



US00D846514S

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

(10) **Patent No.:** **US D846,514 S**  
(45) **Date of Patent:** **\*\* Apr. 23, 2019**

(54) **BOAT OF SUBSTRATE PROCESSING APPARATUS**

(71) Applicant: **Hitachi Kokusai Electric Inc.**, Tokyo (JP)

(72) Inventors: **Hidenari Yoshida**, Toyama (JP);  
**Yusaku Okajima**, Toyama (JP)

(73) Assignee: **KOKUSAI ELECTRIC CORPORATION**, Tokyo (JP)

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

(21) Appl. No.: **29/646,328**

(22) Filed: **May 3, 2018**

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

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

(58) **Field of Classification Search**  
USPC ..... D13/182; D15/144, 144.1, 199;  
118/715, 500, 728, 729; 211/41.18;  
432/253, 258; 156/345.51, 345.52,  
156/345.53, 345.55; 414/217, 220.01,  
414/935-941

CPC ..... C23C 16/458; C23C 16/4581; C23C  
16/4582; C23C 16/4583; C23C 16/4584;  
C23C 16/4587; C23C 16/4588; C30B  
3/14; H01L 21/673; H01L 21/67303;  
H01L 21/67306; H01L 21/67309; H01L  
21/67313; H01L 21/67316; H01L  
21/67323; H01L 21/67326; H01L 21/6733  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

D229,028 S \* 11/1973 Mestre ..... D8/402  
D366,868 S \* 2/1996 Ohsawa ..... D13/182  
D378,675 S \* 4/1997 Iwai ..... D13/182  
D378,823 S \* 4/1997 Watanabe ..... D13/182

D380,454 S \* 7/1997 Iwai ..... D13/182  
5,752,609 A \* 5/1998 Kato ..... H01L 21/67309  
118/500  
D404,015 S \* 1/1999 Honma ..... D13/182  
D404,371 S \* 1/1999 Shimazu ..... D13/182  
D409,158 S \* 5/1999 Shimazu ..... 206/832  
D411,176 S \* 6/1999 Shimazu ..... D13/182

(Continued)

**FOREIGN PATENT DOCUMENTS**

JP 1563649 S 11/2016

**OTHER PUBLICATIONS**

U.S. Appl. No. 29/573,943, filed Aug. 10, 2016 (Corresponds to JP-S-1563649).

*Primary Examiner* — Elizabeth J Oswecki

(74) *Attorney, Agent, or Firm* — Fitch, Even, Tabin & Flannery, LLP

(57) **CLAIM**

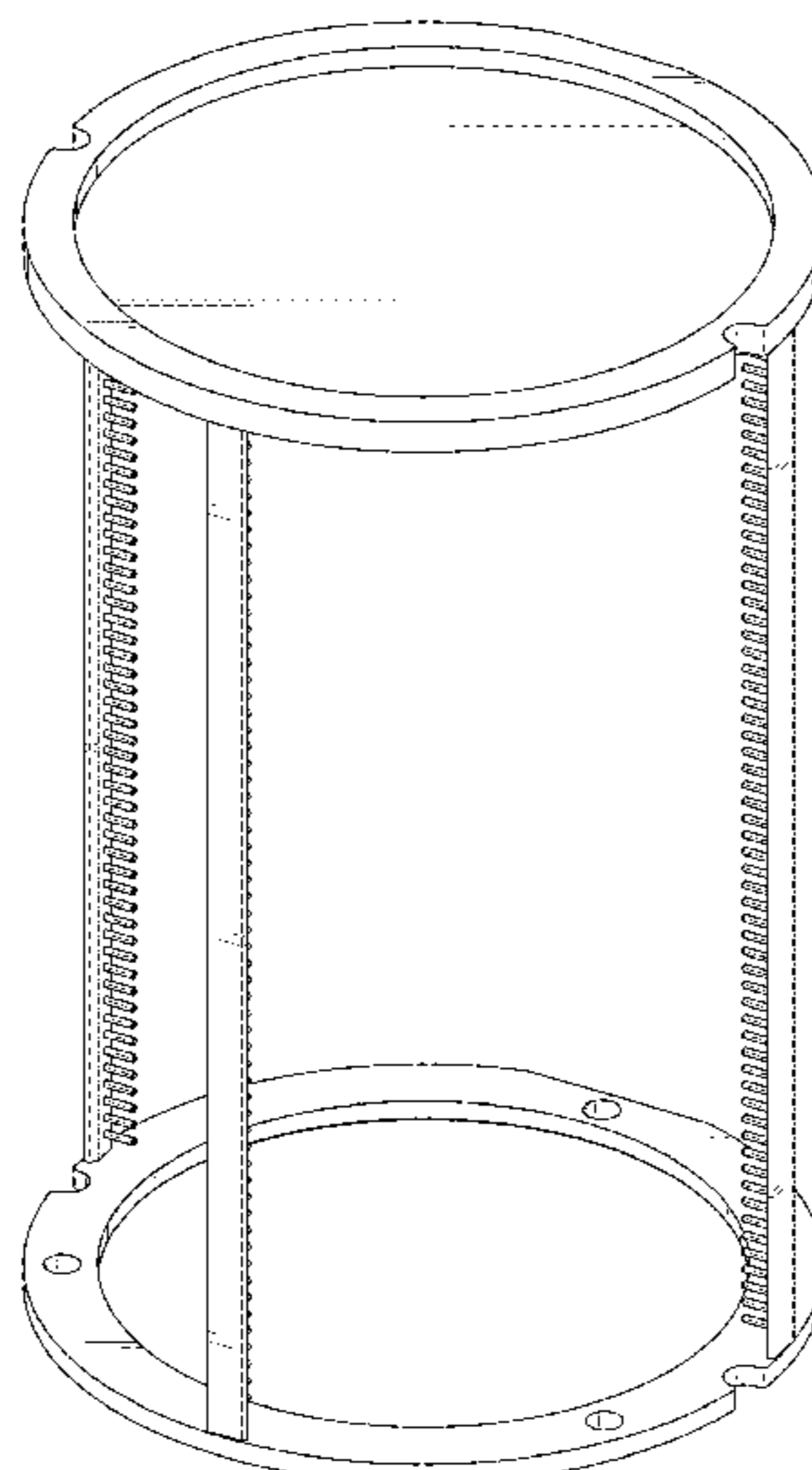
The ornamental design for a boat of substrate processing apparatus, as shown and described.

**DESCRIPTION**

FIG. 1 is a rear, top, and left side perspective view of a boat of substrate processing apparatus, showing our new design; FIG. 2 is a front elevational view thereof; FIG. 3 is a rear elevational view thereof; FIG. 4 is a right side elevational view thereof; FIG. 5 is a left side elevational view thereof; FIG. 6 is a top plan view thereof; and FIG. 7 is a bottom plan view thereof. FIG. 8 is a cross-sectional view take along line 8-8 in FIG. 2; and, FIG. 9 is an enlarged cross-sectional view take along line 9-9 in FIG. 8.

The broken lines shown in the drawing views of FIG. 8 and FIG. 9 form no part of the claimed design.

**1 Claim, 7 Drawing Sheets**



(56)

References Cited

U.S. PATENT DOCUMENTS

6,062,853 A *	5/2000	Shimazu	.....	H01L 21/67309	211/41.18	D600,221 S *	9/2009	Sato	.....	D13/182
6,065,615 A *	5/2000	Uchiyama	.....	H01L 21/67303	118/500	D600,222 S *	9/2009	Sato	.....	D13/182
6,099,054 A *	8/2000	Glass	.....	E05B 15/0225	292/241	D616,396 S *	5/2010	Sato	.....	D13/182
6,099,302 A *	8/2000	Hong	.....	C30B 31/14	211/41.18	7,857,140 B2 *	12/2010	Shinjo	.....	H01L 21/6732
6,287,112 B1 *	9/2001	Van Voorst Vader	.....	C30B 31/14	118/728	D655,255 S *	3/2012	Takebayashi	.....	D13/182
6,341,935 B1 *	1/2002	Tseng	.....	H01L 21/67303	118/500	D655,682 S *	3/2012	Takebayashi	.....	D13/182
6,966,771 B2 *	11/2005	Irie	.....	C23C 16/4583	432/253	D734,730 S *	7/2015	Yoshida	.....	D13/182
7,033,168 B1 *	4/2006	Gupta	.....	C23C 16/4583	211/41.18	D737,785 S *	9/2015	Yoshida	.....	D13/182
D570,308 S *	6/2008	Sato	.....	D13/182		D738,329 S *	9/2015	Yoshida	.....	D13/182
D570,309 S *	6/2008	Sato	.....	D13/182		D747,279 S *	1/2016	Yoshida	.....	D13/182
D580,894 S *	11/2008	Sato	.....	D13/182		2002/0092815 A1 *	7/2002	Kim	.....	C30B 31/14
7,484,958 B2 *	2/2009	Kobayashi	.....	H01L 21/67309	211/41.18	2002/0113027 A1 *	8/2002	Minami	.....	H01L 21/67109
						2002/0130061 A1 *	9/2002	Hengst	.....	C23C 16/325
						2002/0187023 A1 *	12/2002	Araki	.....	C30B 31/14
						2003/0024888 A1 *	2/2003	Payne	.....	H01L 21/67303
						2005/0145584 A1 *	7/2005	Buckley	.....	H01L 21/67303
						2009/0250005 A1 *	10/2009	Kaneko	.....	H01L 21/67109
										118/724

\* cited by examiner

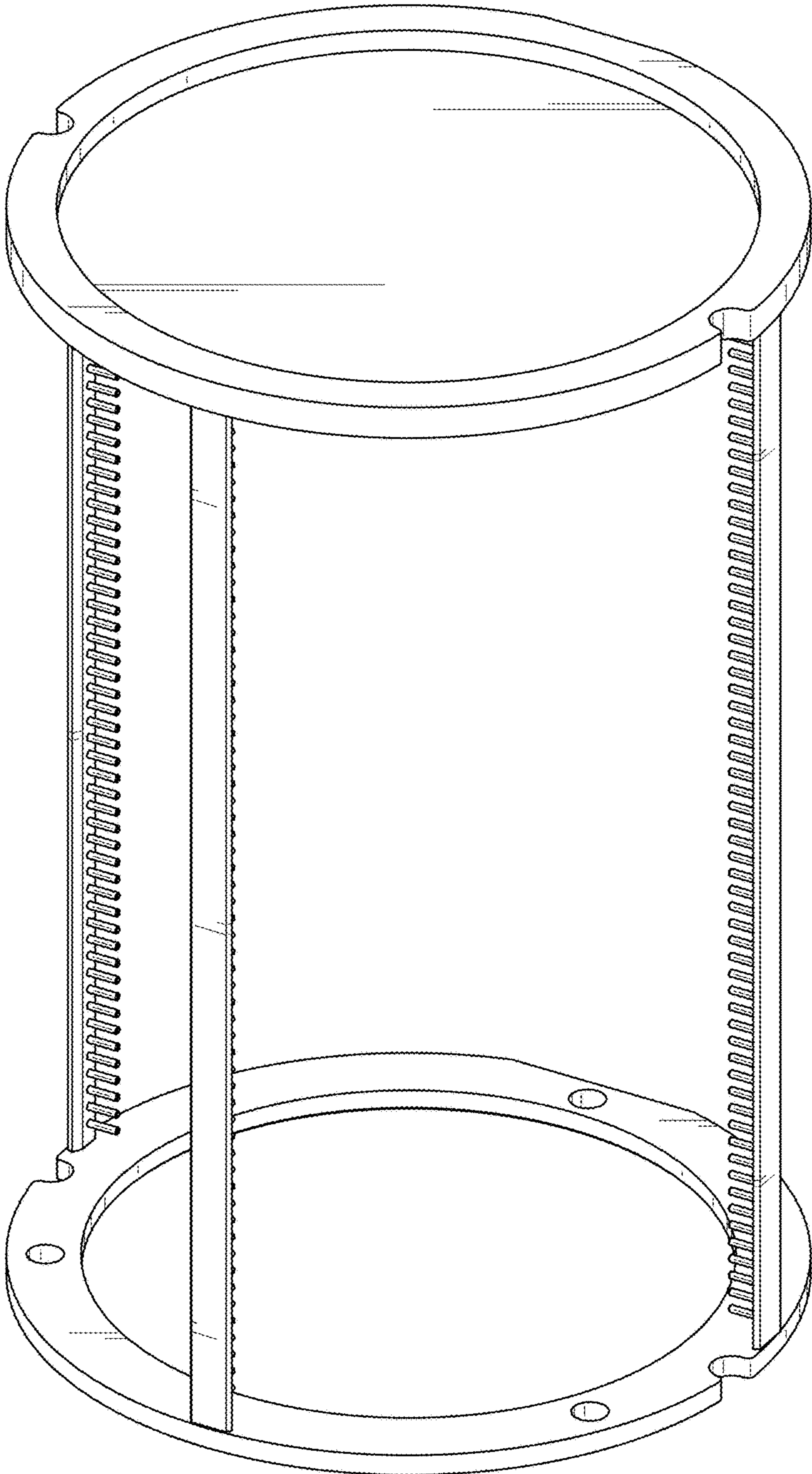


FIG. 1

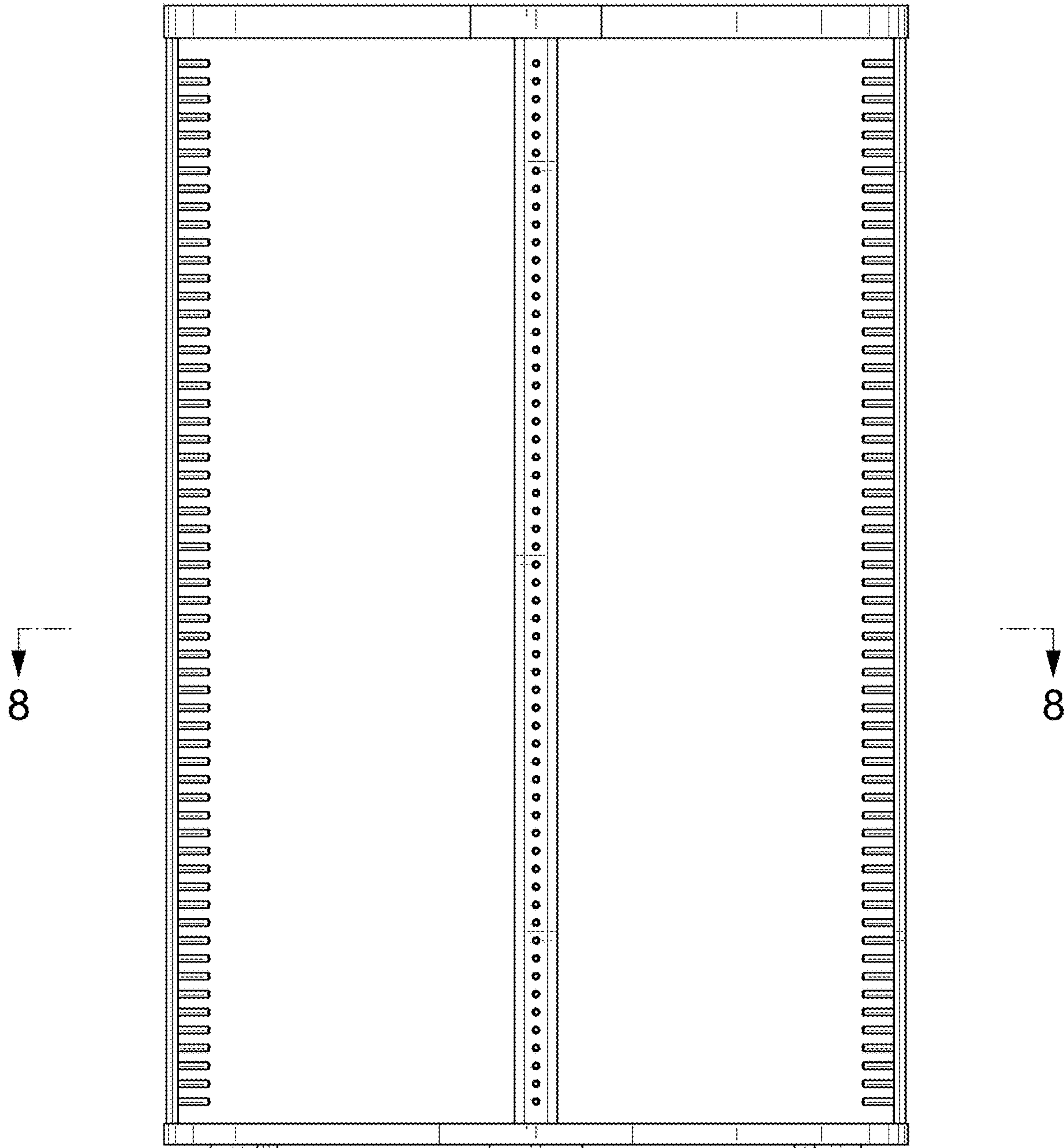


FIG. 2

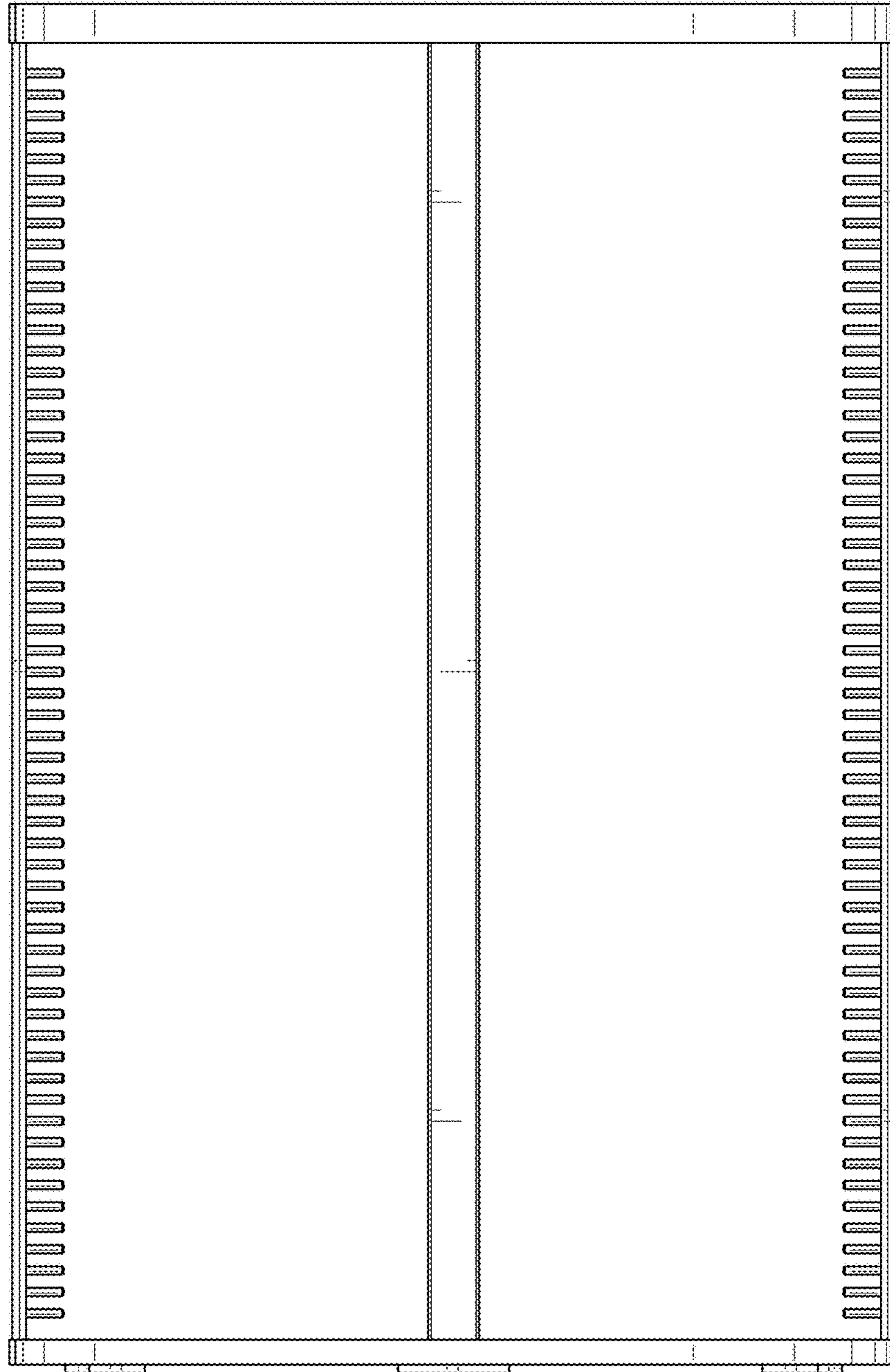


FIG. 3

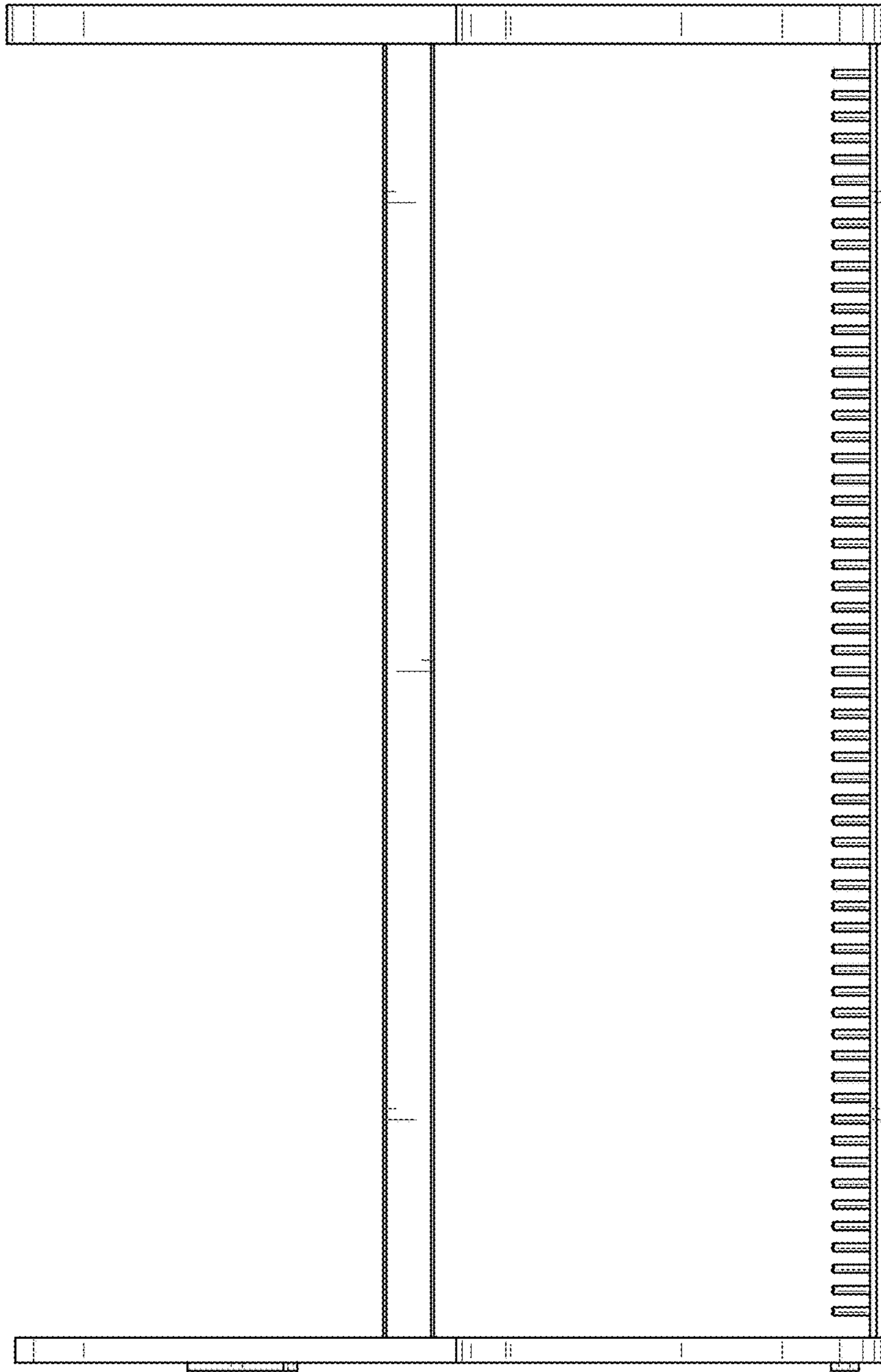


FIG. 4

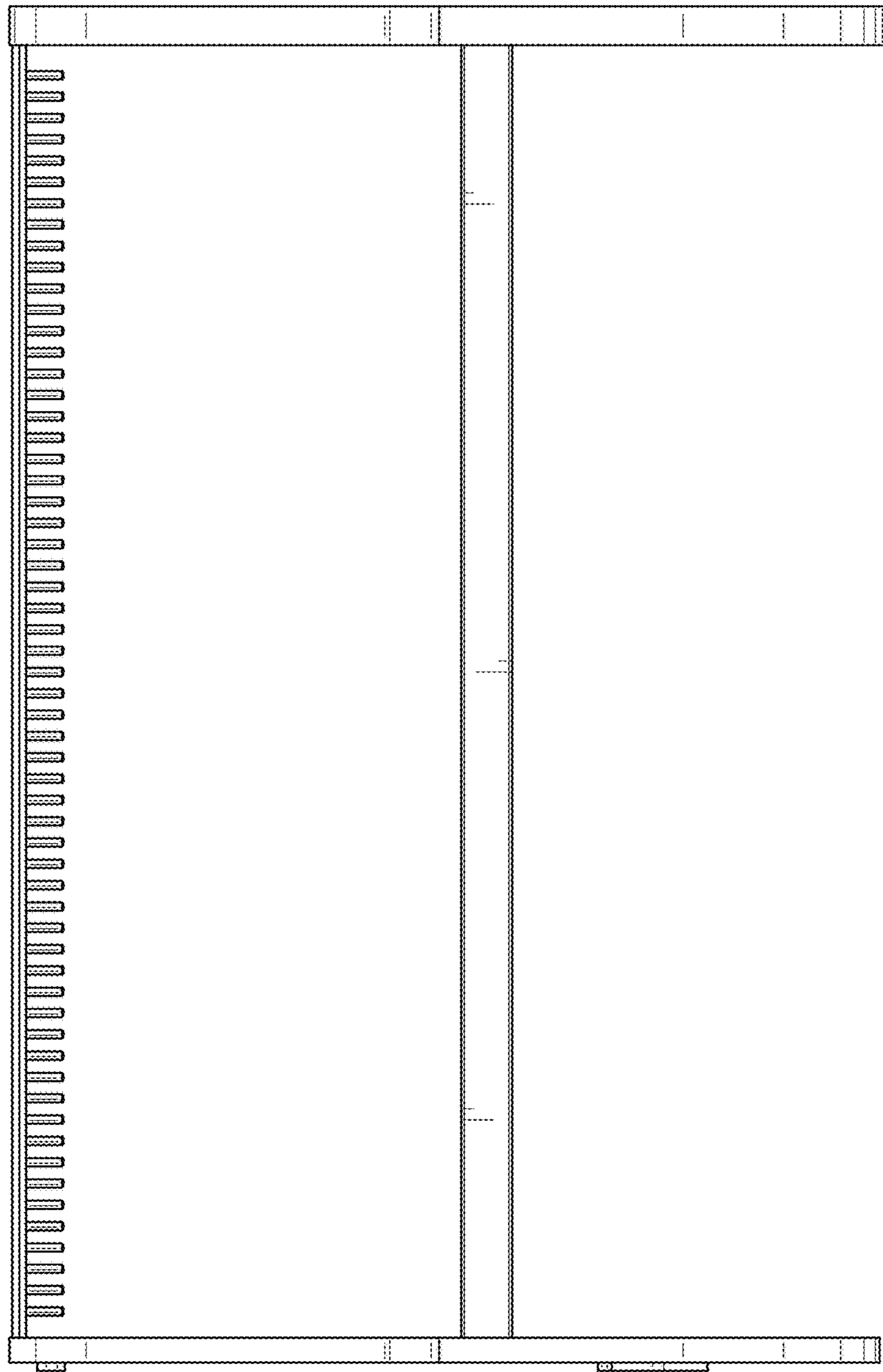


FIG. 5

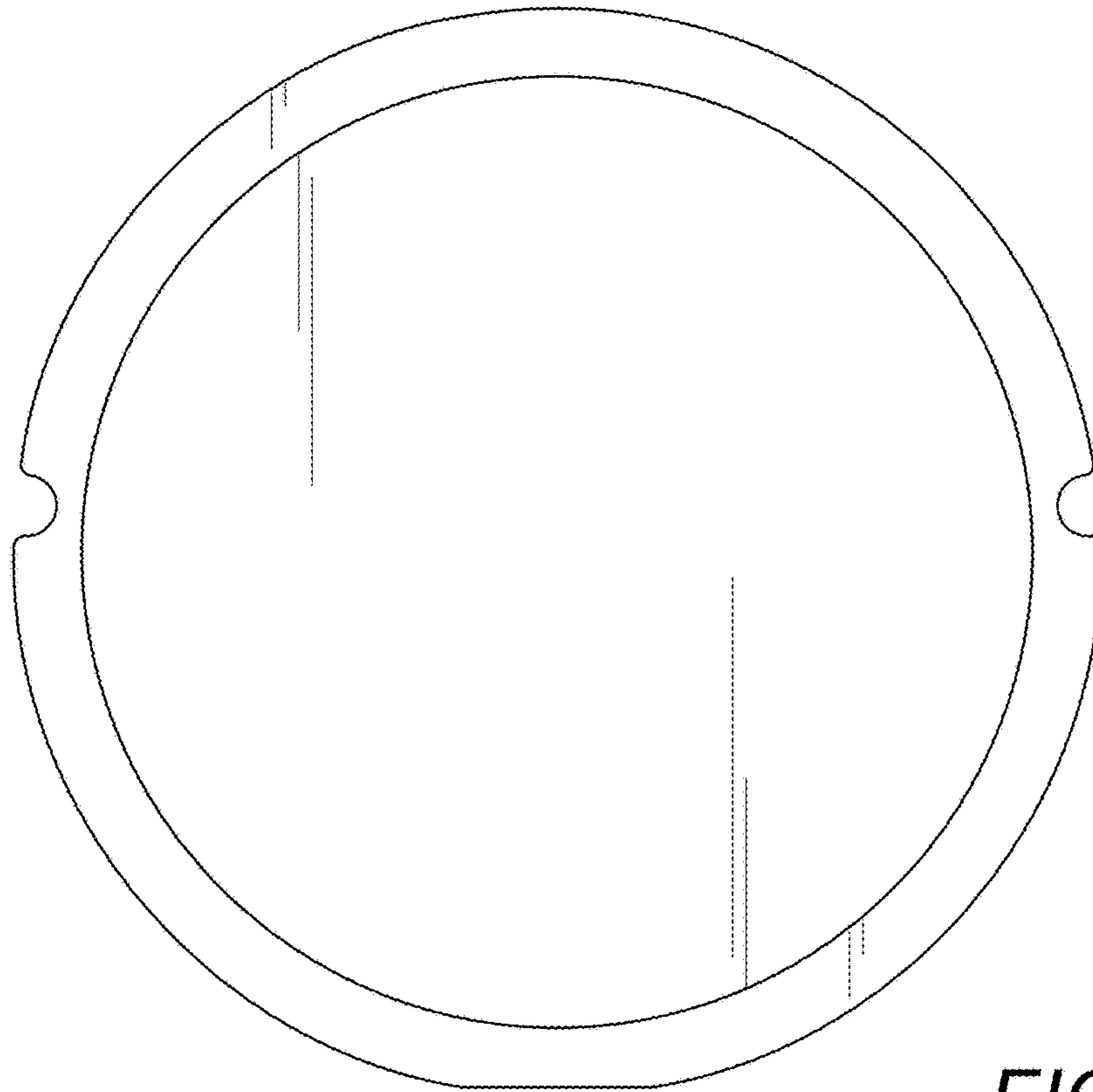


FIG. 6

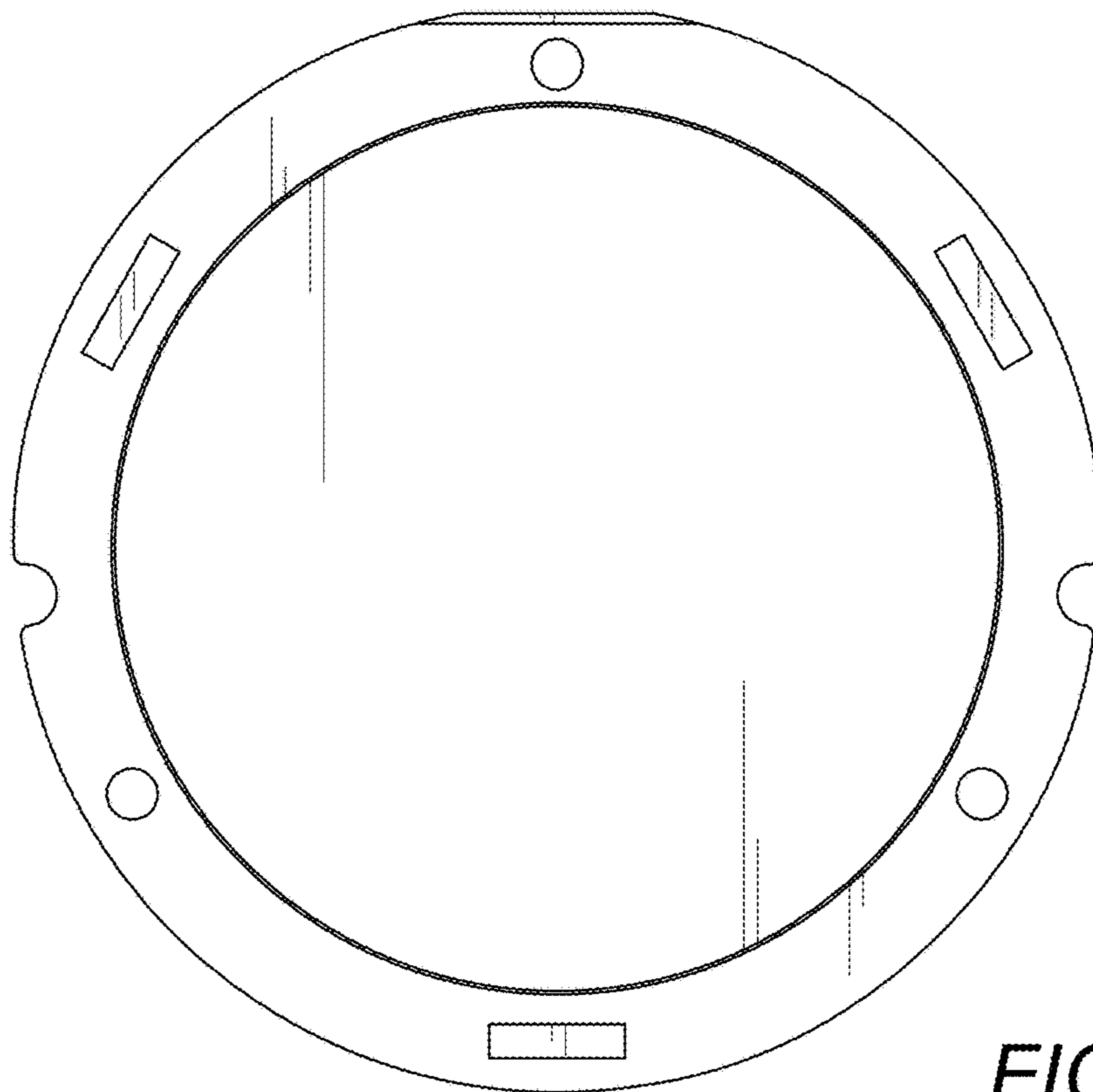


FIG. 7



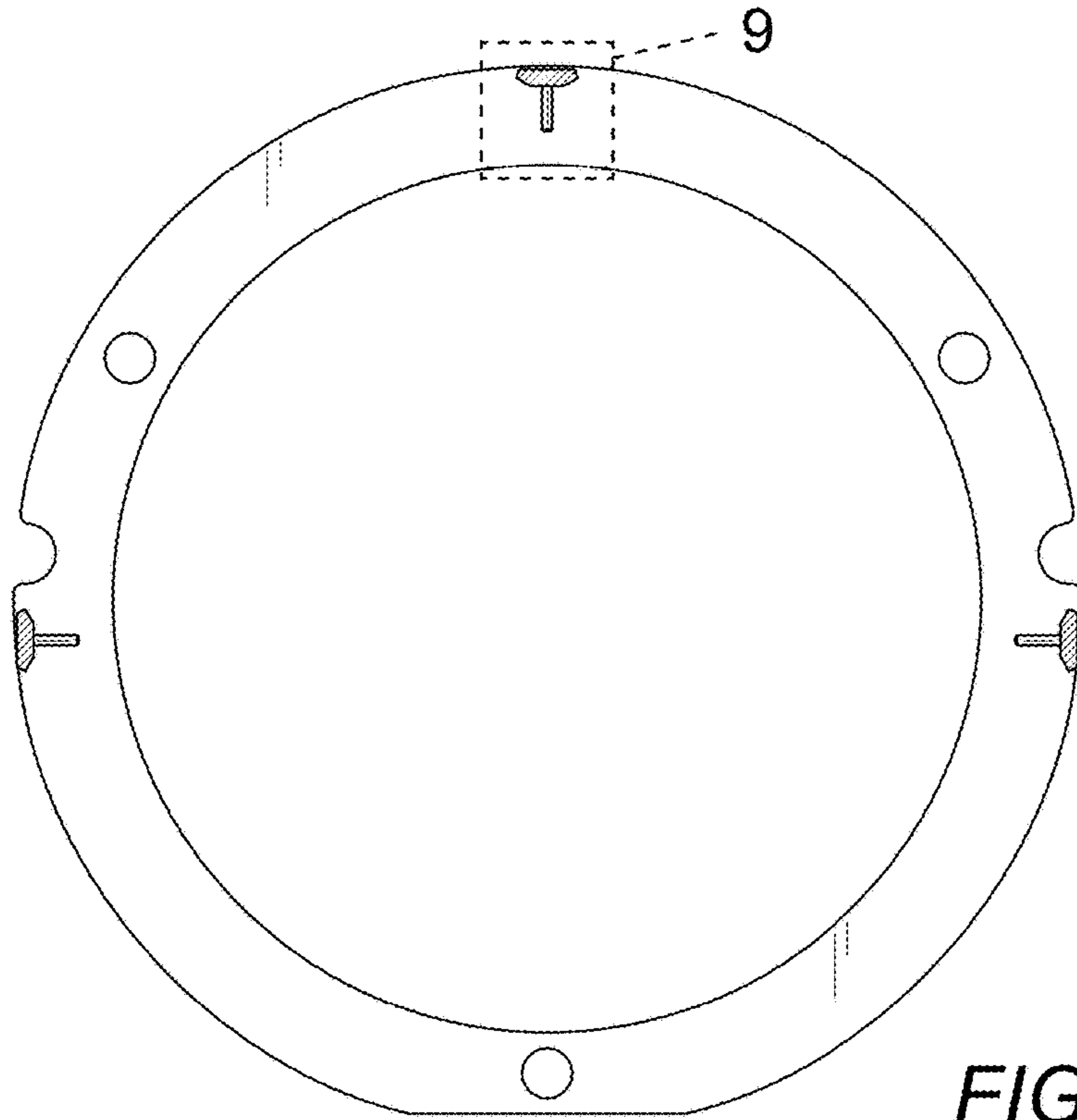


FIG. 8

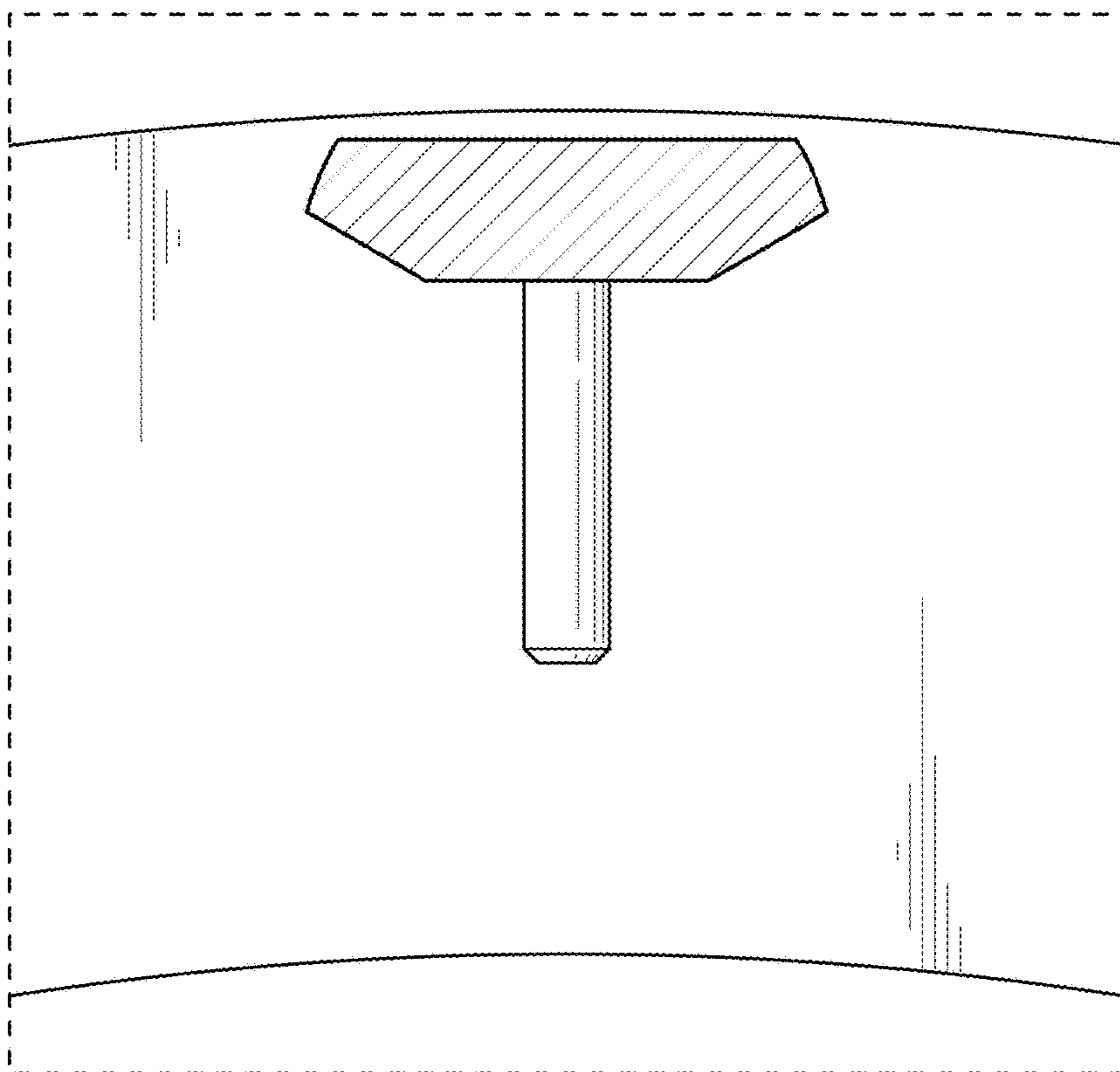


FIG. 9