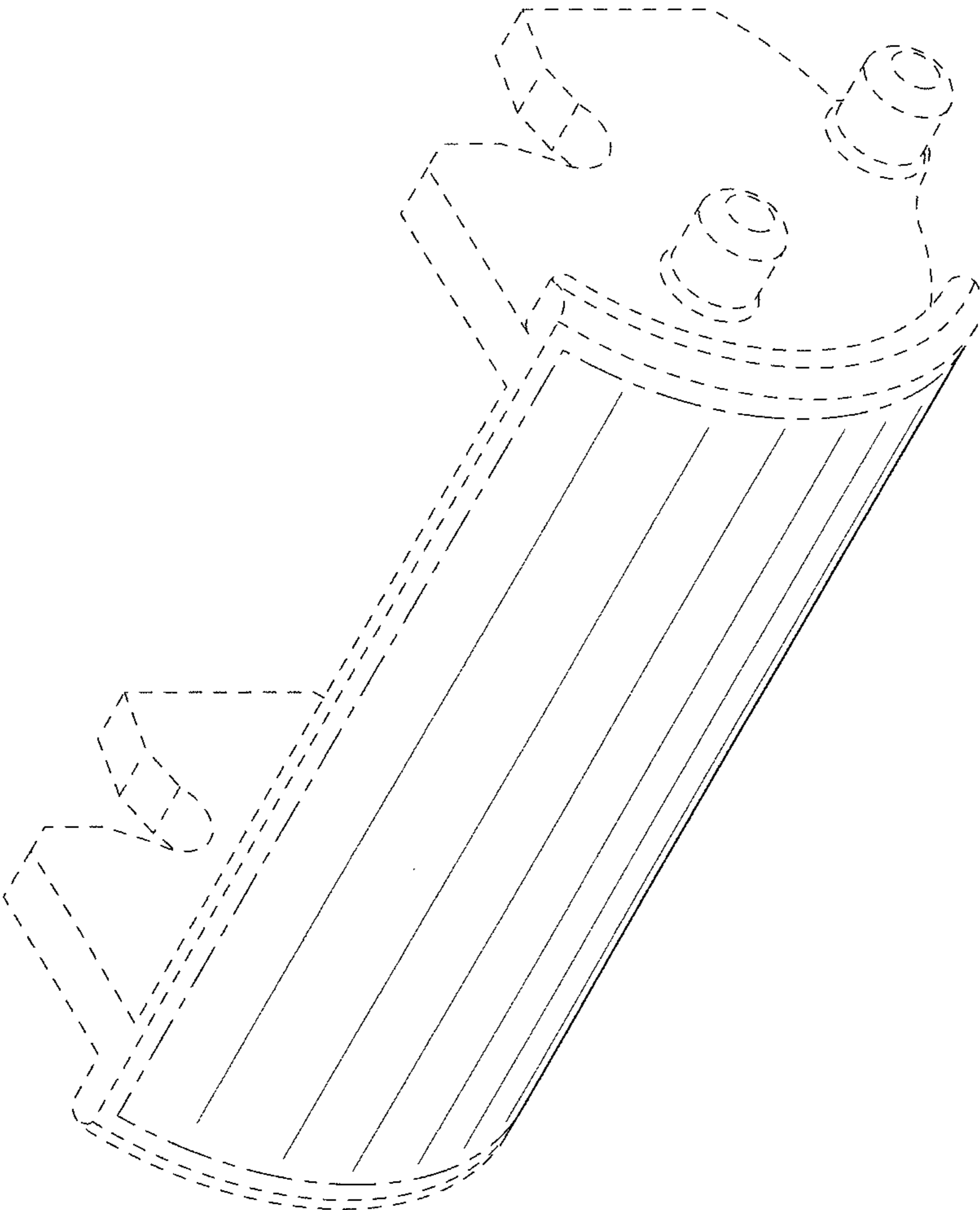


FIG. 30



FIG. 31

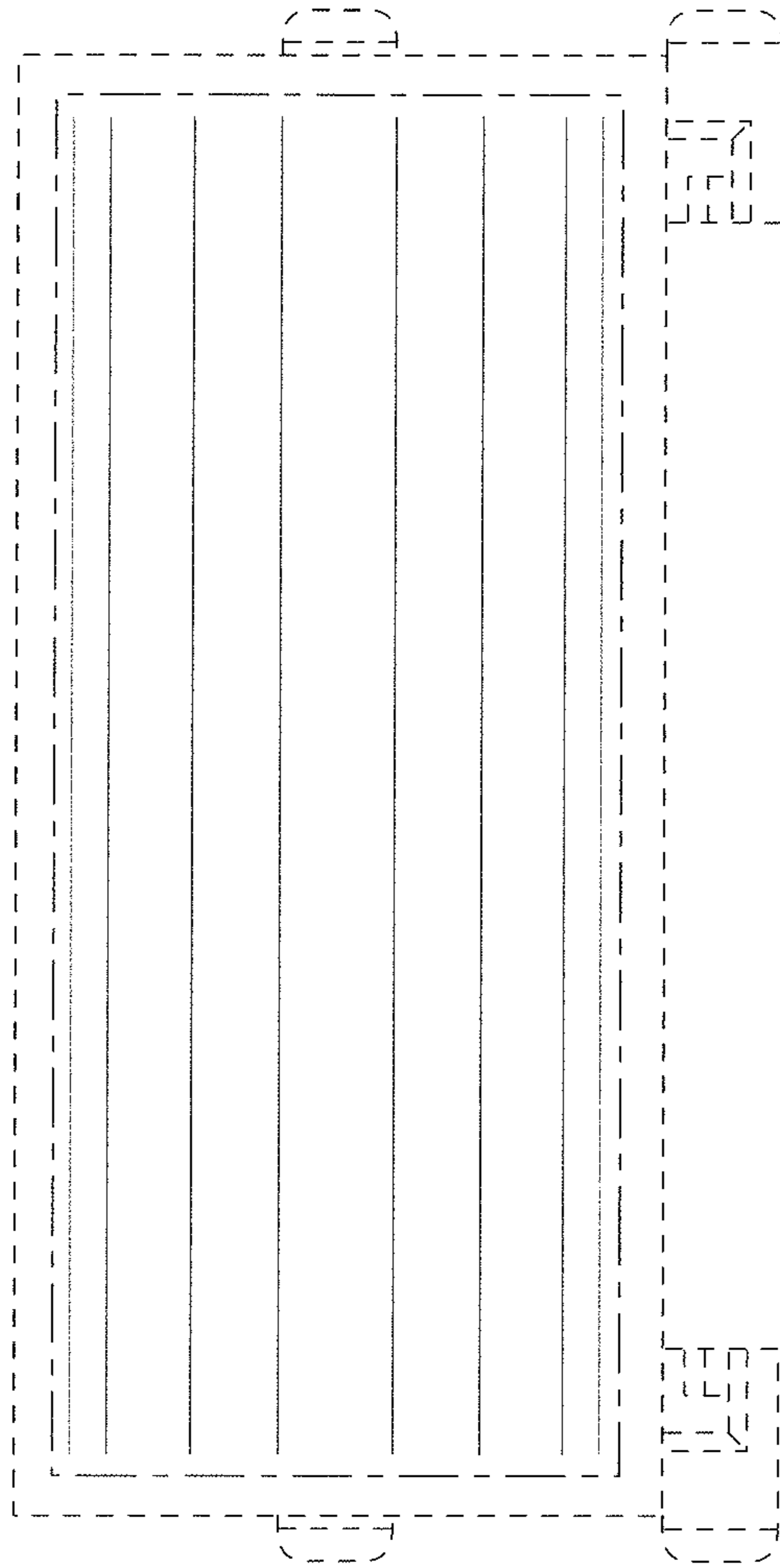


FIG. 32