



US00D551634S

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

(10) **Patent No.:** **US D551,634 S**

(45) **Date of Patent:** **** Sep. 25, 2007**

(54) **WAFER-BOAT FOR HEAT-PROCESSING OF SEMICONDUCTOR WAFERS**

2003/0024888 A1* 2/2003 Payne et al. 211/41.18
2005/0145584 A1* 7/2005 Buckley et al. 211/41.18

(75) Inventor: **Kazuyuki Sugawara**, Minato-ku (JP)

* cited by examiner

(73) Assignee: **Tokyo Electron Limited**, Tokyo (JP)

Primary Examiner—Selina Sikder

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

(74) *Attorney, Agent, or Firm*—Smith, Gambrell & Russell, LLP

(21) Appl. No.: **29/236,991**

(57) **CLAIM**

(22) Filed: **Aug. 25, 2005**

The ornamental design for a wafer-boat for heat-processing of semiconductor wafers, as shown and described.

(30) **Foreign Application Priority Data**

Feb. 28, 2005 (JP) 2005-5771

DESCRIPTION

(51) **LOC (8) Cl.** **13-03**

FIG. 1 is a perspective view of the wafer-boat for heat-processing of semiconductor wafers;

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

FIG. 2 is a front view thereof;

(58) **Field of Classification Search** D13/182;
118/715; 206/454, 711; 211/41.18; 414/935;
432/253

FIG. 3 is a back view thereof;

See application file for complete search history.

FIG. 4 is a top view thereof;

FIG. 5 is a bottom view thereof;

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 5,219,079 A * 6/1993 Nakamura 211/41.18
- D361,752 S * 8/1995 Yamaga D13/182
- D404,371 S * 1/1999 Shimazu D13/182
- D409,158 S * 5/1999 Shimazu D13/182
- D411,176 S * 6/1999 Shimazu D13/182
- 6,065,615 A * 5/2000 Uchiyama et al. 211/41.18
- D429,224 S * 8/2000 Ishii D13/182
- 6,488,497 B1 * 12/2002 Buckley et al. 432/258
- 6,796,439 B2 * 9/2004 Araki 211/41.18
- 2002/0092815 A1 * 7/2002 Kim et al. 211/41.18
- 2003/0010730 A1 * 1/2003 Buckley 211/41.18

FIG. 6 is a left side view thereof. A right side view thereof is a mirror image thereto;

FIG. 7 is a reference drawing showing sectional views thereof;

FIG. 8 is a sectional view taken along line 8—8 in FIG. 7;

FIG. 9 is a sectional view taken along line 9—9 in FIG. 7;

FIG. 10 is a sectional view taken along line 10—10 in FIG. 7; and,

FIG. 11 is an enlarged sectional view taken along line 11—11 in FIG. 7.

1 Claim, 10 Drawing Sheets

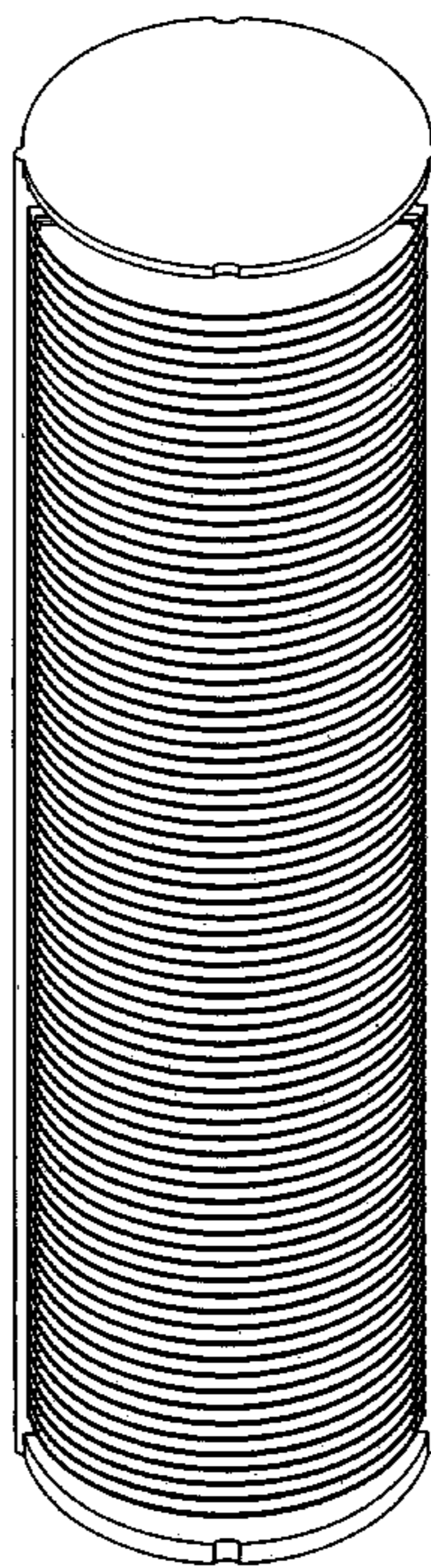


FIG. 1

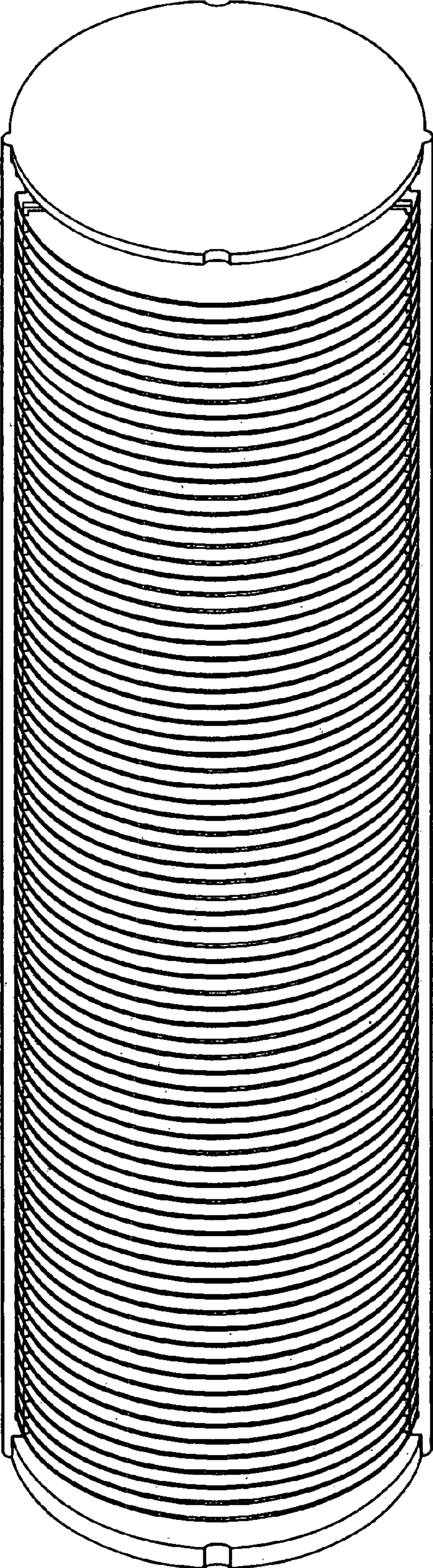


FIG. 2

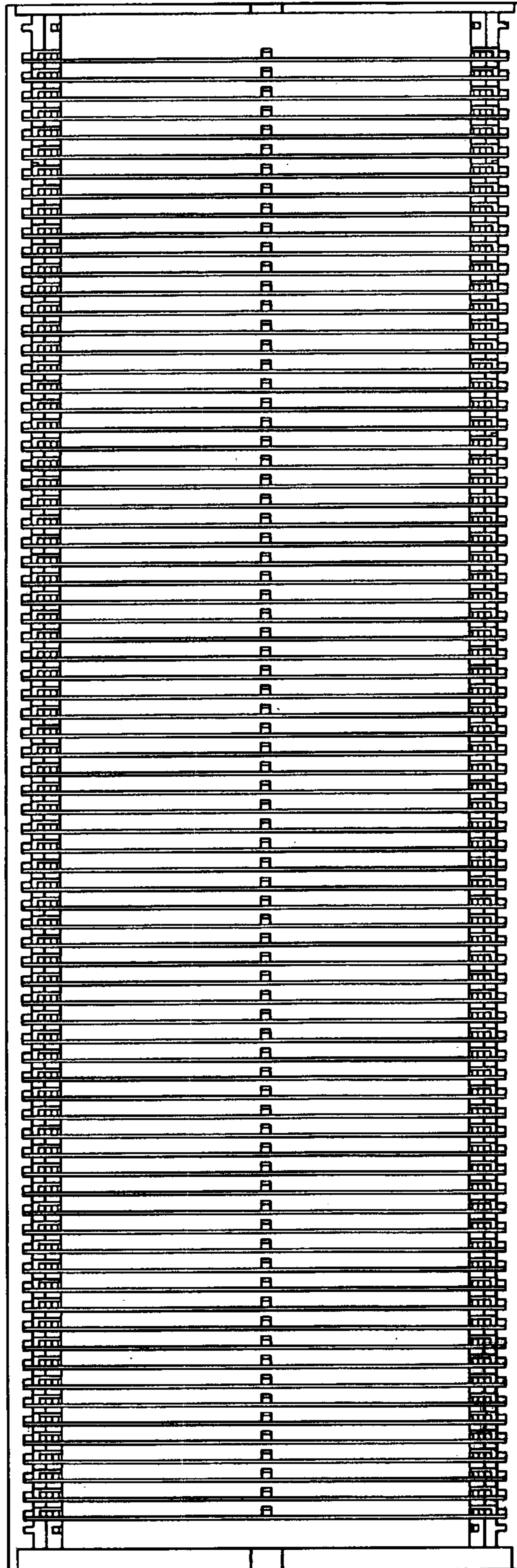


FIG. 3

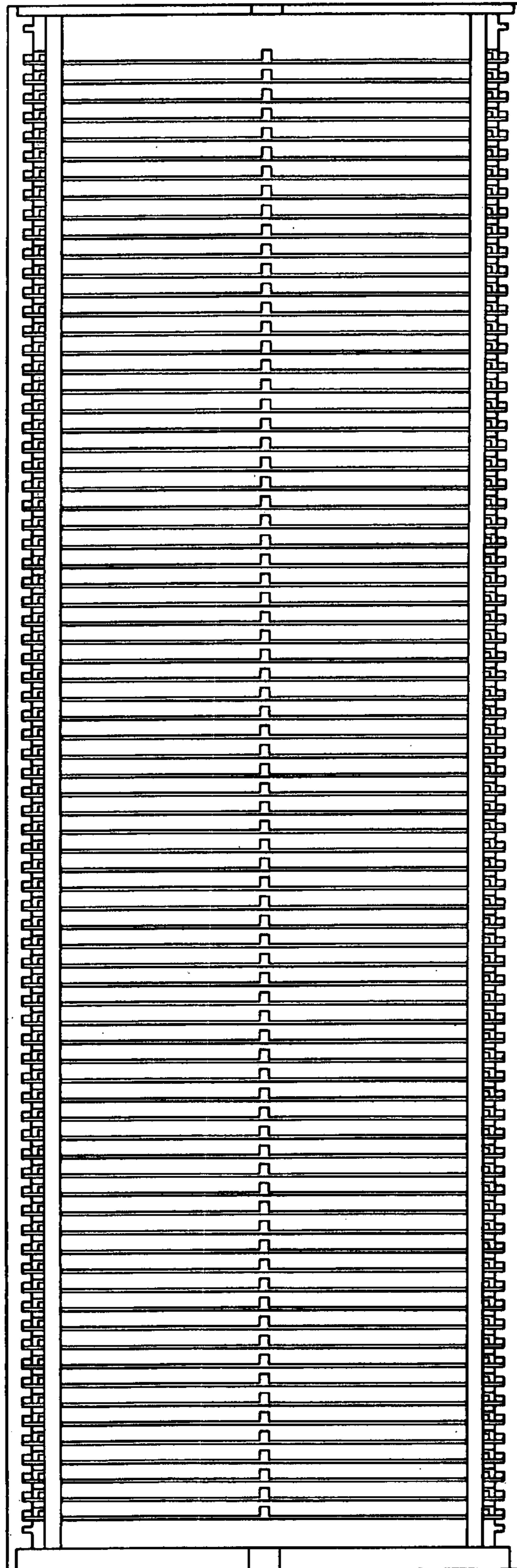


FIG. 4

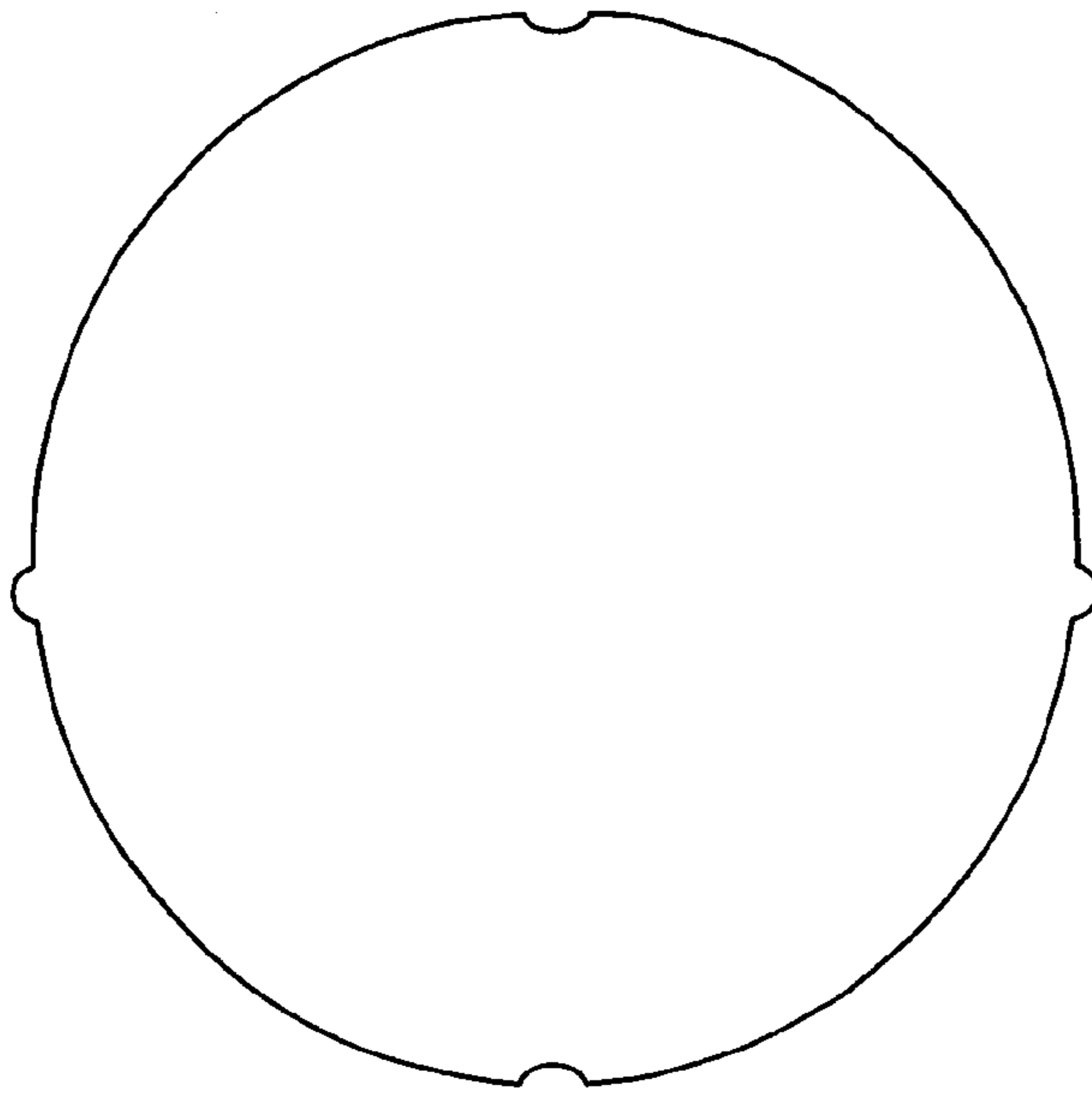


FIG. 5

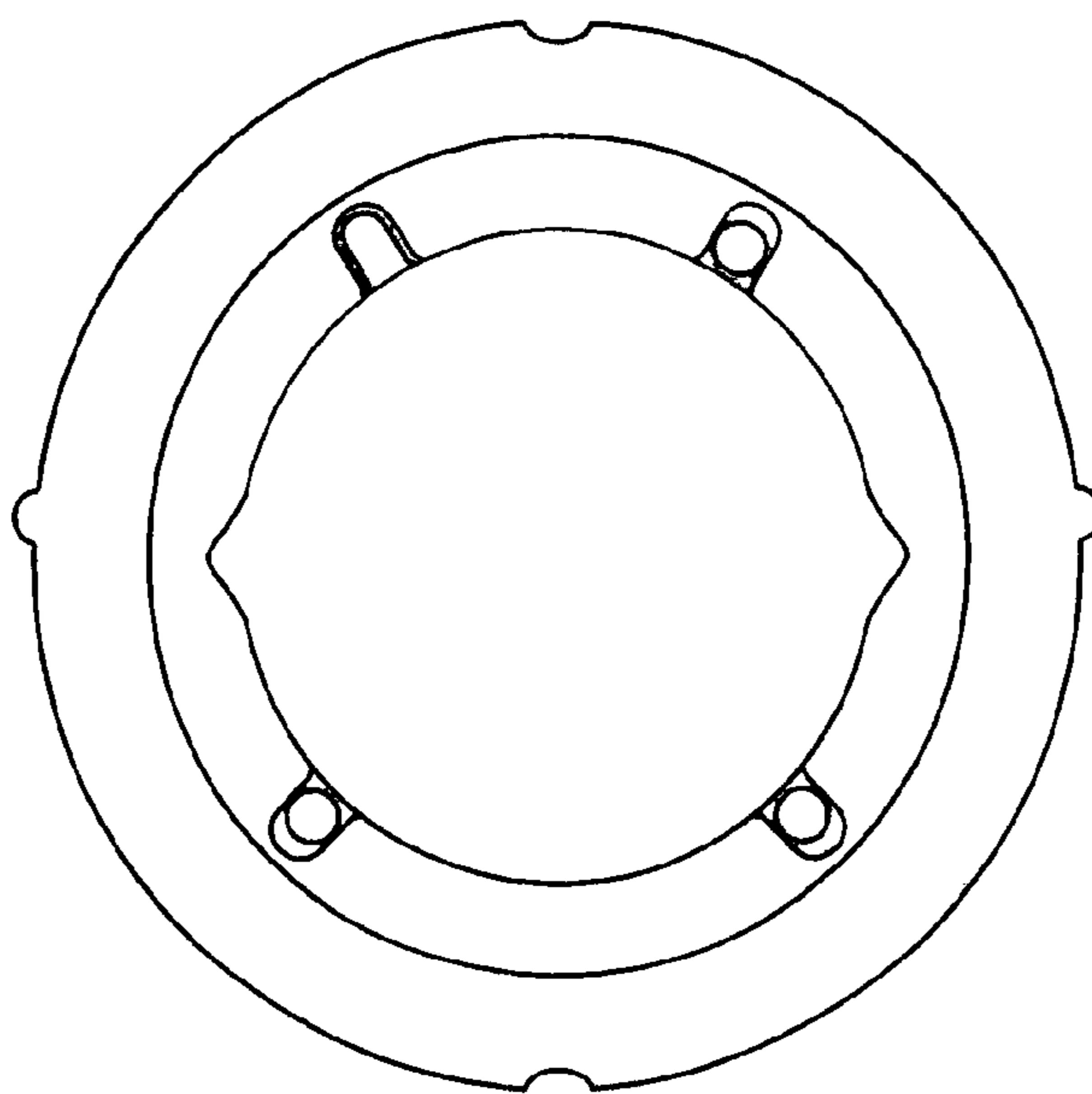


FIG. 6

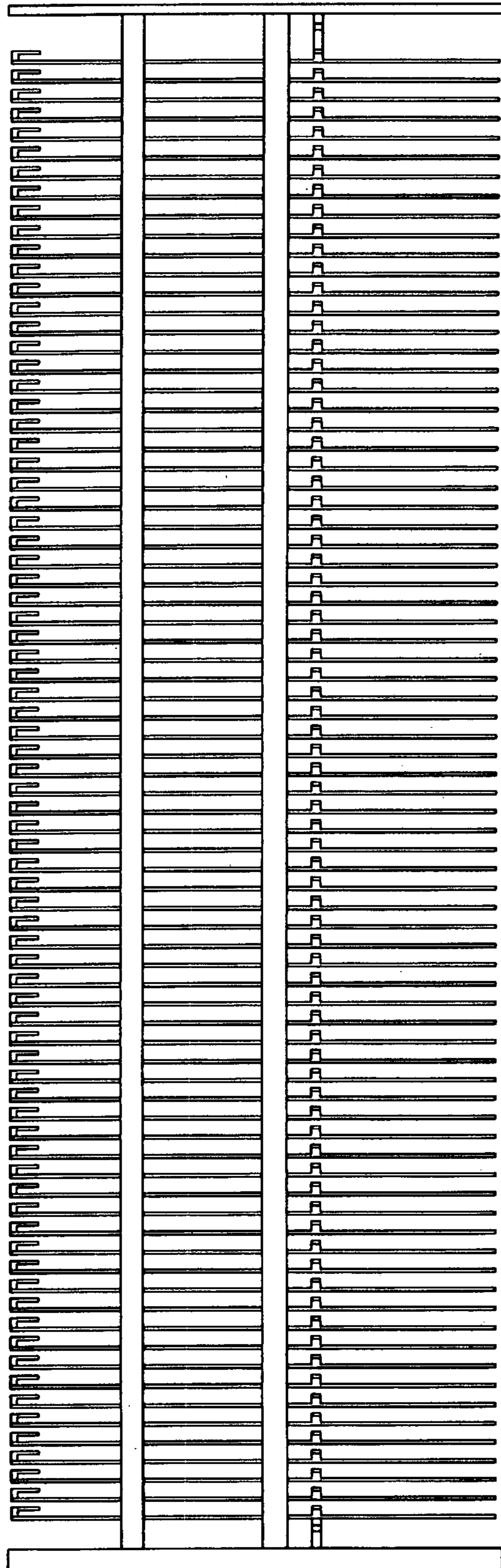


FIG. 7

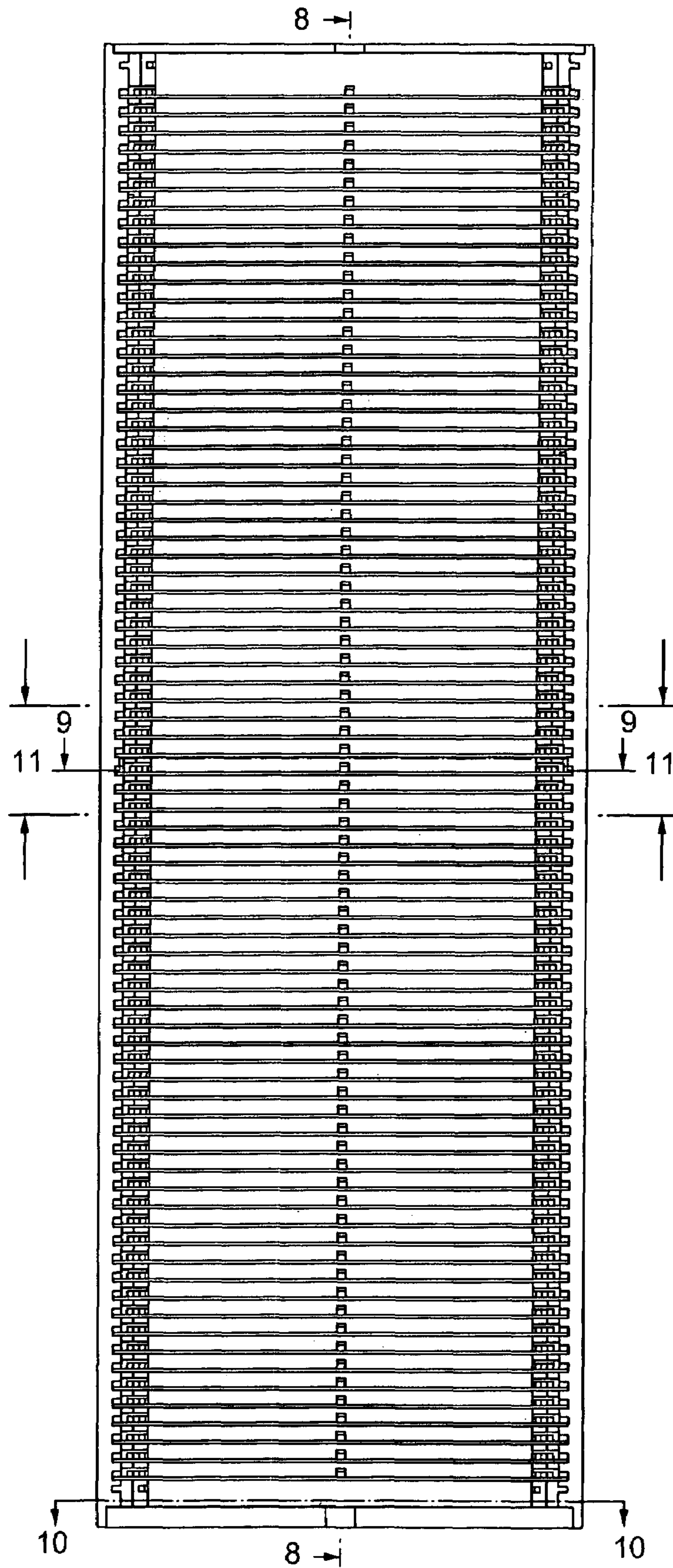
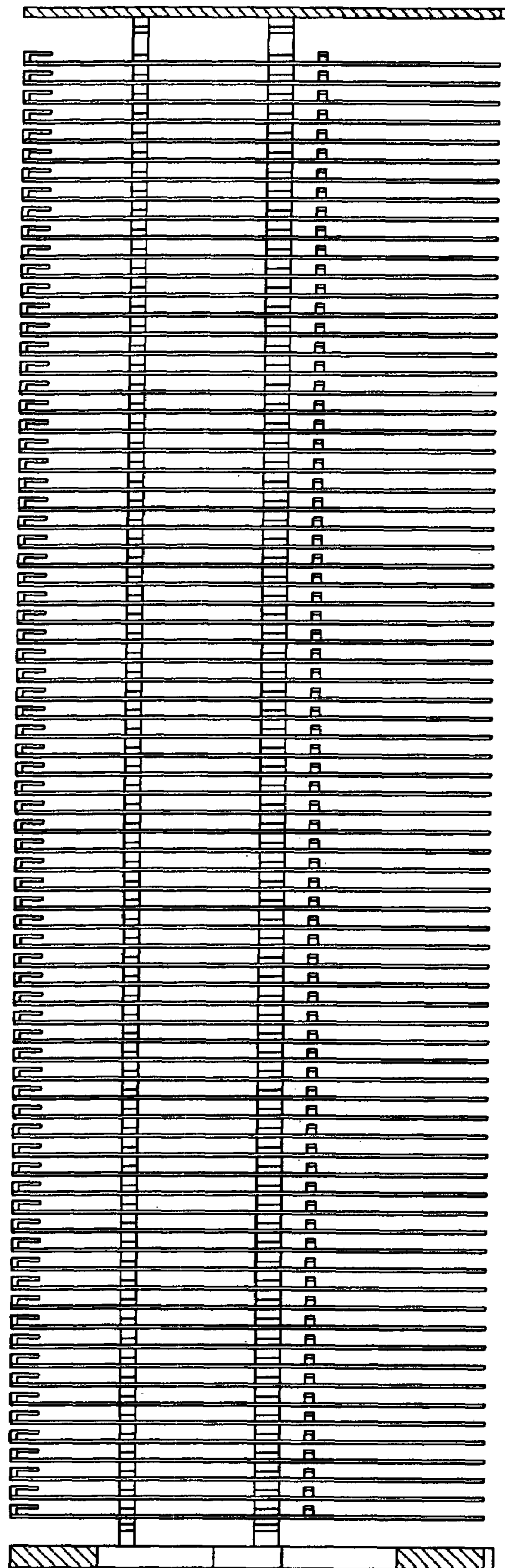


FIG. 8



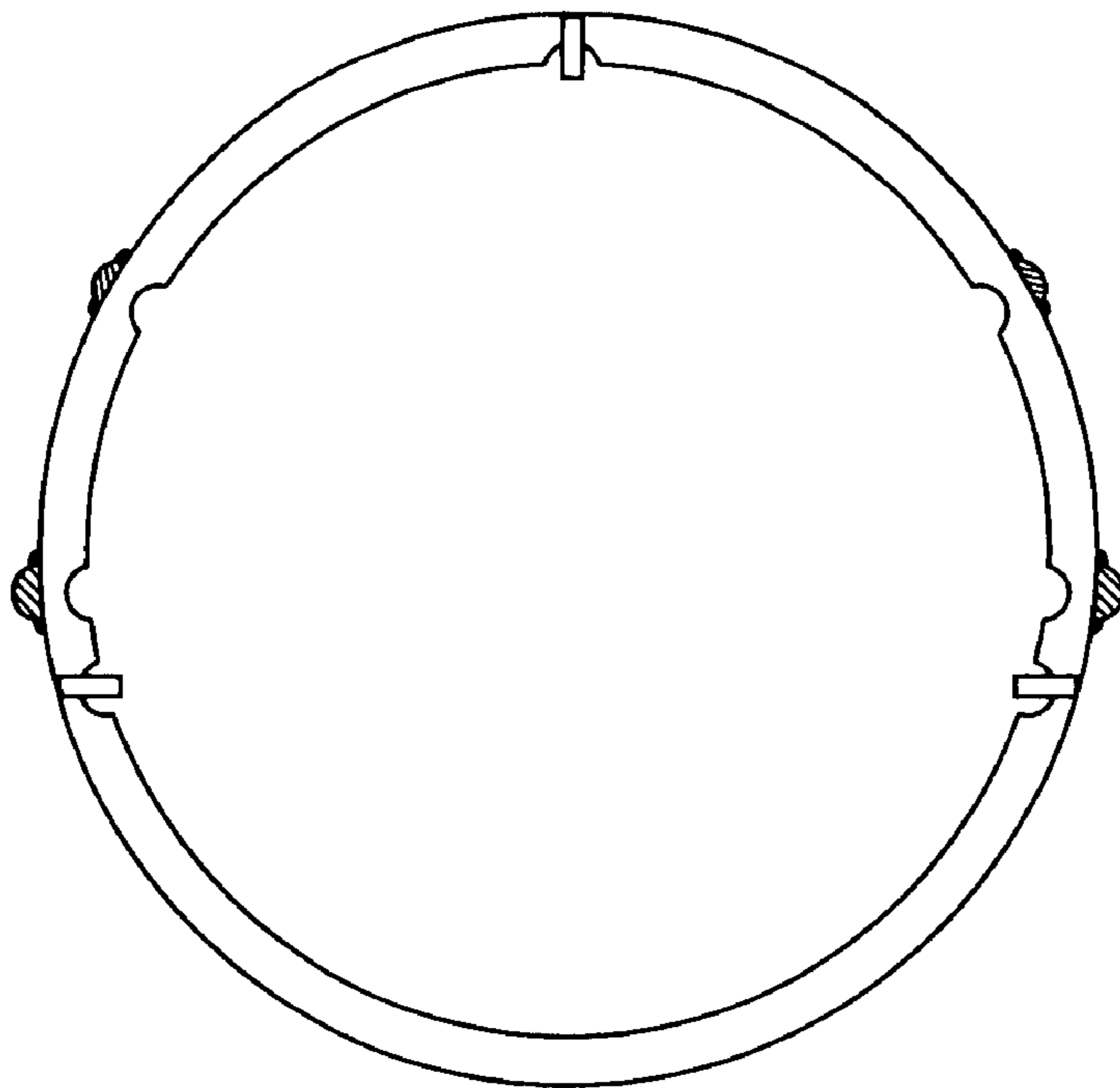


FIG. 9

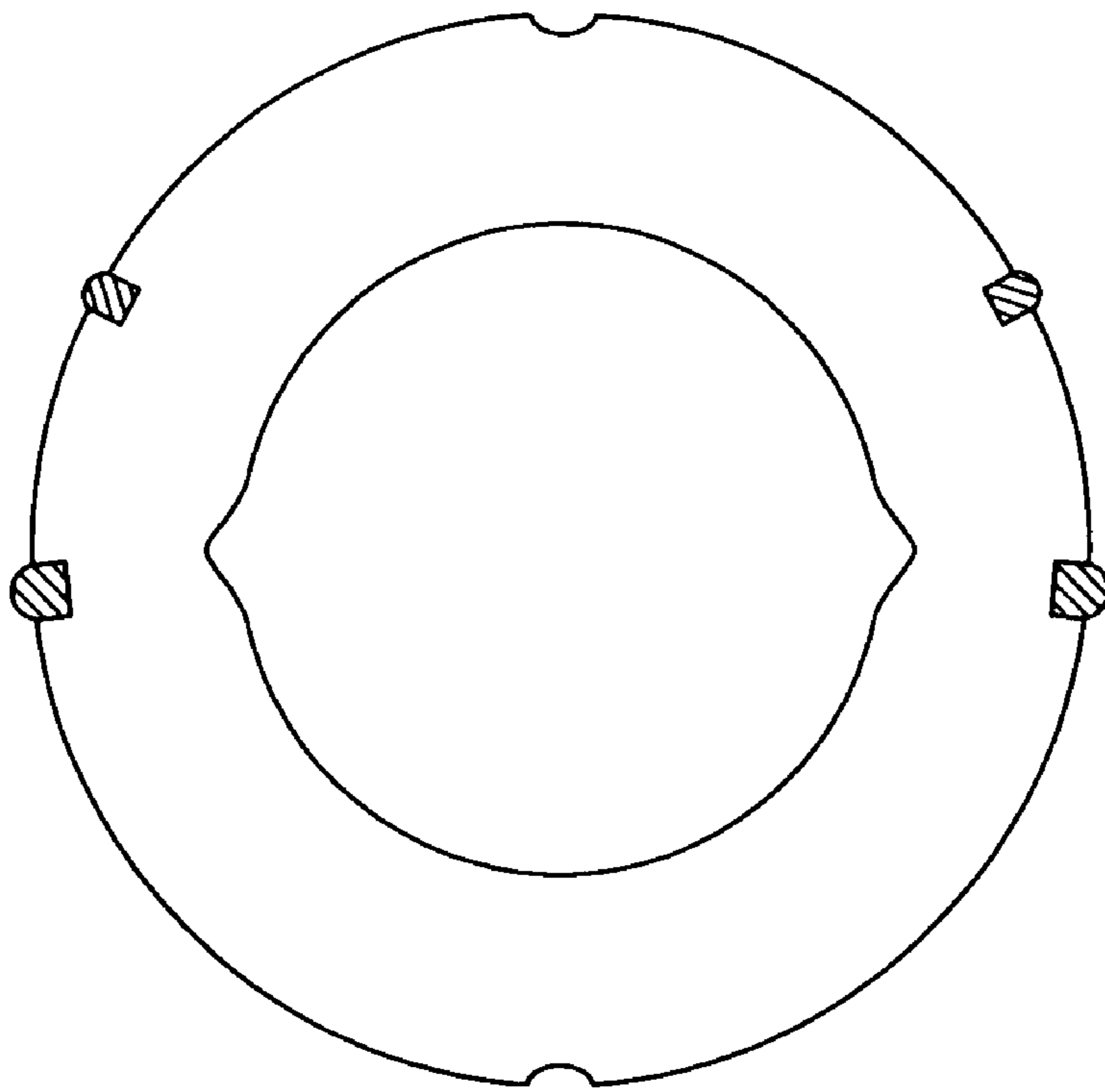


FIG. 10

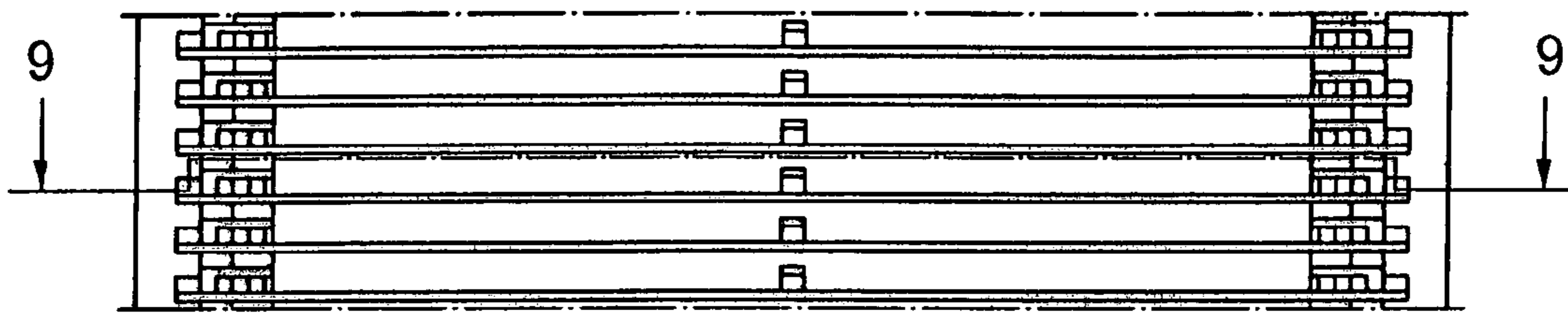


FIG. 11