



US00D739832S

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

(10) **Patent No.:** **US D739,832 S**

(45) **Date of Patent:** **** Sep. 29, 2015**

(54) **REACTION TUBE**

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(**) Term: **14 Years**

(21) Appl. No.: **29/477,760**

(22) Filed: **Dec. 26, 2013**

(30) **Foreign Application Priority Data**

Jun. 28, 2013 (JP) 2013-014828
Jun. 28, 2013 (JP) 2013-014829
Jul. 8, 2013 (JP) 2013-015552

(51) **LOC (10) Cl.** **13-03**

(52) **U.S. Cl.**
USPC **D13/182**

(58) **Field of Classification Search**
USPC D13/182; 118/50, 722, 724, 733, 715, 118/725; 219/385, 390, 391, 411, 496, 486, 219/523; 432/239, 241, 247, 251, 253, 266; 110/185; 373/109, 110, 111
CPC F27D 11/00; F27D 11/02; F27D 11/04; H05B 3/62; H05B 3/64; H05B 3/66; H05B 3/023; H05B 3/06; H05B 3/026; F27B 14/04; F27B 14/06; H01J 49/0468; H01L 21/67098; H01L 21/67103; H01L 21/67109; H01L 21/67115; C23C 16/455; C23C 16/45502; C23C 16/46

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D404,368	S	*	1/1999	Shimazu	.....	D13/182
D405,062	S	*	2/1999	Shimazu	.....	D13/182
D405,429	S	*	2/1999	Hanagata et al.	.....	D13/182
D405,430	S	*	2/1999	Matsushima	.....	D13/182
D405,431	S	*	2/1999	Shimazu	.....	D13/182
D406,113	S	*	2/1999	Hanagata et al.	.....	D13/182
D407,696	S	*	4/1999	Shimazu	.....	D13/182
D417,438	S	*	12/1999	Matsushima	.....	D13/182
D423,463	S	*	4/2000	Hanagata et al.	.....	D13/182
D424,024	S	*	5/2000	Hanagata et al.	.....	D13/182
D586,768	S	*	2/2009	Inoue et al.	.....	D13/182
D594,488	S	*	6/2009	Toiya et al.	.....	D15/144.1
D600,659	S	*	9/2009	Matsuura et al.	.....	D13/182
D610,559	S		2/2010	Okada et al.		
D611,013	S	*	3/2010	Takahashi	.....	D13/182
D618,638	S	*	6/2010	Nakashima	.....	D13/182
D655,255	S	*	3/2012	Takebayashi et al.	.....	D13/182
D655,258	S	*	3/2012	Honma et al.	.....	D13/182
D655,262	S	*	3/2012	Honma et al.	.....	D13/182
D655,682	S	*	3/2012	Takebayashi et al.	.....	D13/182
D719,114	S	*	12/2014	Yamazaki et al.	.....	D13/182
D720,707	S	*	1/2015	Yamazaki et al.	.....	D13/182
2008/0090195	A1	*	4/2008	Takahashi et al.	.....	432/250
2009/0194521	A1	*	8/2009	Kobayashi et al.	.....	219/520
2009/0250005	A1	*	10/2009	Kaneko et al.	.....	118/724

FOREIGN PATENT DOCUMENTS

JP	1359196	S	5/2009
JP	1359505	S	5/2009
JP	1359506	S	5/2009
JP	1359507	S	5/2009
JP	1359508	S	5/2009
JP	1359509	S	5/2009
JP	1359510	S	5/2009
JP	1359511	S	5/2009
JP	1361541	S	6/2009
JP	1380393	S	2/2010

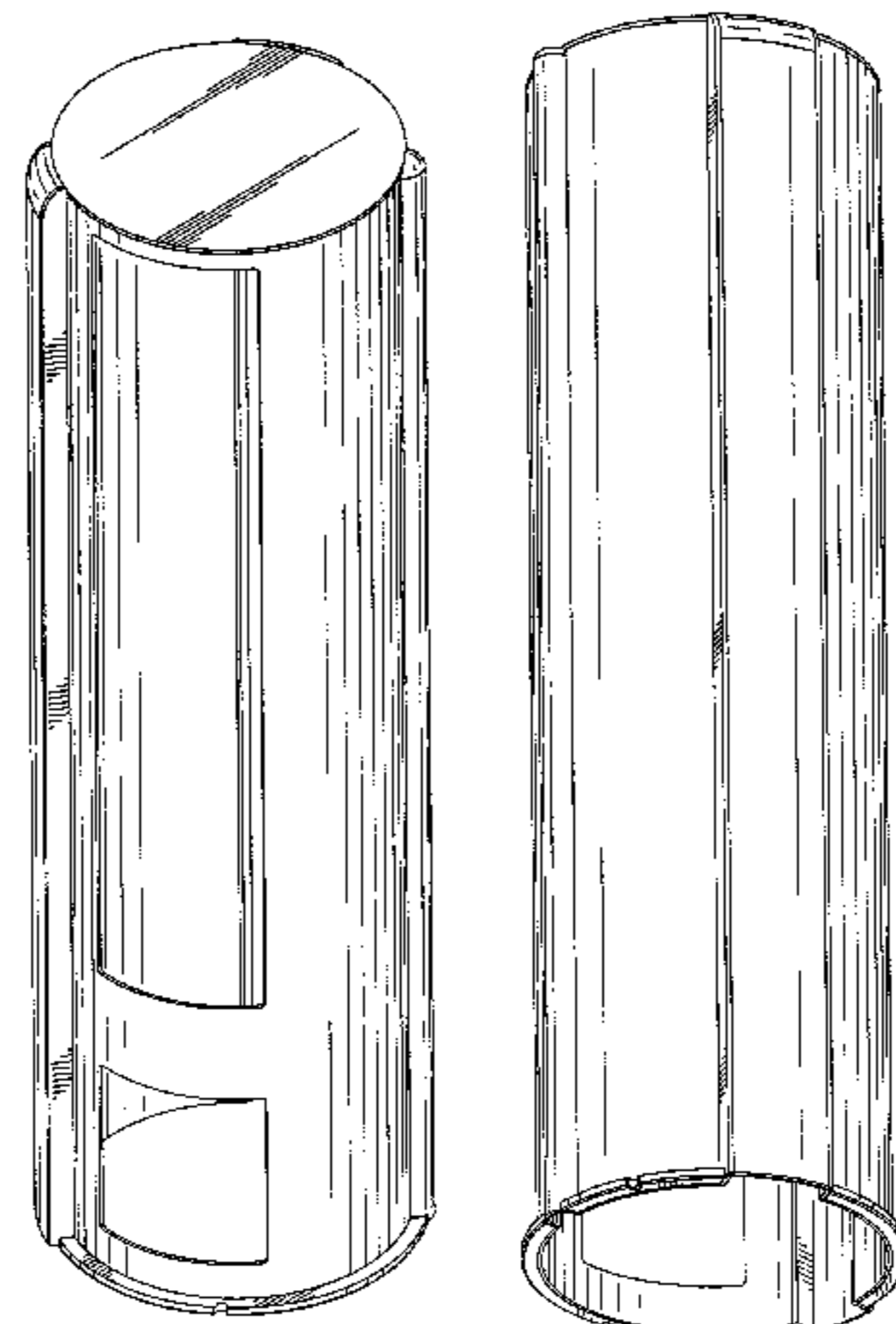
* cited by examiner

Primary Examiner — Elizabeth J Oswecki

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(57) **CLAIM**

We claim the ornamental design for a reaction tube, as shown and described.



DESCRIPTION

FIG. 1 is a front, top and right side perspective view of a first embodiment of a reaction tube showing our new design;
FIG. 2 is a rear, bottom and left side perspective view thereof;
FIG. 3 is a front elevational view thereof;
FIG. 4 is a rear elevational view thereof;
FIG. 5 is a left side elevational view thereof;
FIG. 6 is a right side elevational view thereof;
FIG. 7 is a top plan view thereof;
FIG. 8 is a bottom plan view thereof;
FIG. 9 is a cross sectional view taken along line 9-9 in FIG. 3;
FIG. 10 is a cross sectional view taken along line 10-10 in FIG. 7;
FIG. 11 is an enlarged portion view taken along line 11-11 in FIG. 9;
FIG. 12 is a front, top and right side perspective view of a second embodiment of a reaction tube showing our new design;
FIG. 13 is a rear, bottom and left side perspective view thereof;
FIG. 14 is a front elevational view thereof;
FIG. 15 is a rear elevational view thereof;
FIG. 16 is a left side elevational view thereof;
FIG. 17 is a right side elevational view thereof;

FIG. 18 is a top plan view thereof;
FIG. 19 is a bottom plan view thereof;
FIG. 20 is a cross sectional view taken along line 20-20 in FIG. 14;
FIG. 21 is a cross sectional view taken along line 21-21 in FIG. 18;
FIG. 22 is an enlarged portion view taken along line 22-22 in FIG. 20;
FIG. 23 is a front, top, and right side perspective view of a third embodiment of a reaction tube showing our new design;
FIG. 24 is a rear, top and left side perspective view thereof;
FIG. 25 is a front elevational view thereof;
FIG. 26 is a rear elevational view thereof;
FIG. 27 is a left side elevational view thereof;
FIG. 28 is a right side elevational view thereof;
FIG. 29 is a top plan view thereof;
FIG. 30 is a bottom plan view thereof;
FIG. 31 is an enlarged cross sectional view taken along line 31-31 in FIG. 25;
FIG. 32 is an enlarged cross sectional view taken along line 32-32 in FIG. 25; and,
FIG. 33 is a cross sectional view taken along line 33-33 in FIG. 29.
The broken lines shown in the drawings represent portions of the reaction tube that form no part of the claimed design.

1 Claim, 18 Drawing Sheets

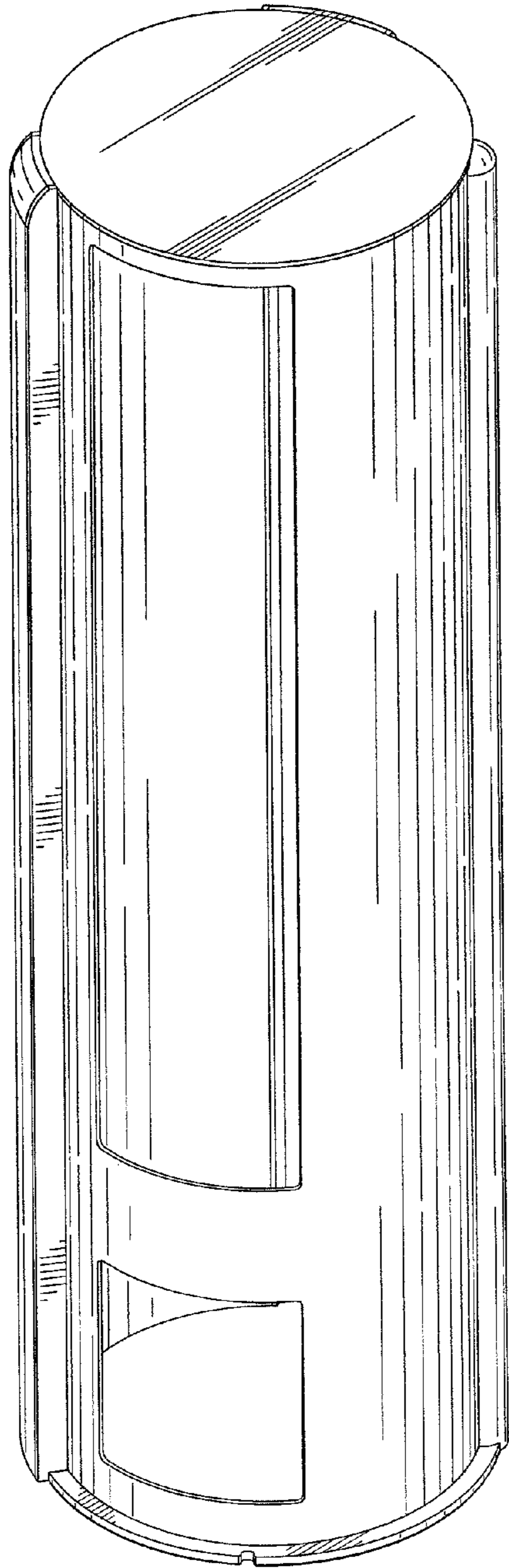


FIG. 1

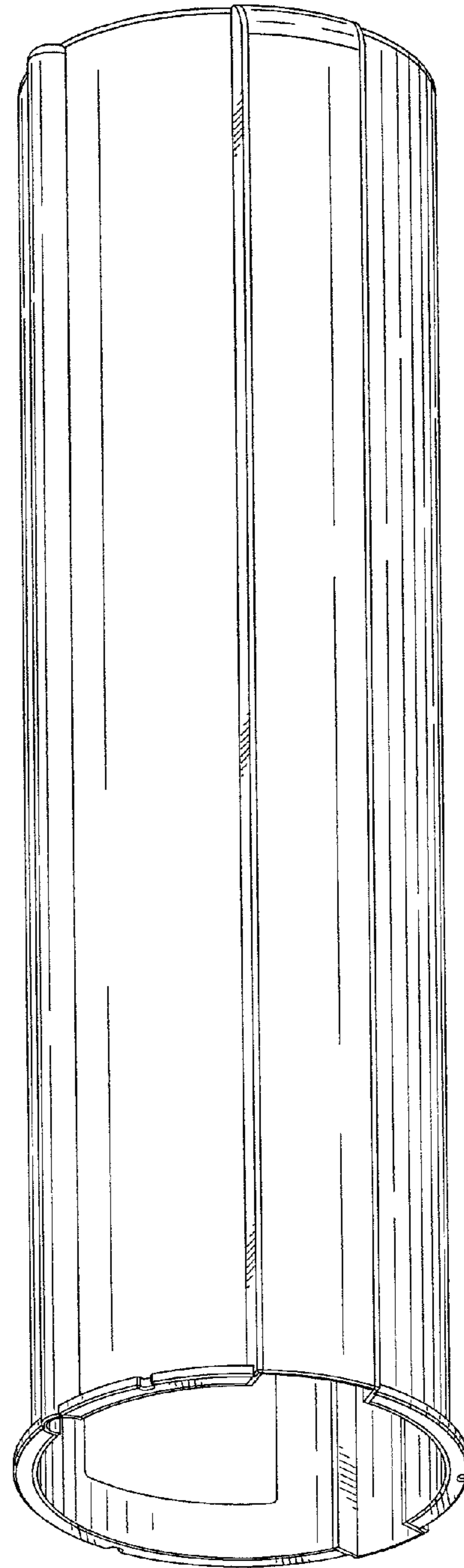


FIG. 2

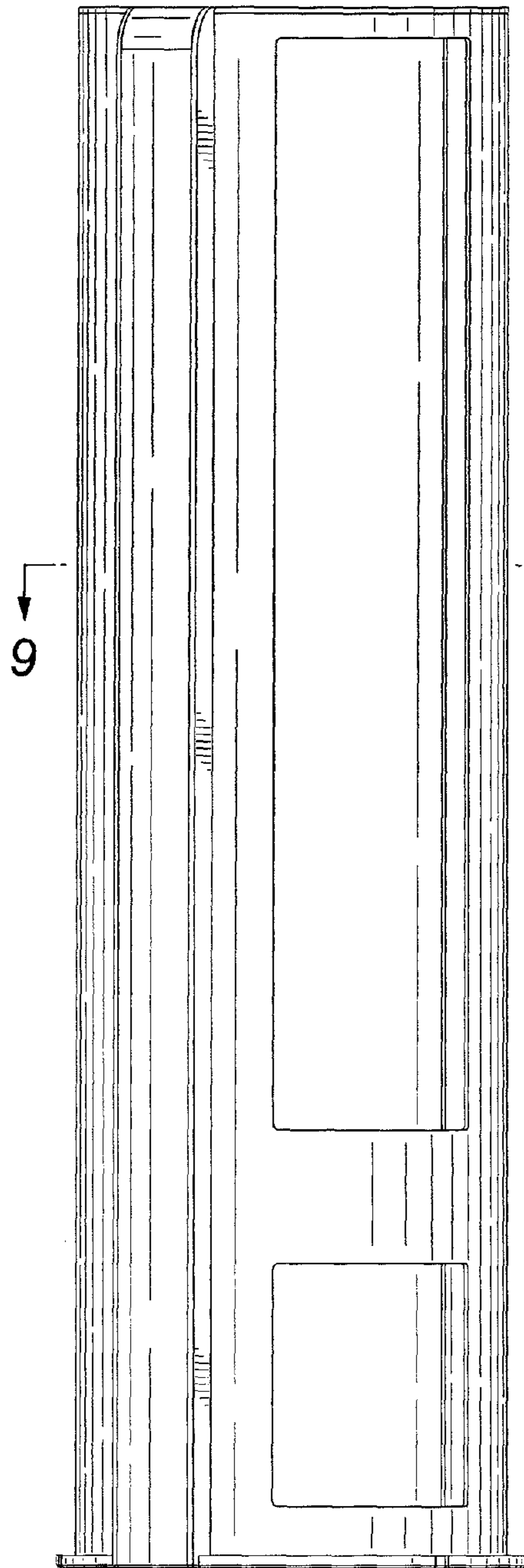


FIG. 3

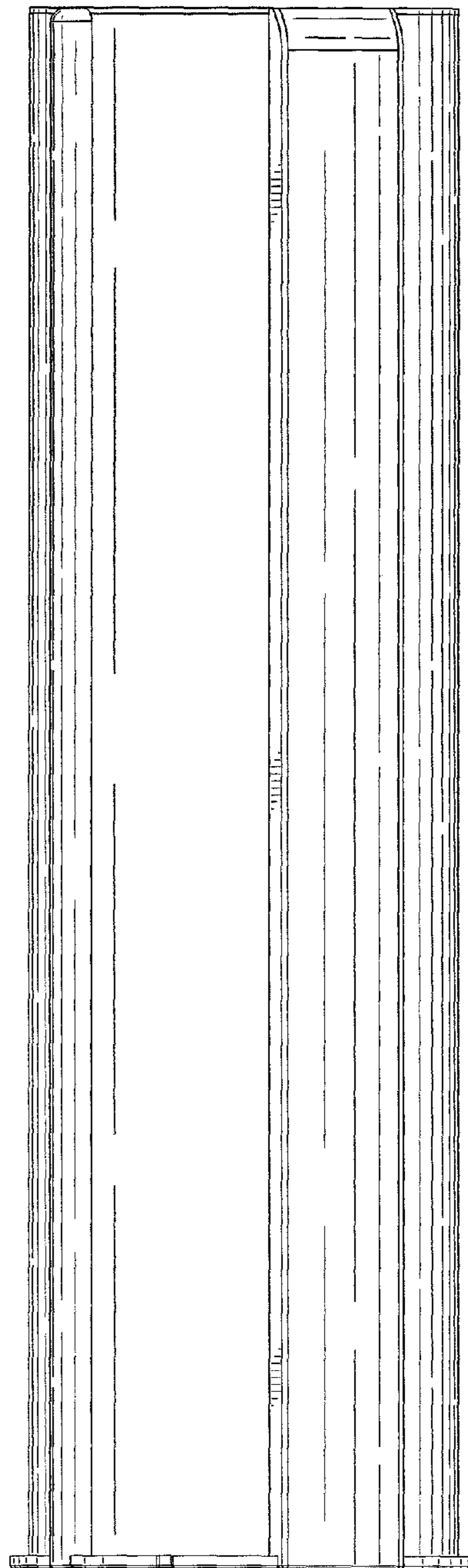


FIG. 4

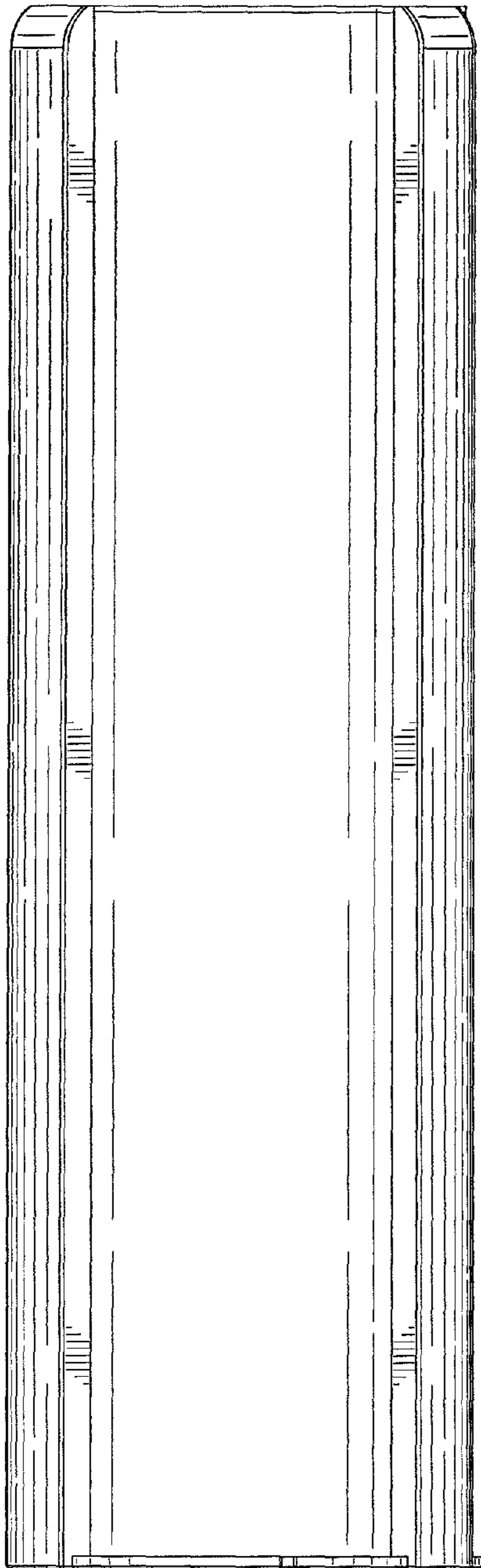


FIG. 5

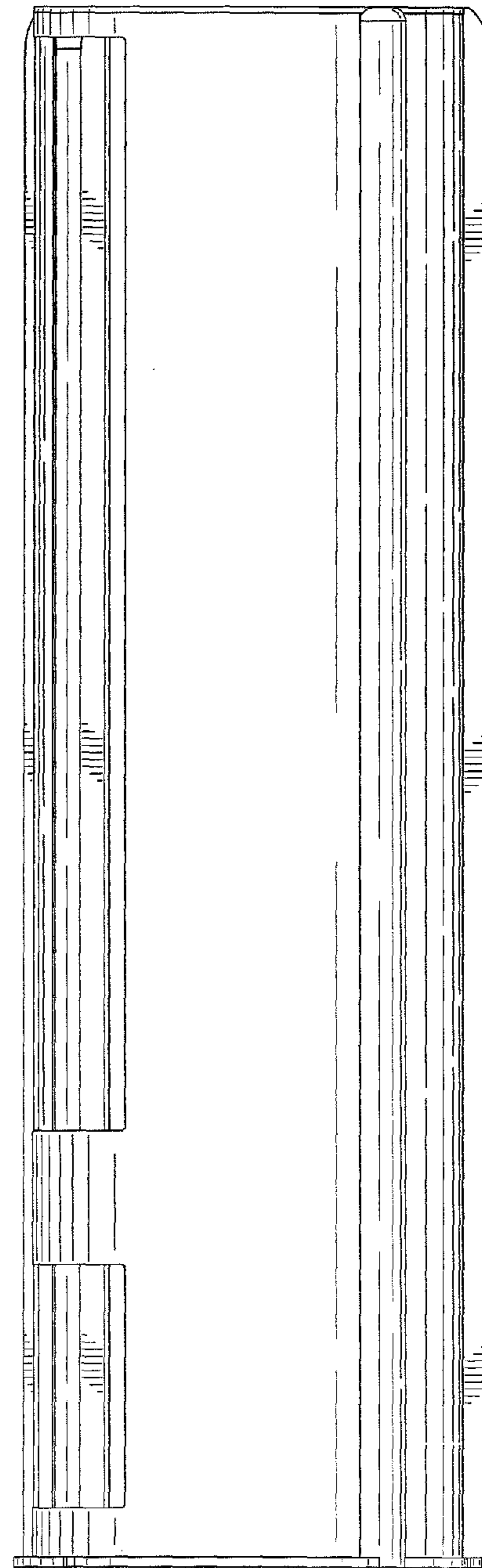


FIG. 6

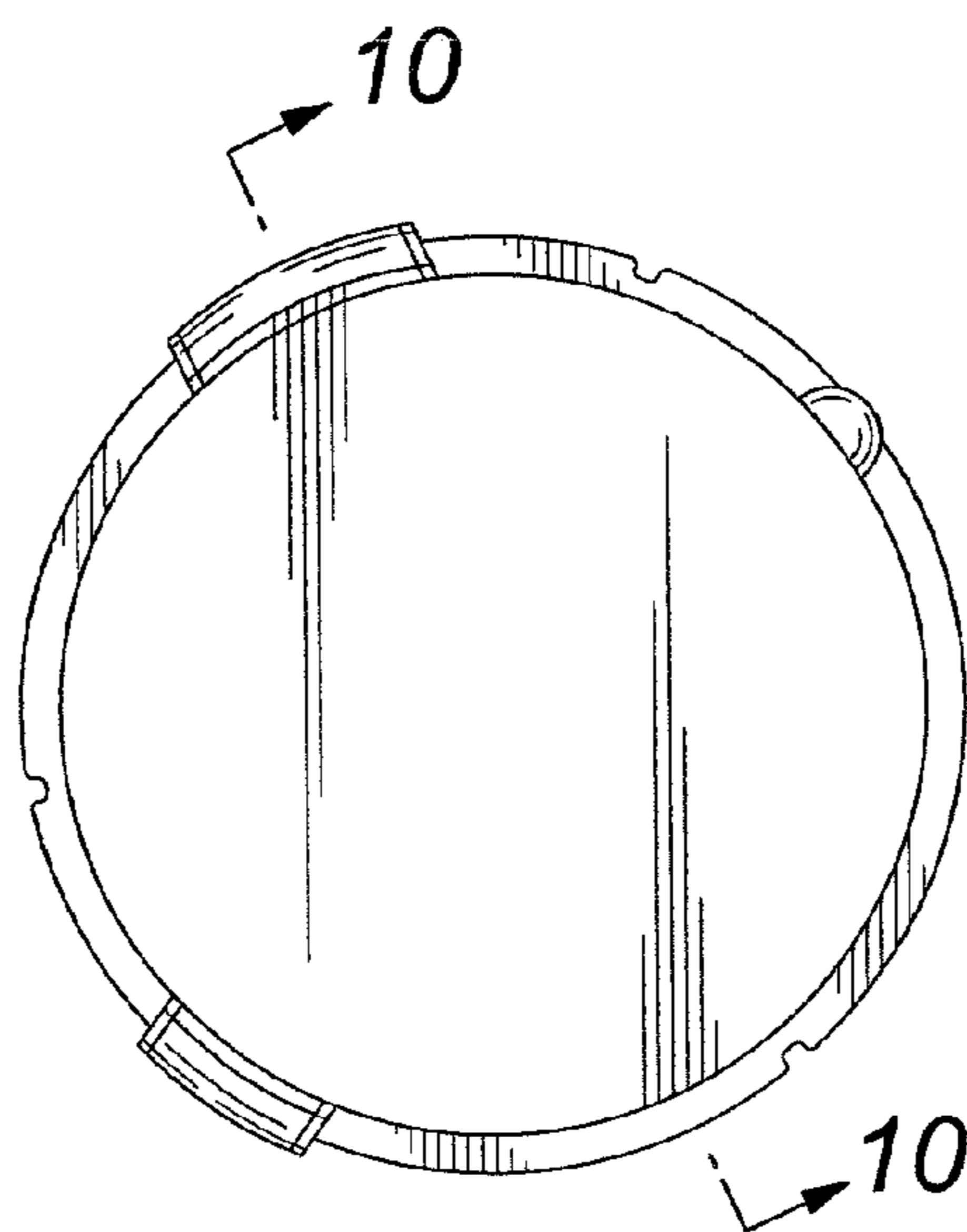


FIG. 7

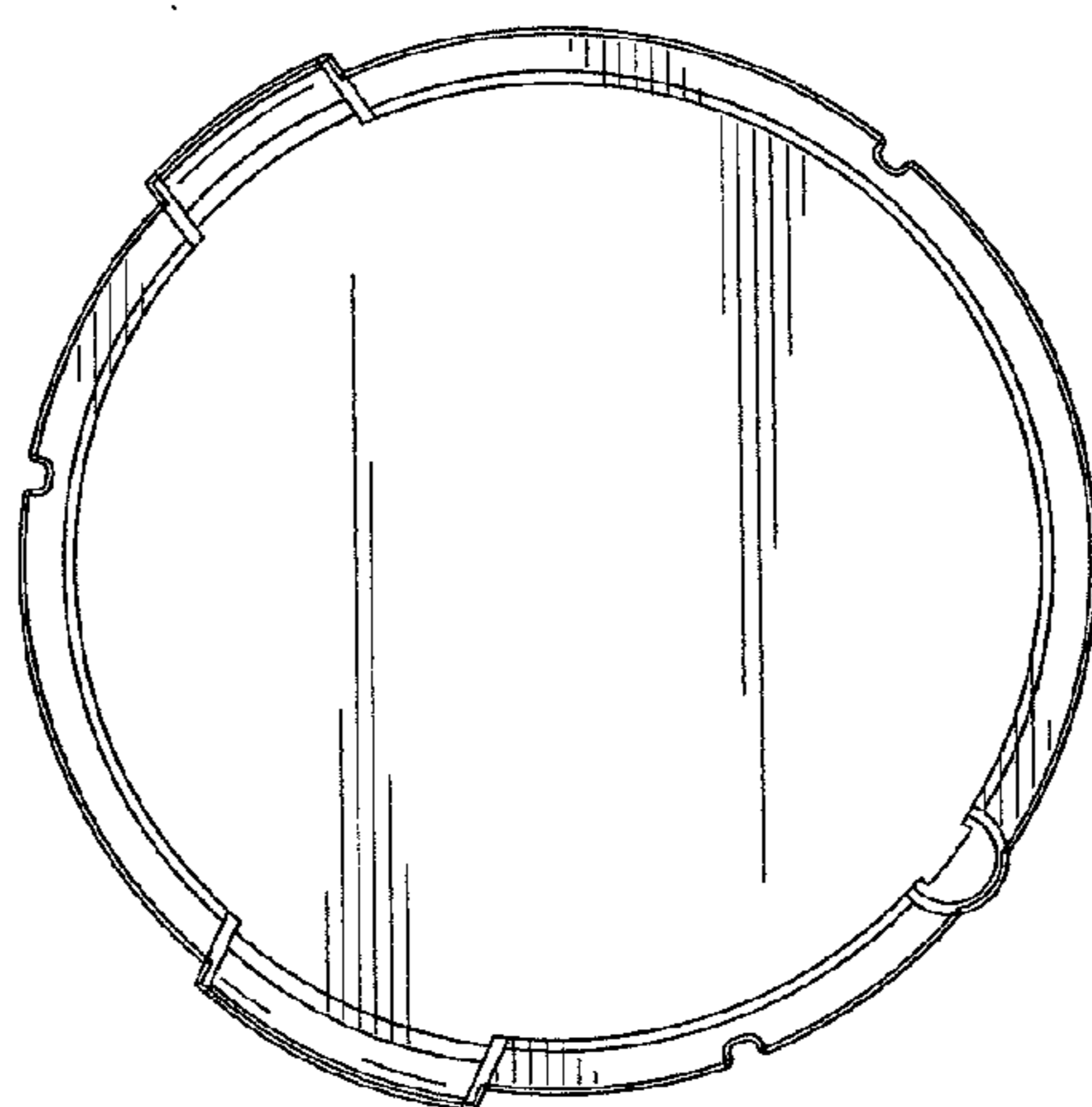


FIG. 8

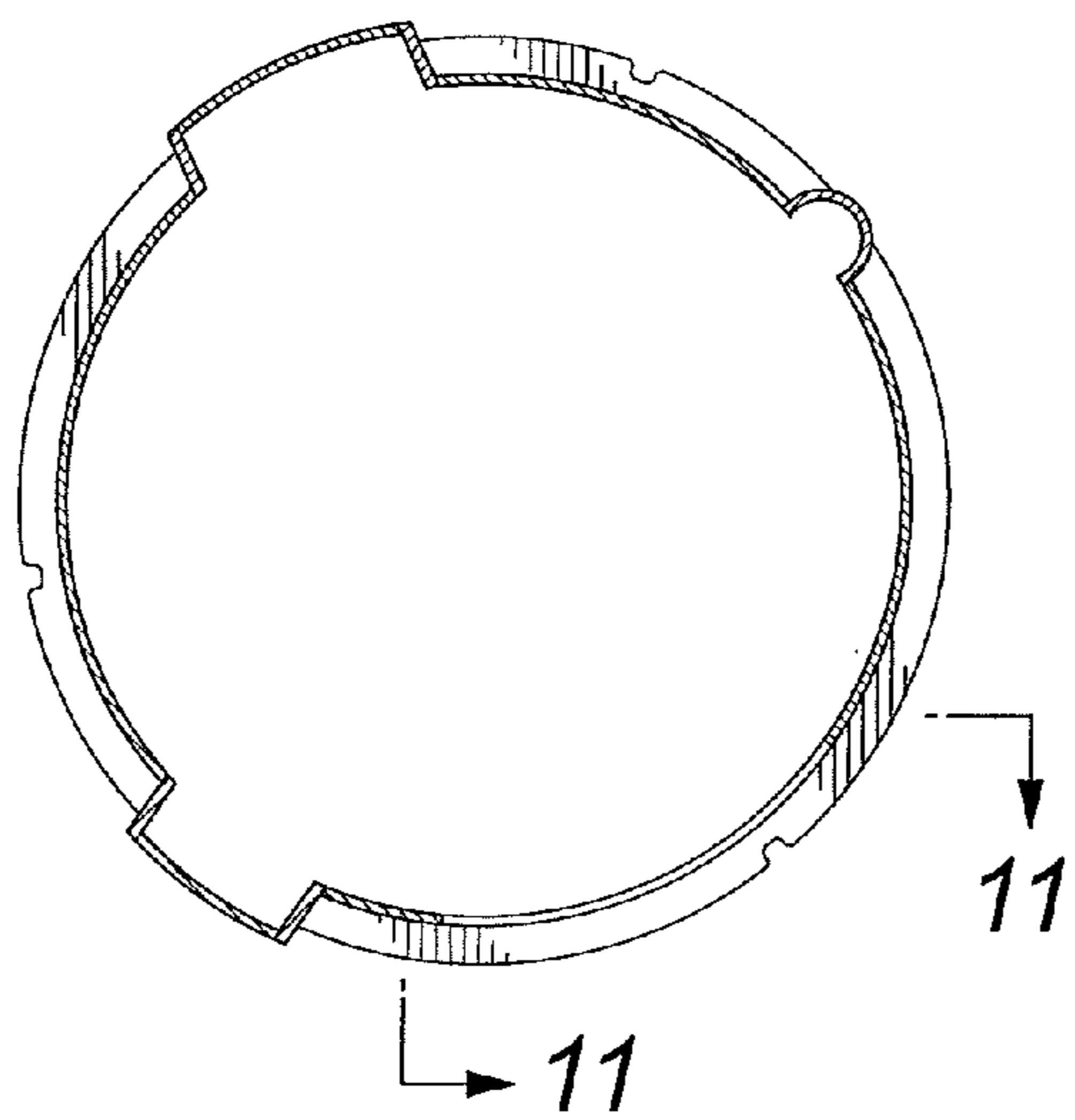


FIG. 9

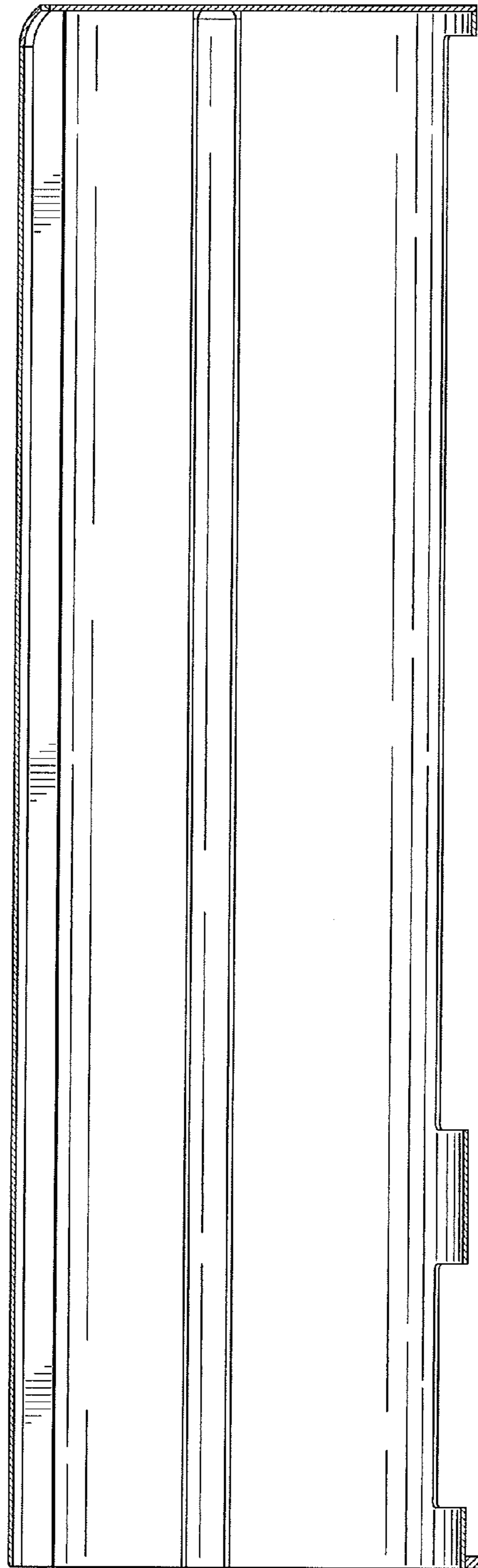


FIG. 10

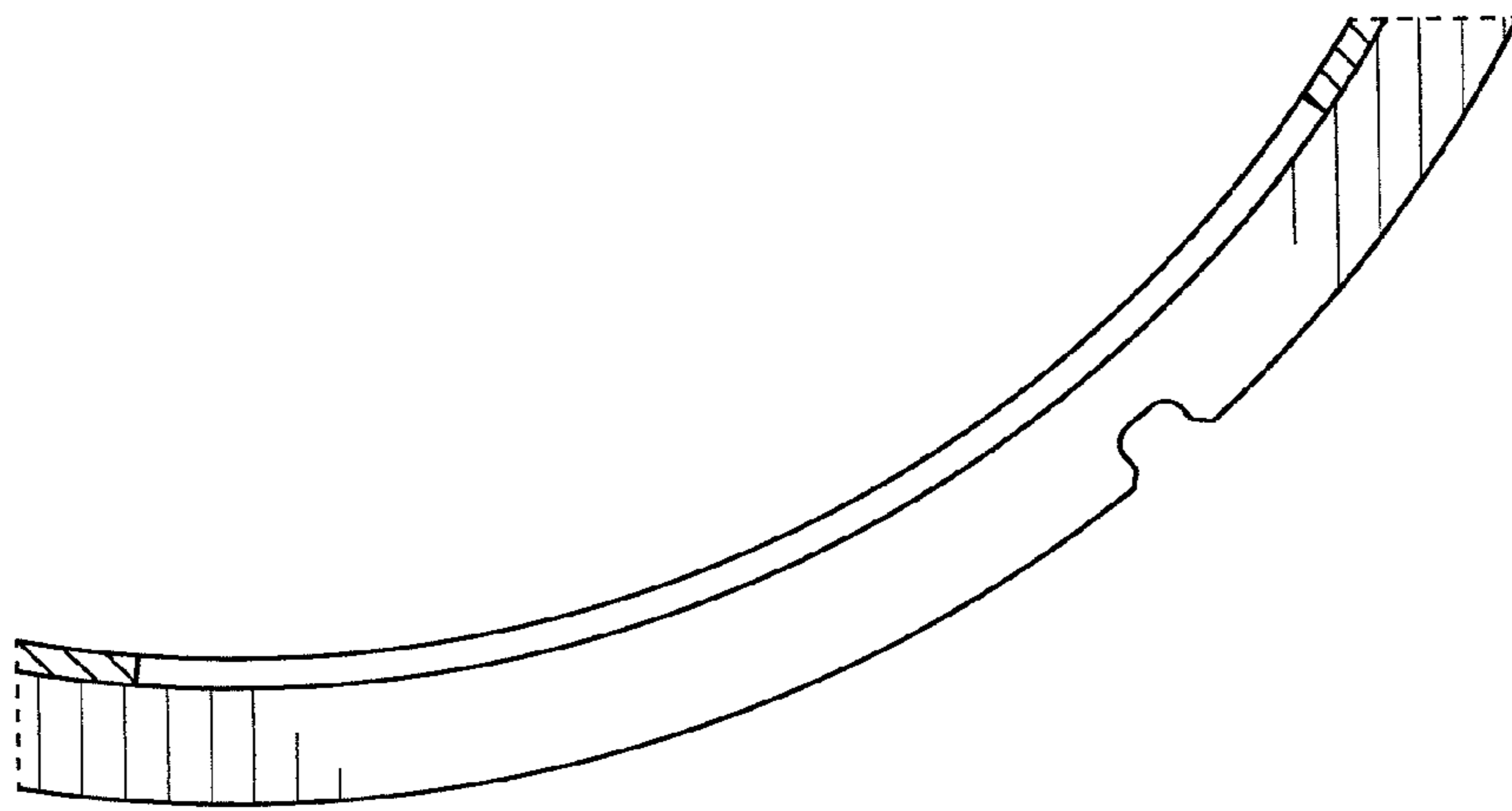


FIG. 11

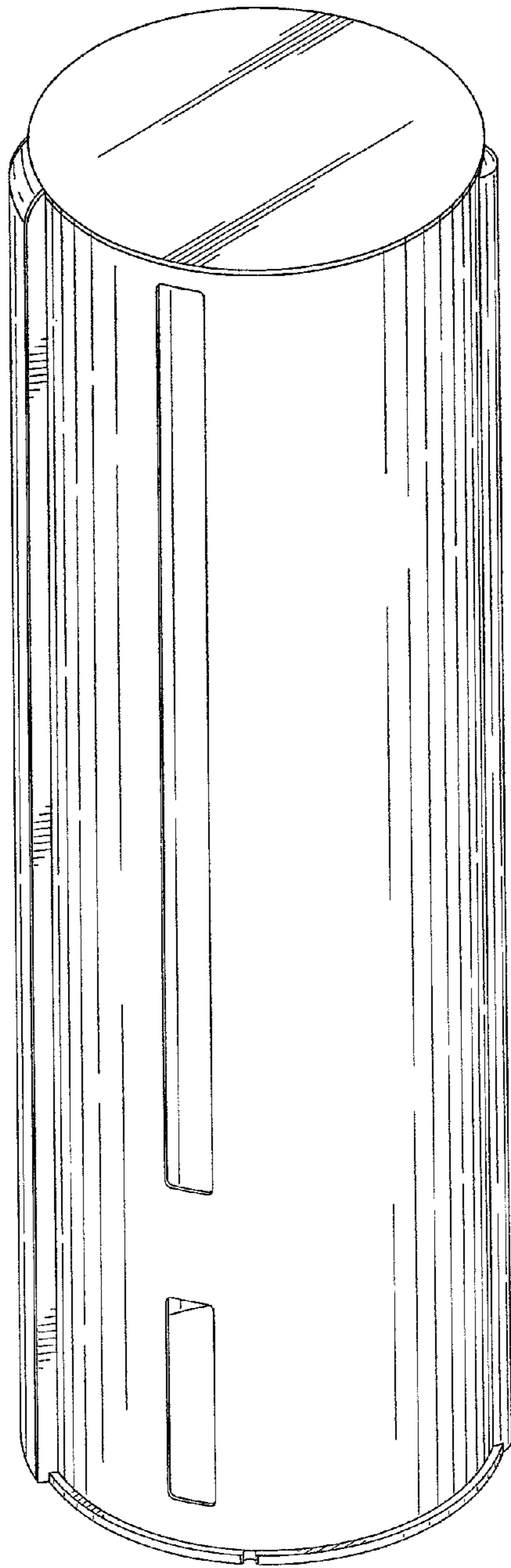


FIG. 12

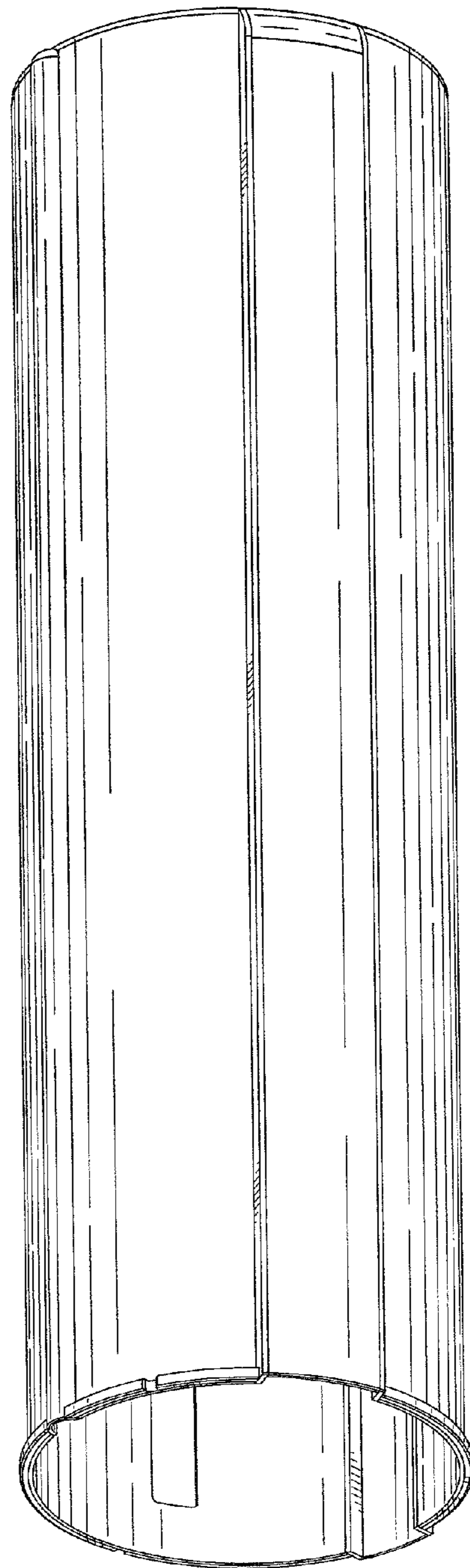


FIG. 13

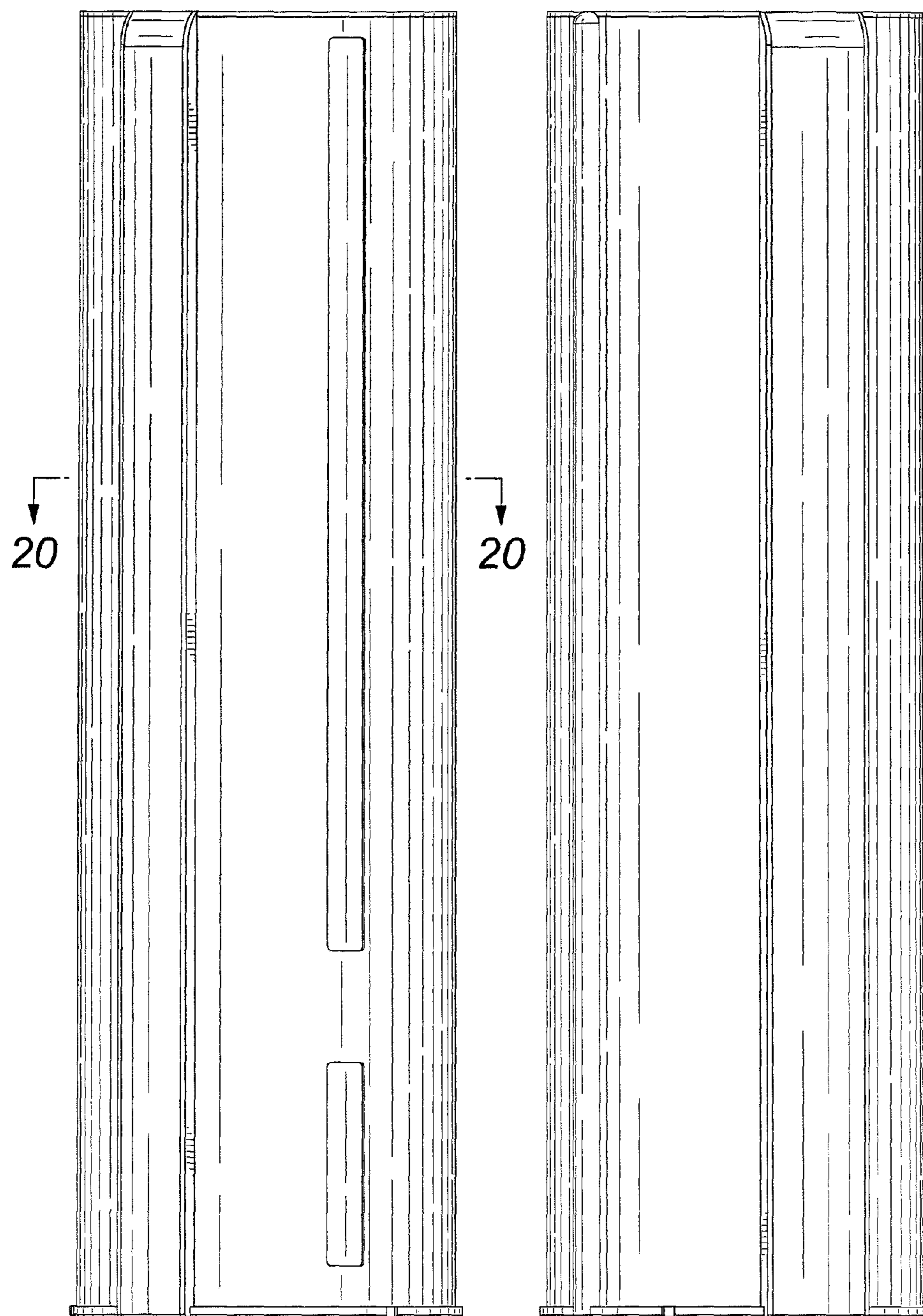


FIG. 14

FIG. 15

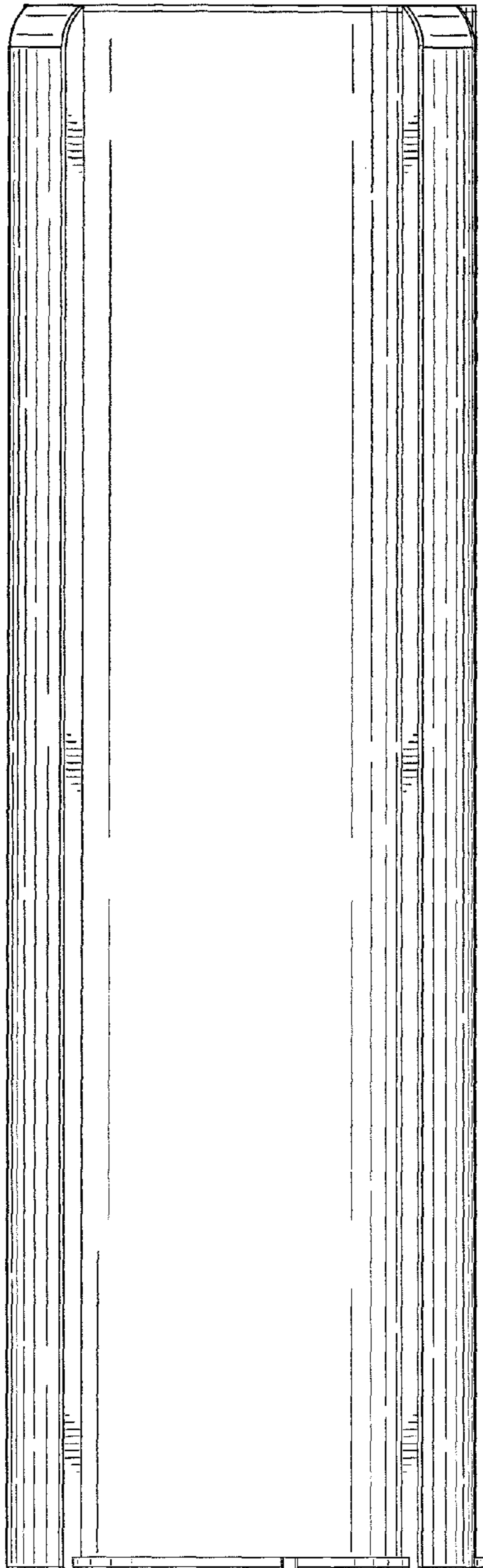


FIG. 16

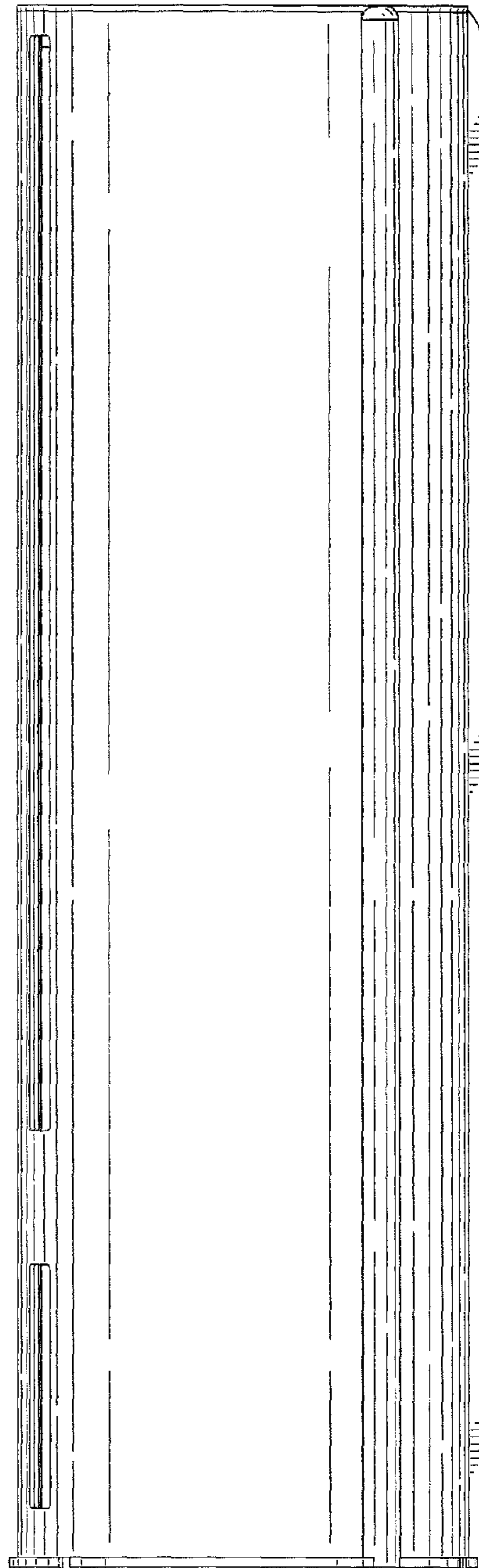


FIG. 17

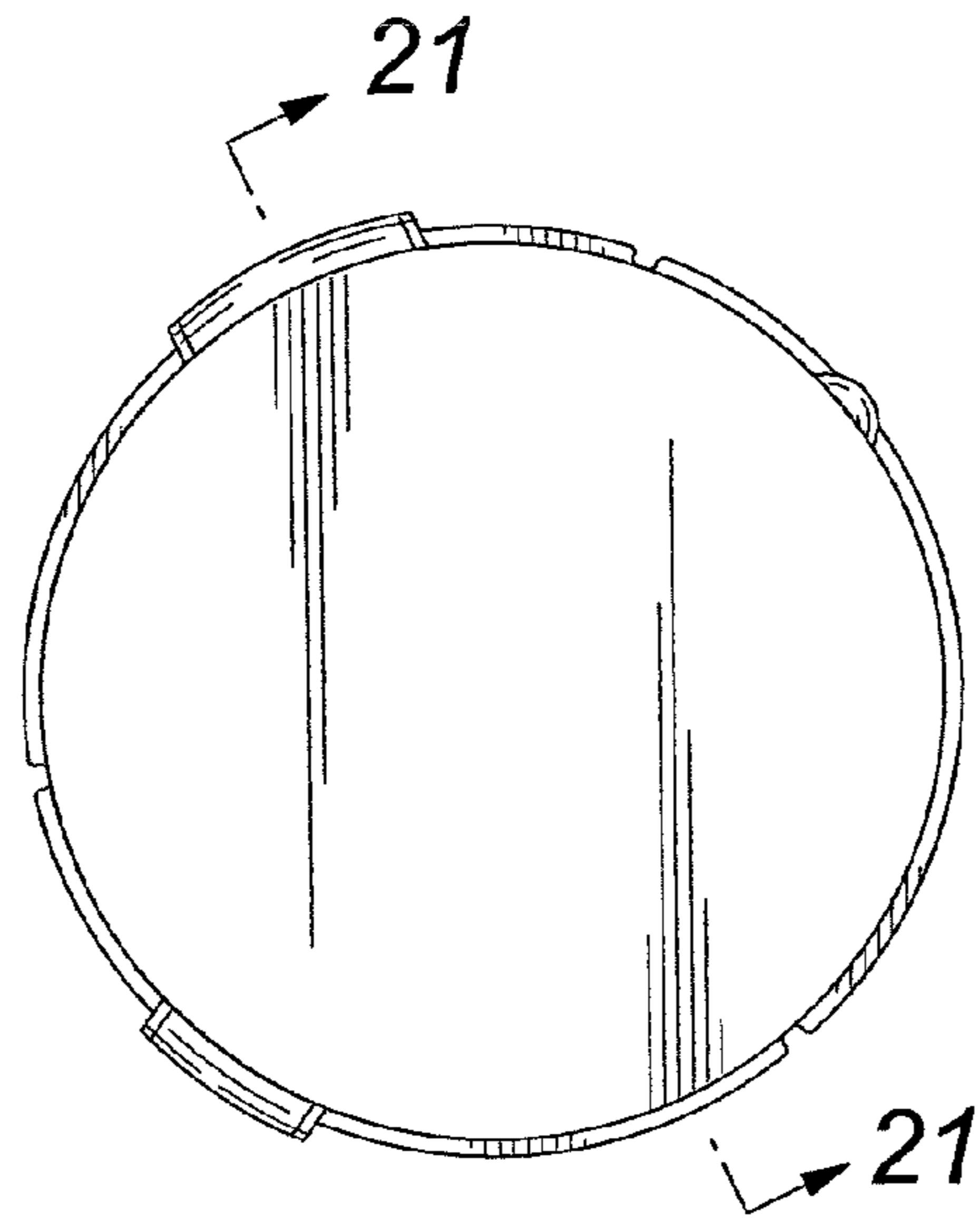


FIG. 18

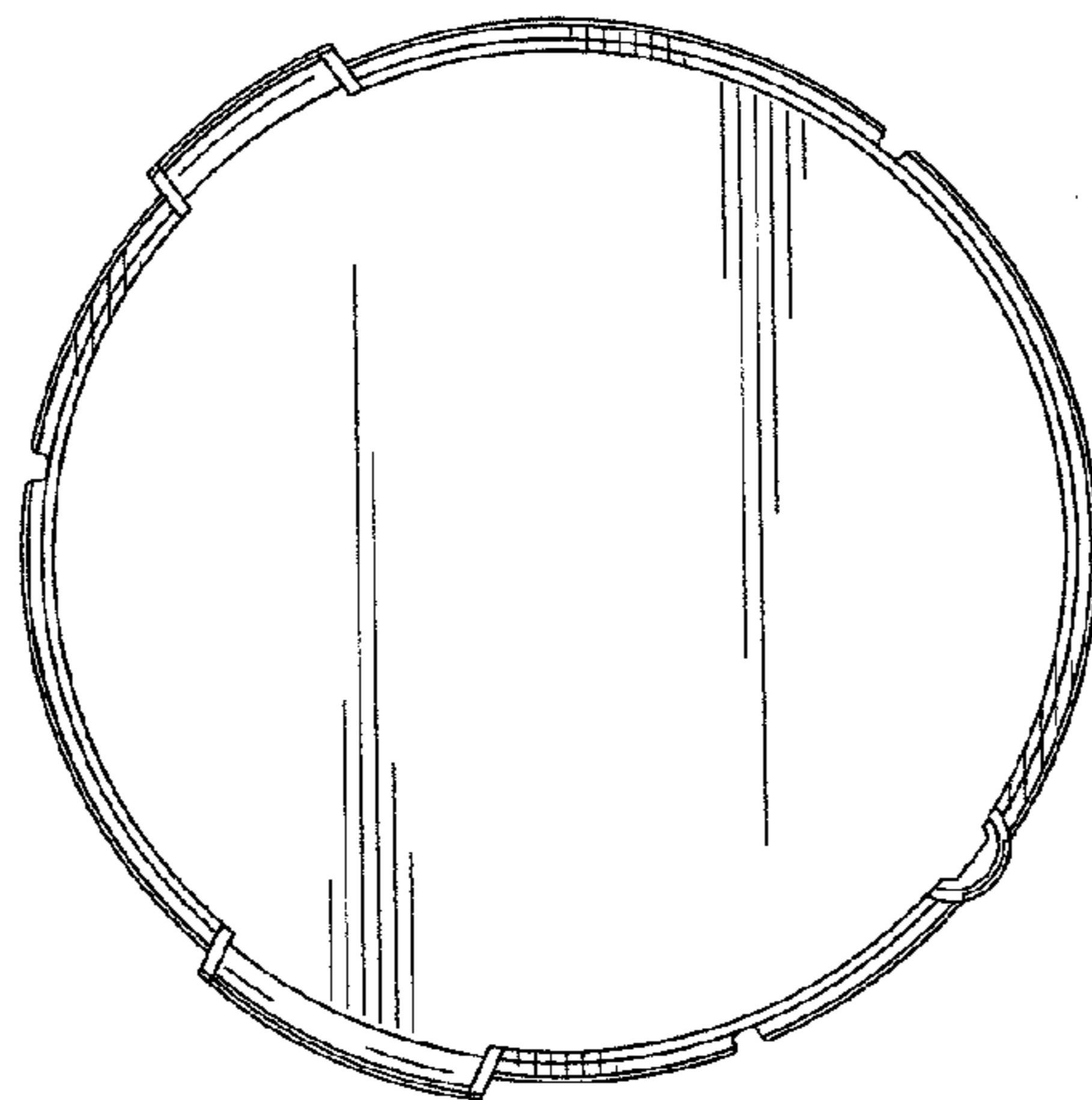


FIG. 19

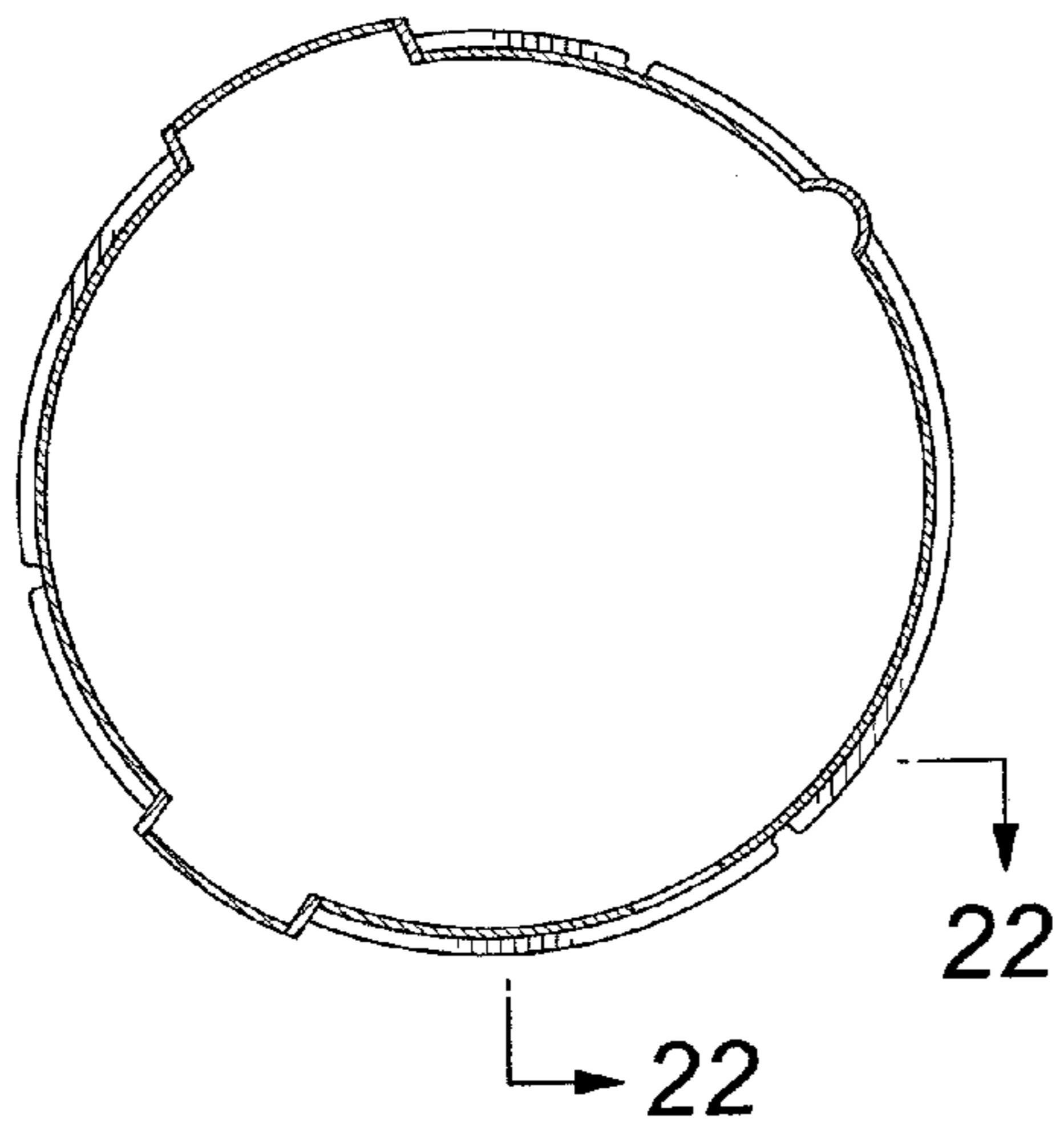


FIG. 20

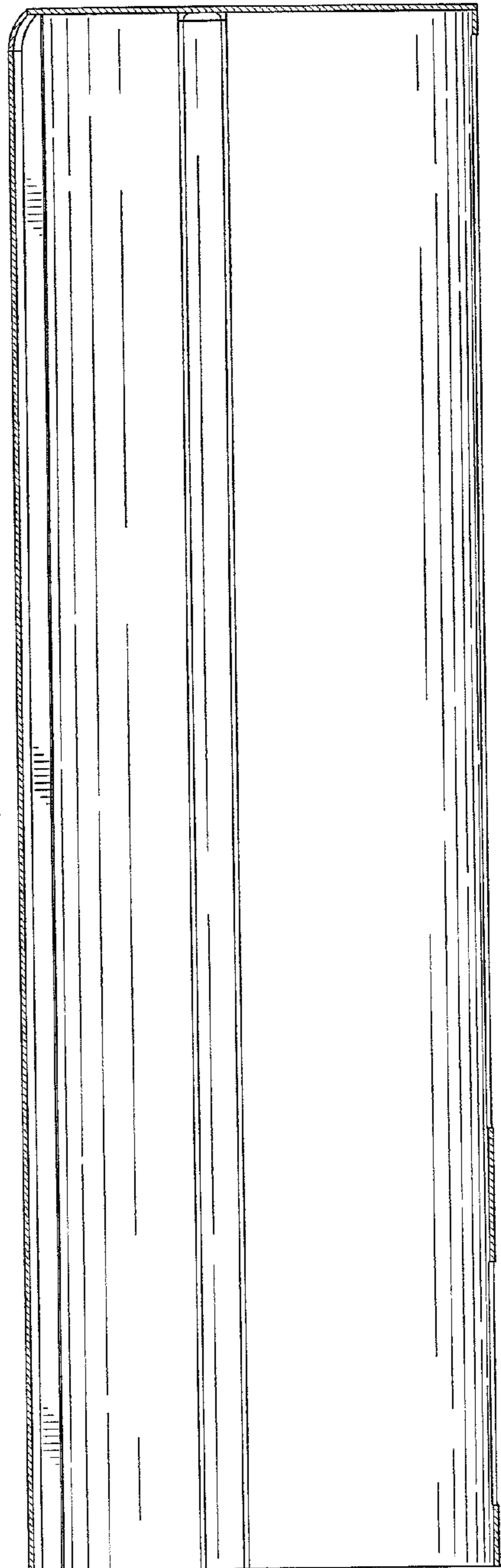


FIG. 21

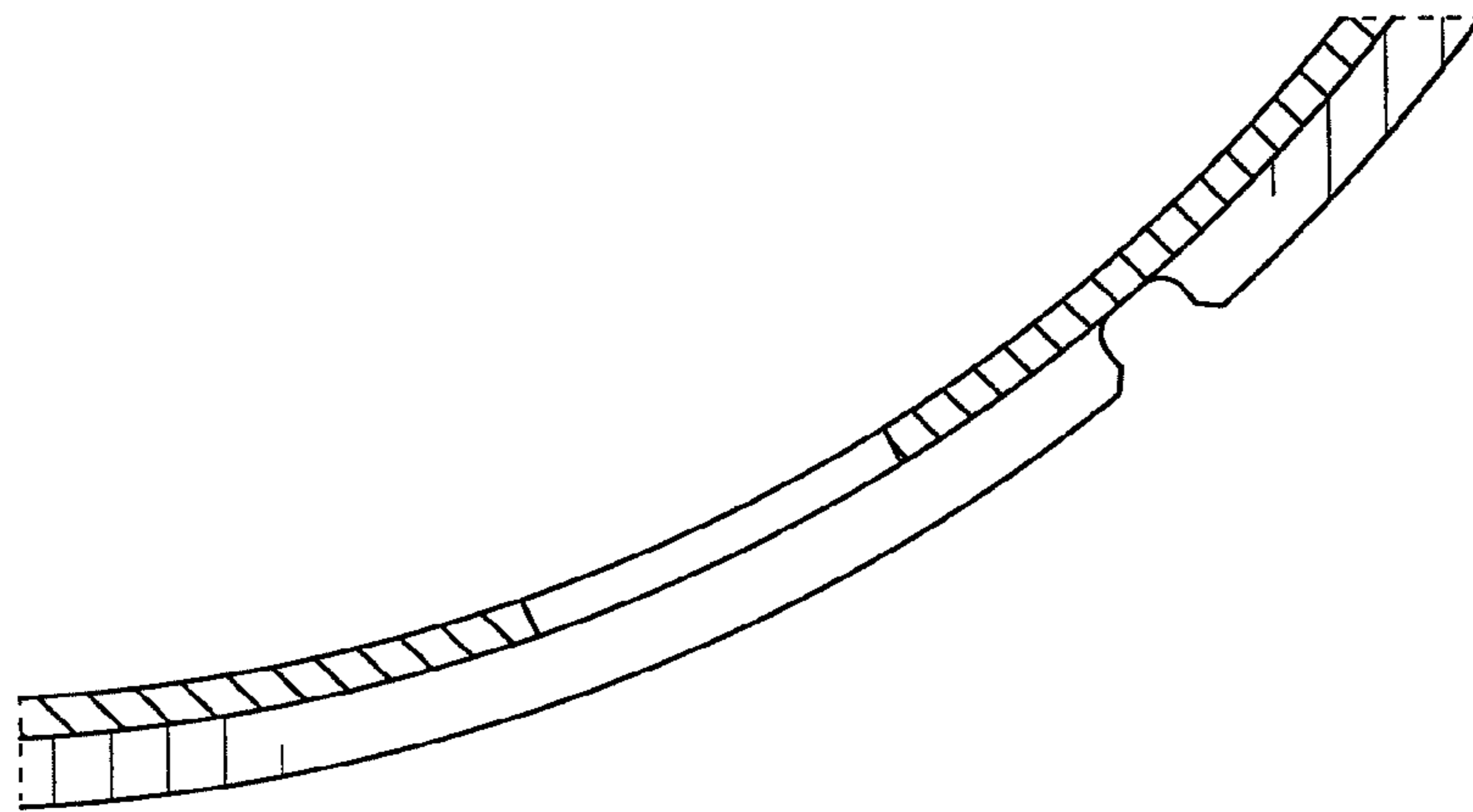


FIG. 22

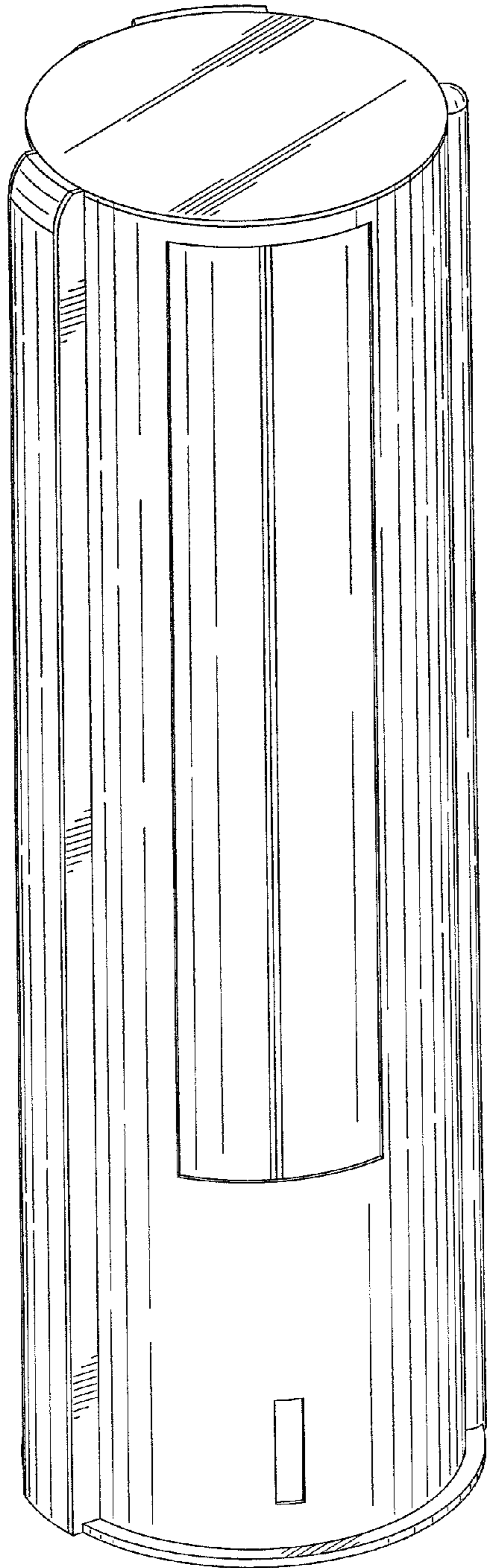


FIG. 23

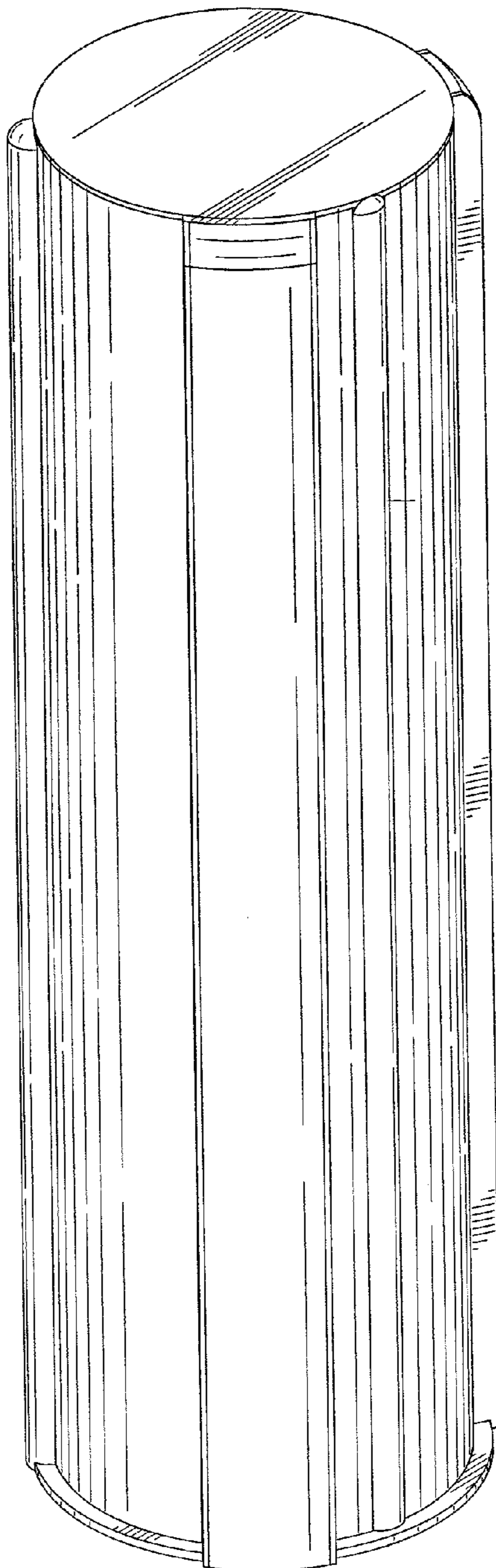


FIG. 24

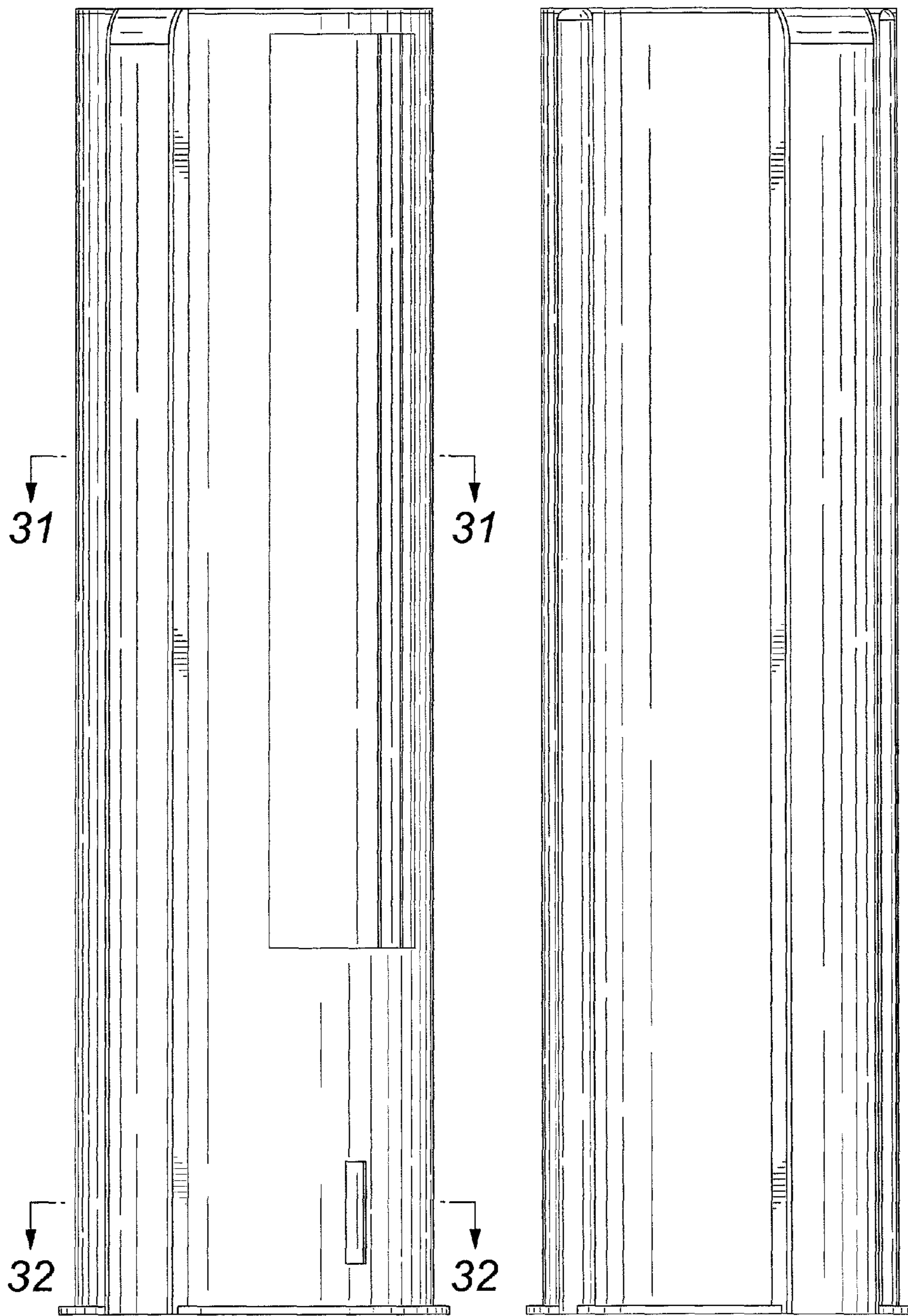


FIG. 25

FIG. 26

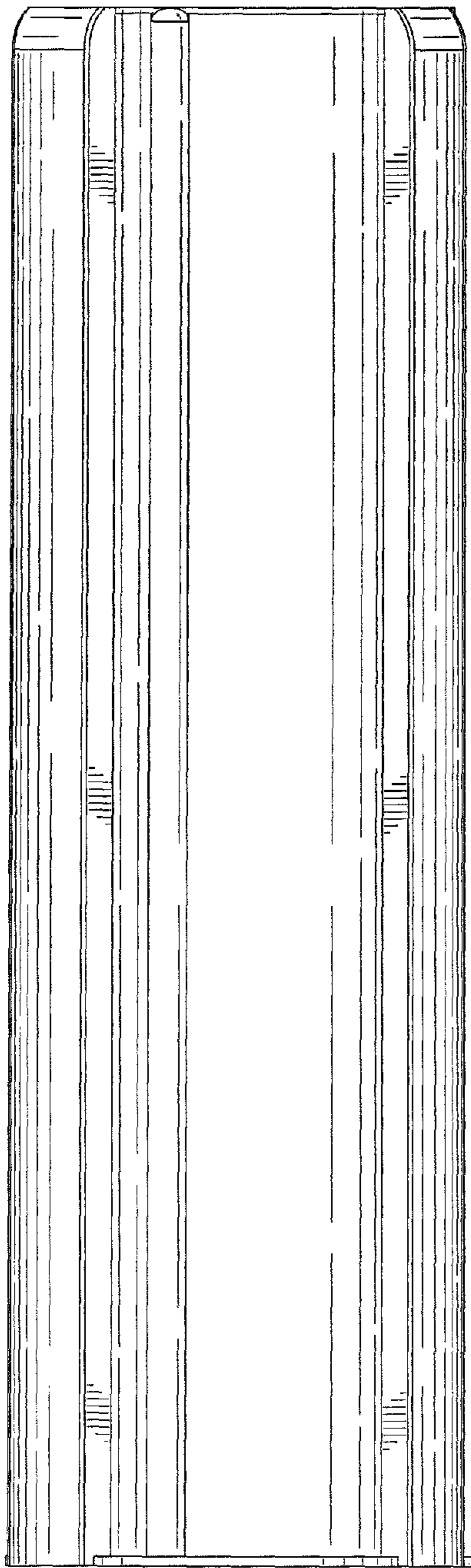


FIG. 27

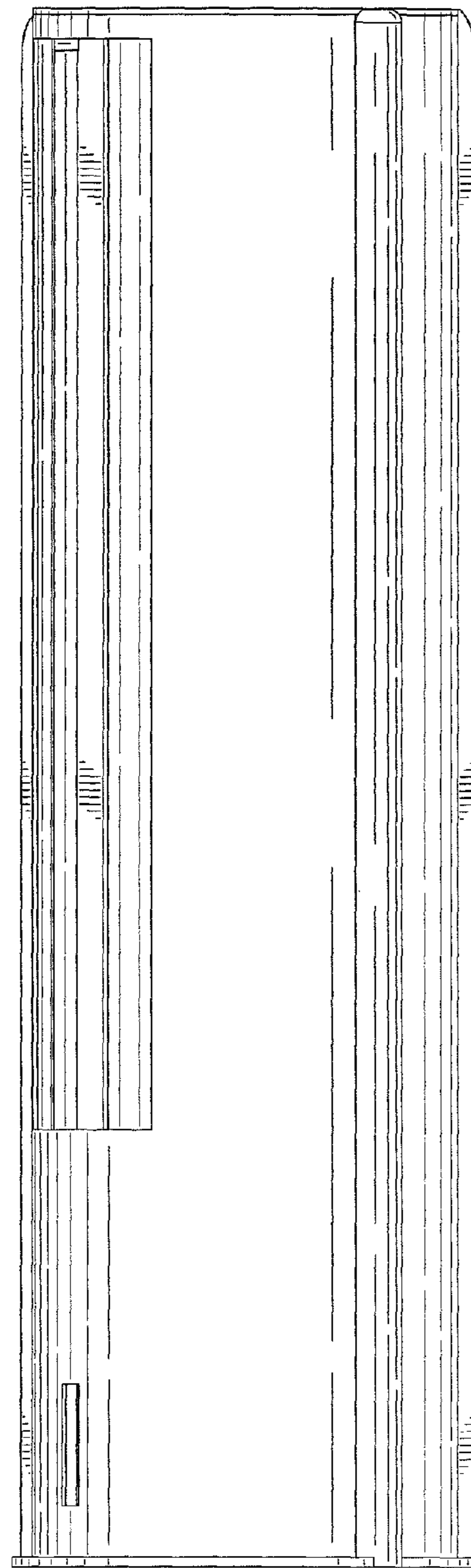


FIG. 28

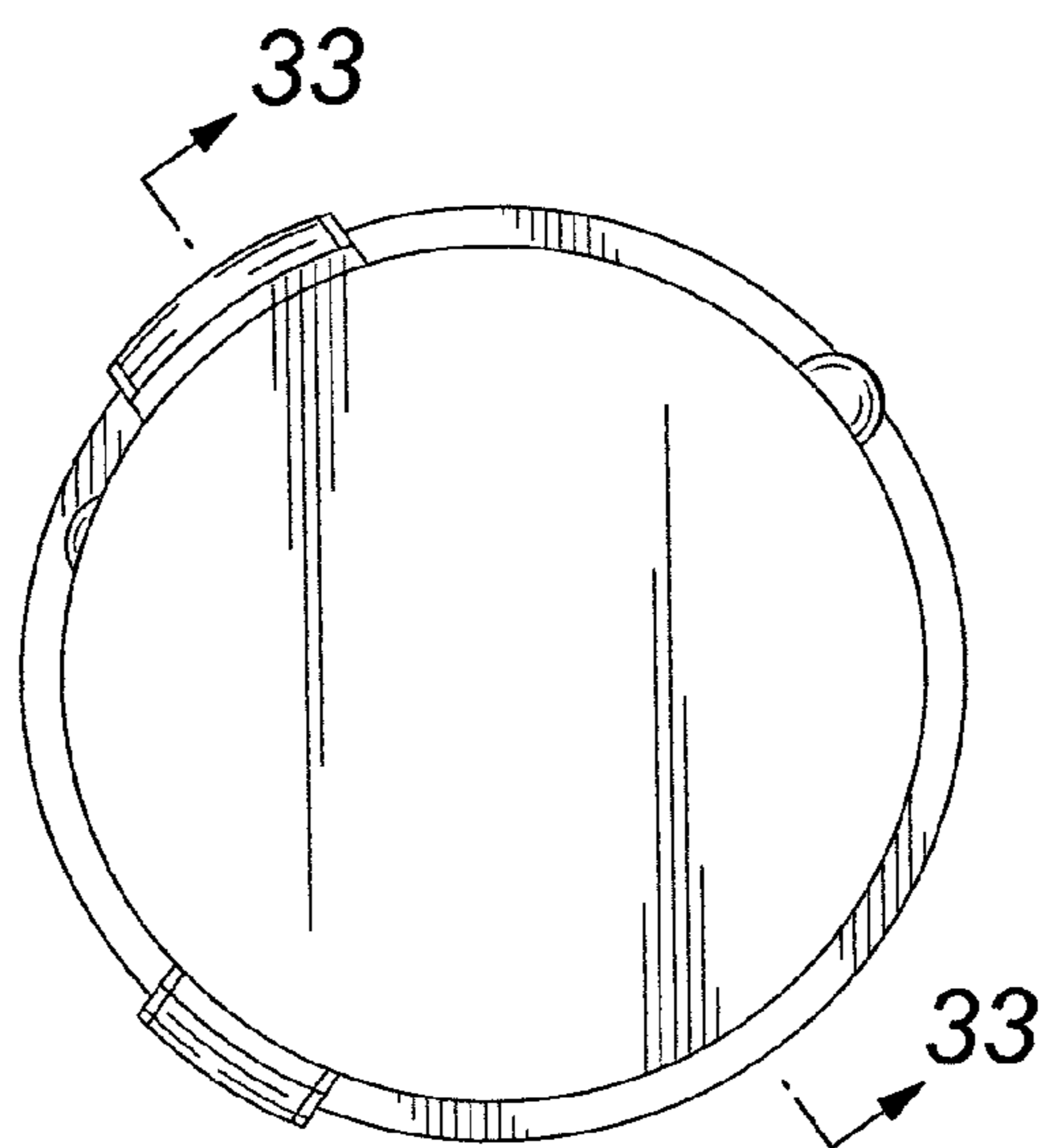


FIG. 29

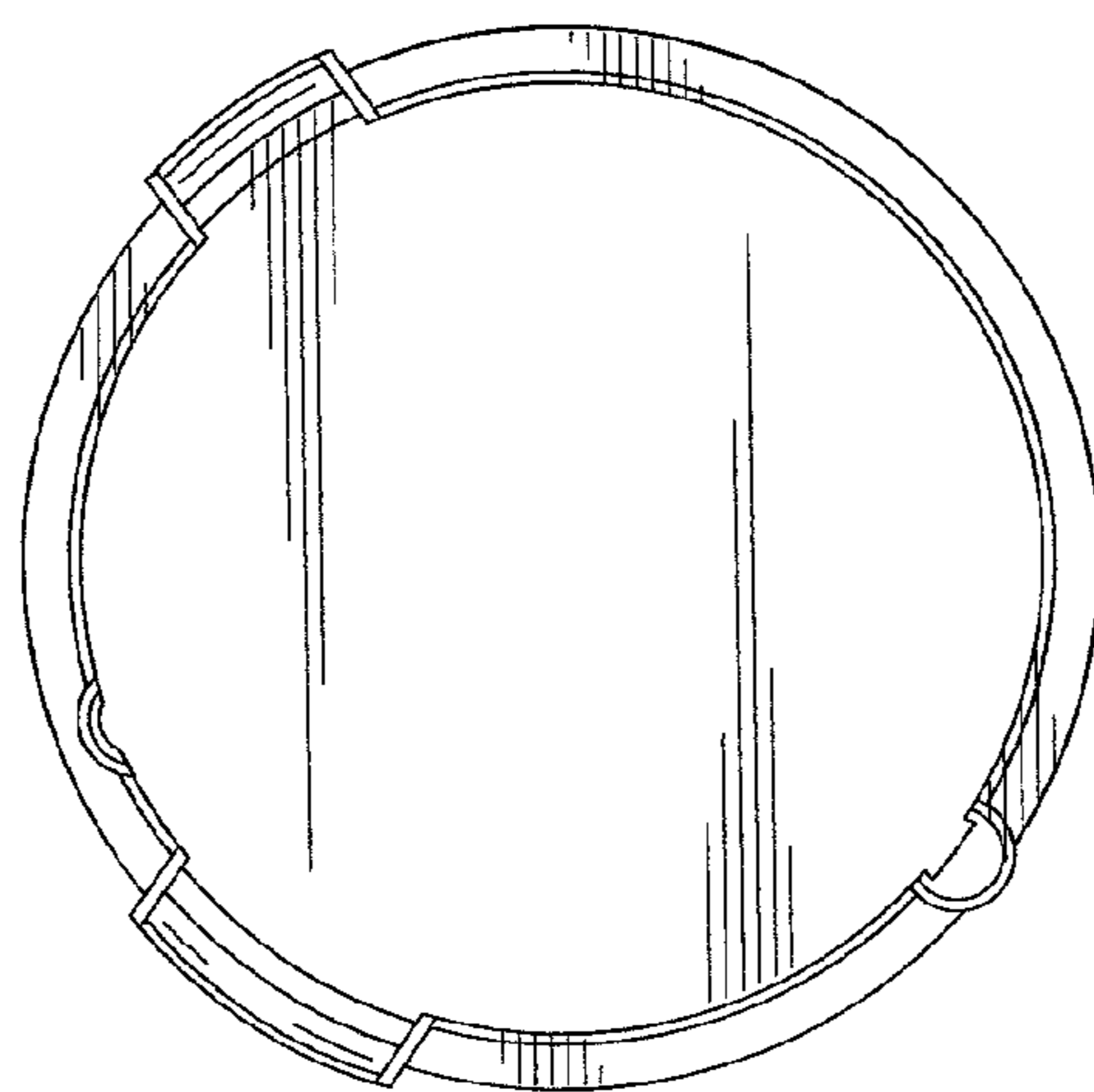


FIG. 30

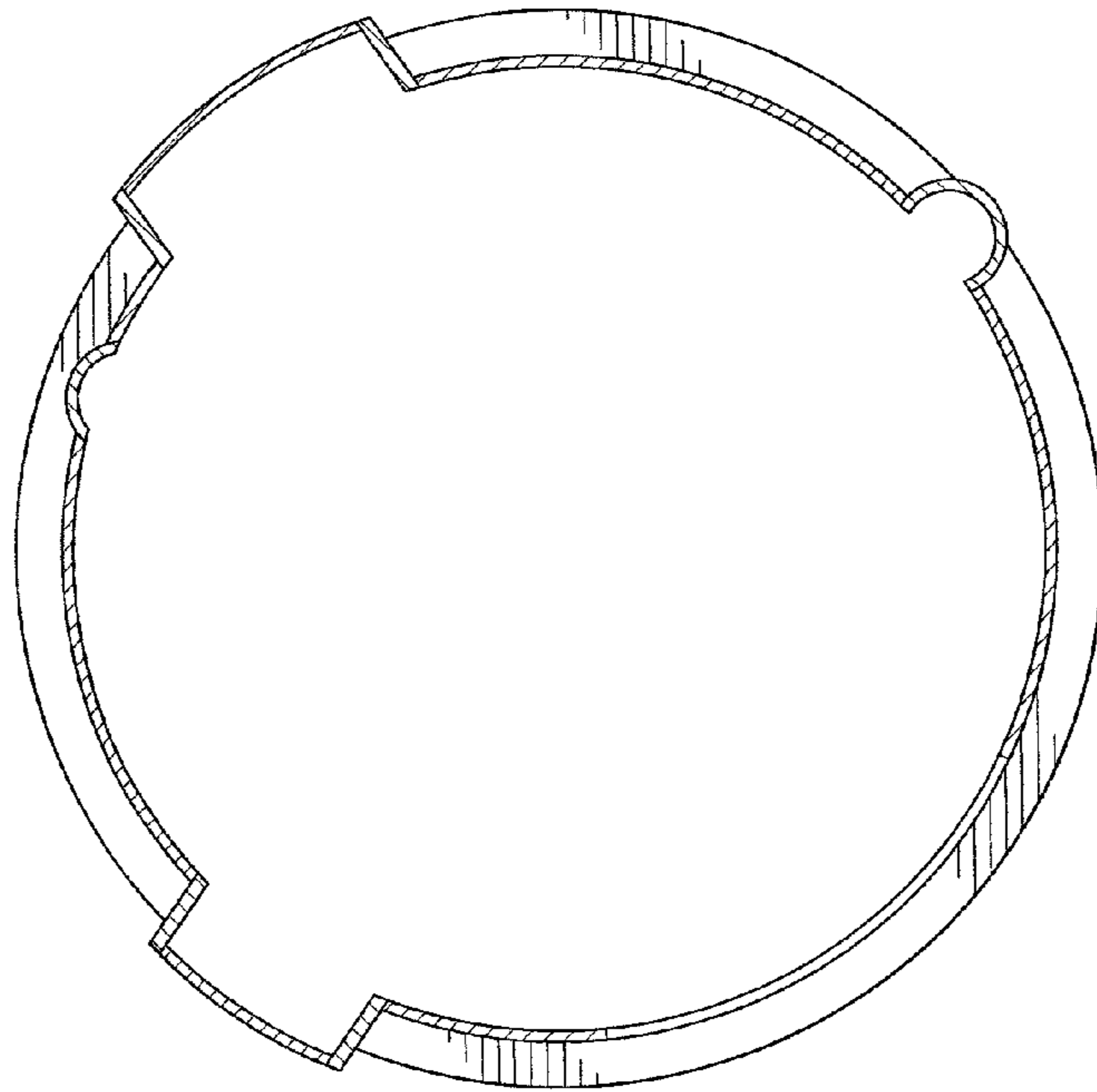


FIG. 31

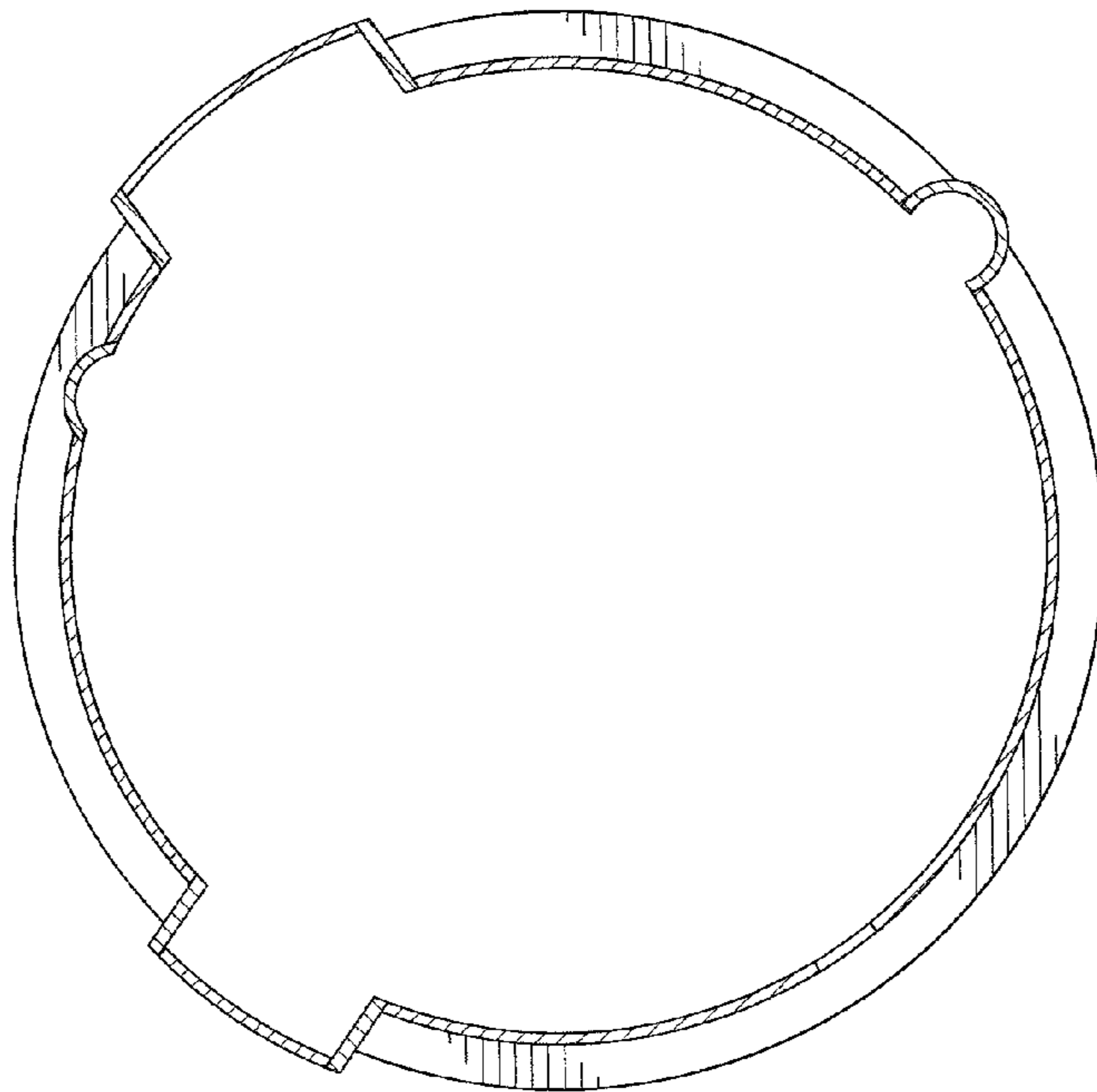


FIG. 32

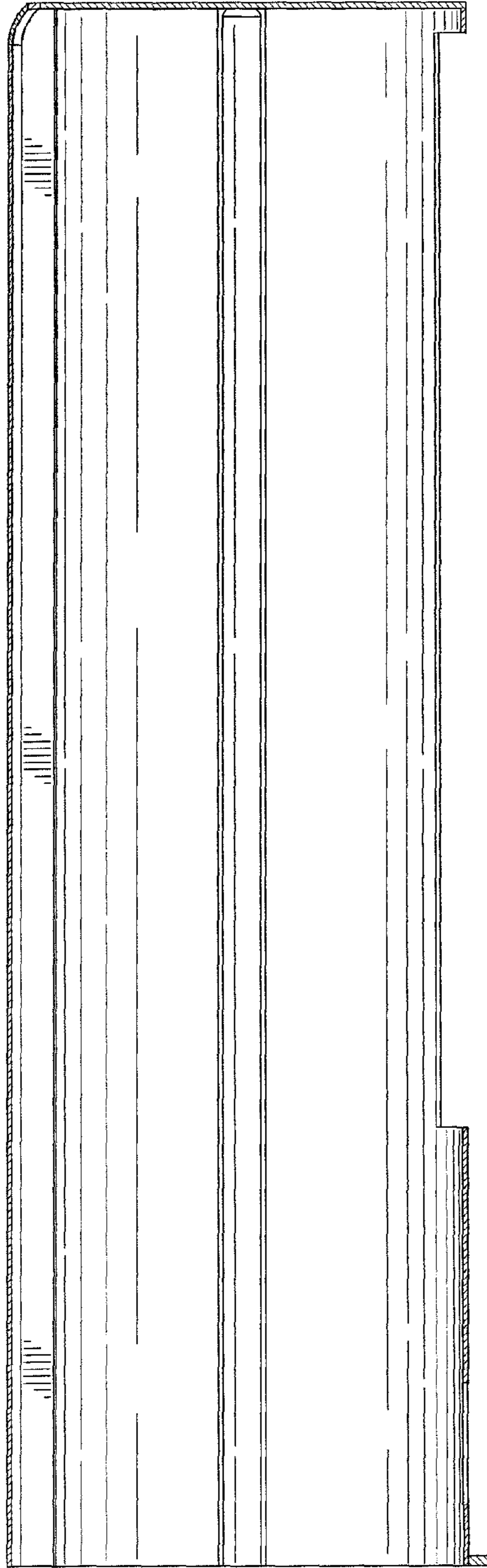


FIG. 33