



US00D619630S

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

(10) **Patent No.:** **US D619,630 S**

(45) **Date of Patent:** **** Jul. 13, 2010**

(54) **PROCESS TUBE FOR MANUFACTURING SEMICONDUCTOR WAFERS**

D562,684 S * 2/2008 Brashear D9/454
D595,913 S * 7/2009 Traxler D32/54

* cited by examiner

(75) Inventor: **Hirofumi Kaneko**, Iwate (JP)

Primary Examiner—Sandra Snapp

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

Assistant Examiner—Patricia Palasik

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

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

(21) Appl. No.: **29/290,247**

(57) **CLAIM**

(22) Filed: **Nov. 8, 2007**

The ornamental design for a process tube for manufacturing semiconductor wafers, as shown and described.

(30) **Foreign Application Priority Data**

May 8, 2007 (JP) 2007-011996

DESCRIPTION

(51) **LOC (9) Cl.** **15-09**

FIG. 1 is a perspective view of the design for a process tube for manufacturing semiconductor wafers in accordance with the invention;

(52) **U.S. Cl.** **D15/138**

FIG. 2 is a front view thereof;

(58) **Field of Classification Search** D9/428,
D9/435, 447, 452; D13/182; D15/138, 144.1,
D15/199; D23/206; D32/53, 54; 117/102;
118/715, 724, 725; 219/390, 486

FIG. 3 is a rear view thereof;

See application file for complete search history.

FIG. 4 is a right side view thereof;

FIG. 5 is a left side view thereof;

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 5,037,502 A * 8/1991 Suzuki et al. 117/89
- 5,618,349 A * 4/1997 Yuuki 118/715
- D405,062 S * 2/1999 Shimazu D13/182
- D406,113 S * 2/1999 Hanagata et al. D13/182
- D409,490 S * 5/1999 Page D9/452
- 5,948,300 A * 9/1999 Gero et al. 219/390
- D415,027 S * 10/1999 Blazar D9/447
- D442,864 S * 5/2001 Davies D9/454
- D473,788 S * 4/2003 Chen et al. D9/428
- D495,600 S * 9/2004 Kouri D9/435
- D510,524 S * 10/2005 Houk et al. D9/503
- D521,464 S * 5/2006 Ishii et al. D13/182
- D558,419 S * 12/2007 Zychlinski D32/53

FIG. 6 is a top view thereof;

FIG. 7 is a bottom view thereof;

FIG. 8 is a sectional view through line 8—8 of FIG. 6;

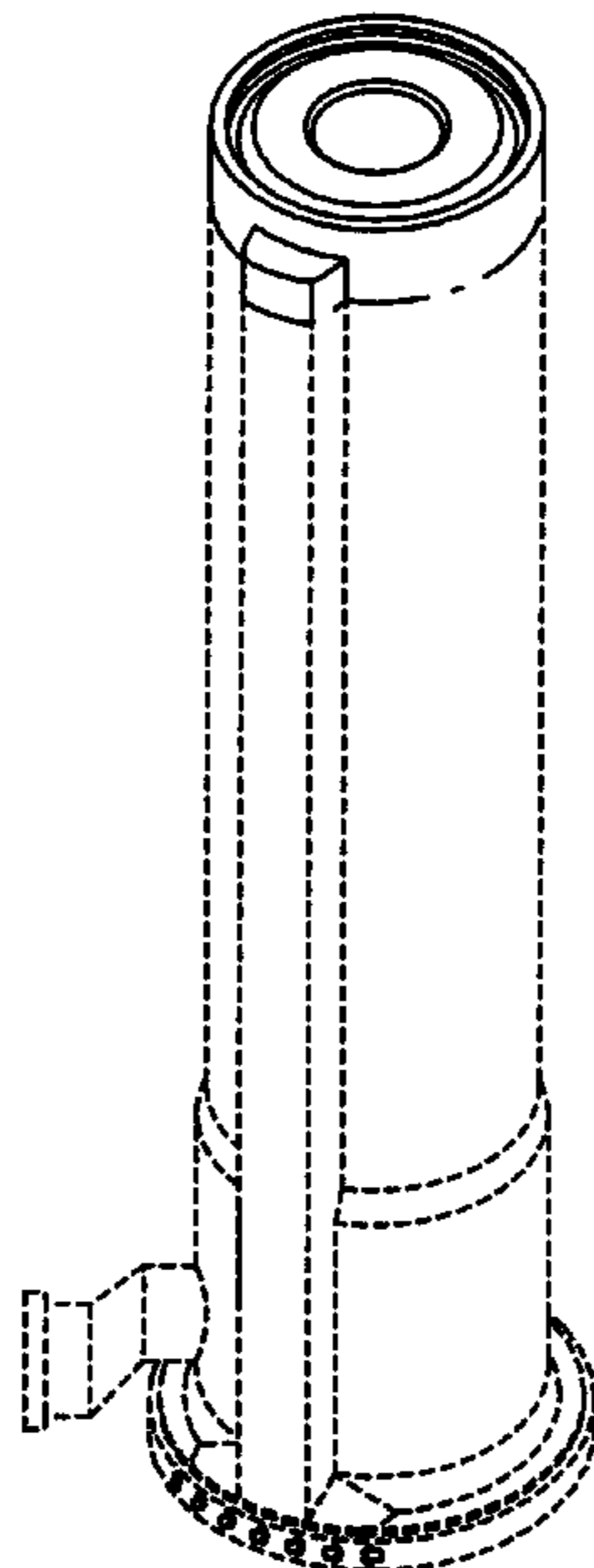
FIG. 9 is an enlarged detailed top plan view of the portion of the process tube in the rectangle shown in FIG. 8; and,

FIG. 10 is an enlarged detailed sectional view taken along line 8—8 in FIG. 6 of the portion of the process tube in the rectangle shown in FIG. 8.

Environmental structure, which forms no part of the claimed design, is illustrated in broken lines.

The design is a type of process tube for decompression (vacuum) equipment.

1 Claim, 10 Drawing Sheets



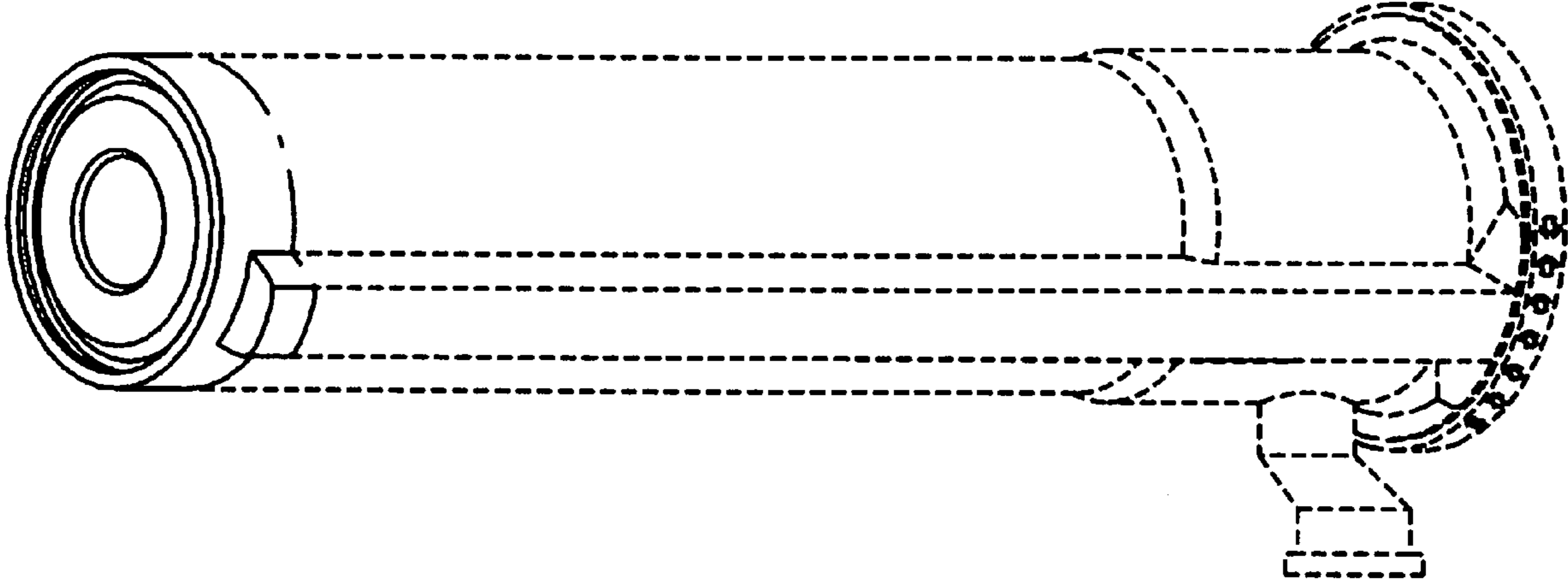


FIG. 1

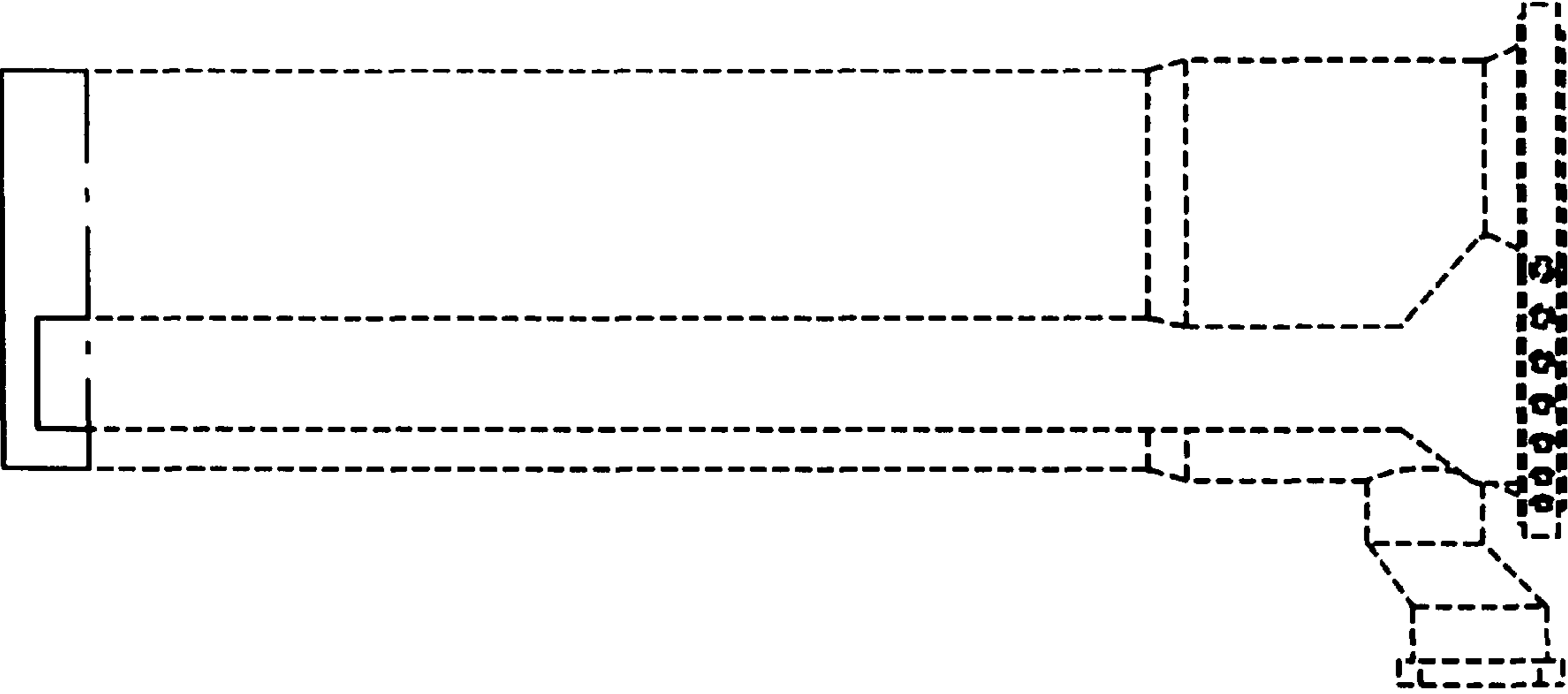


FIG. 2

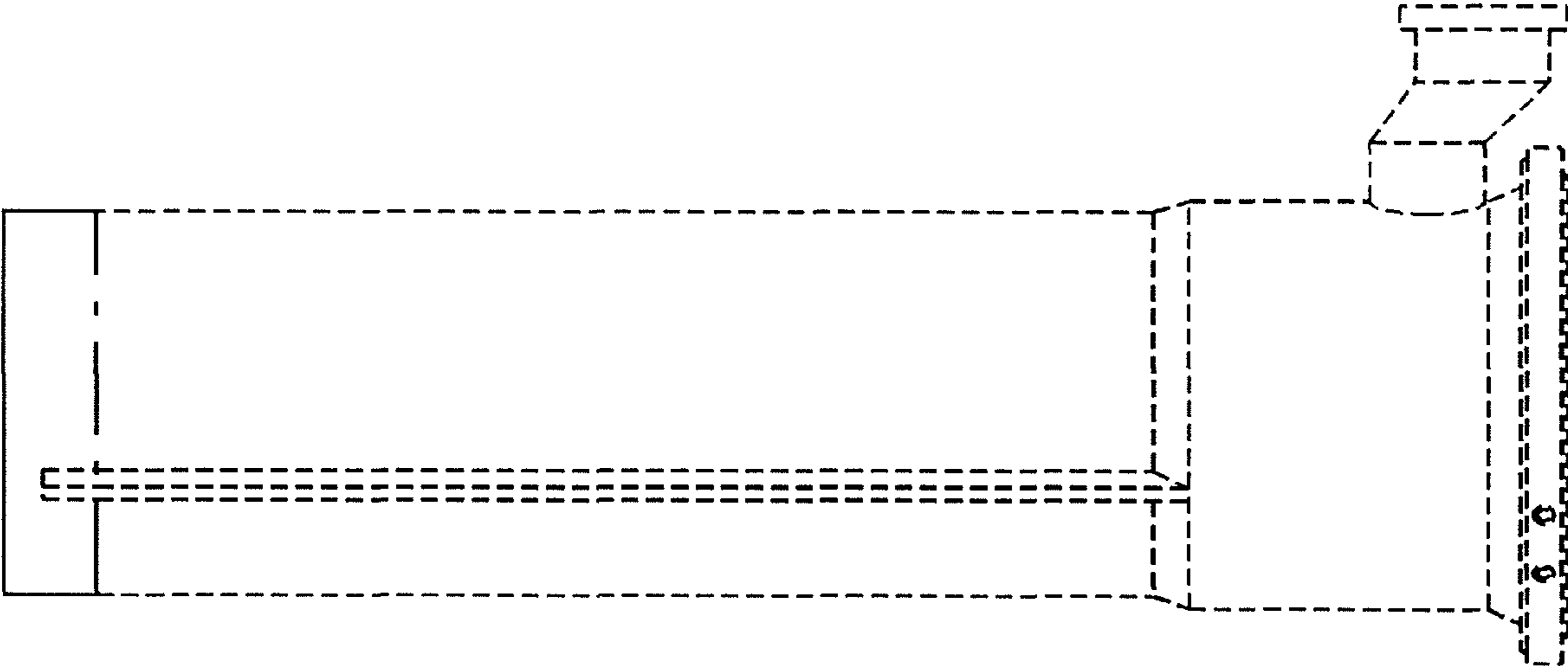


FIG. 3

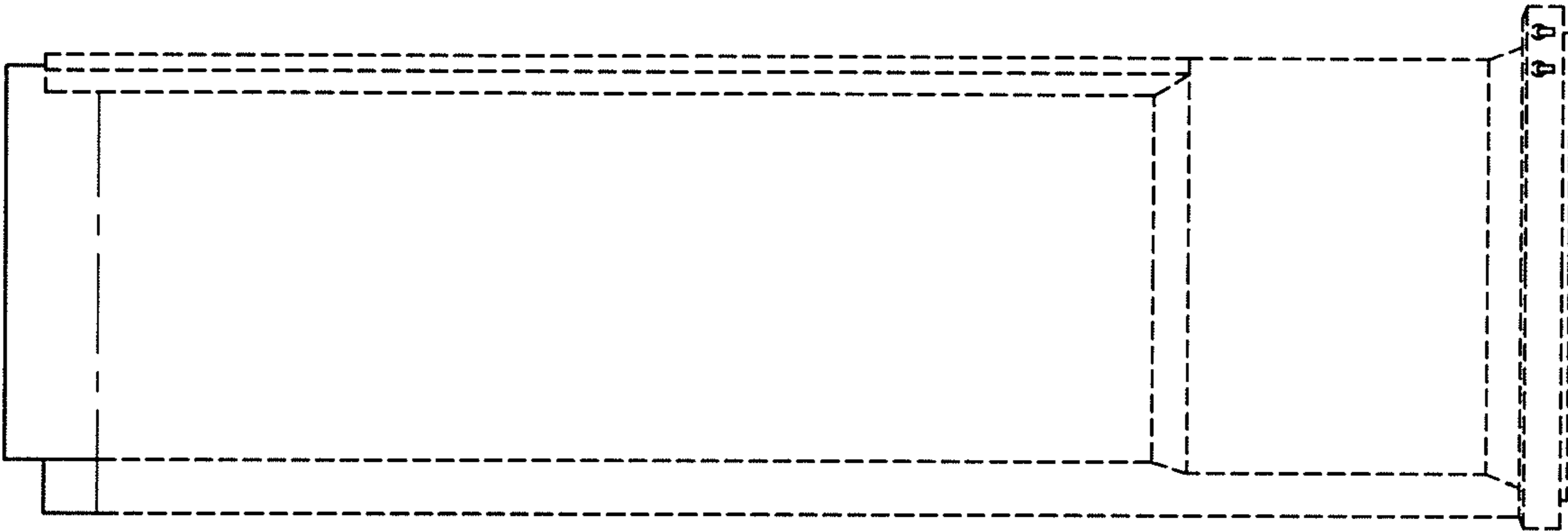


FIG. 4

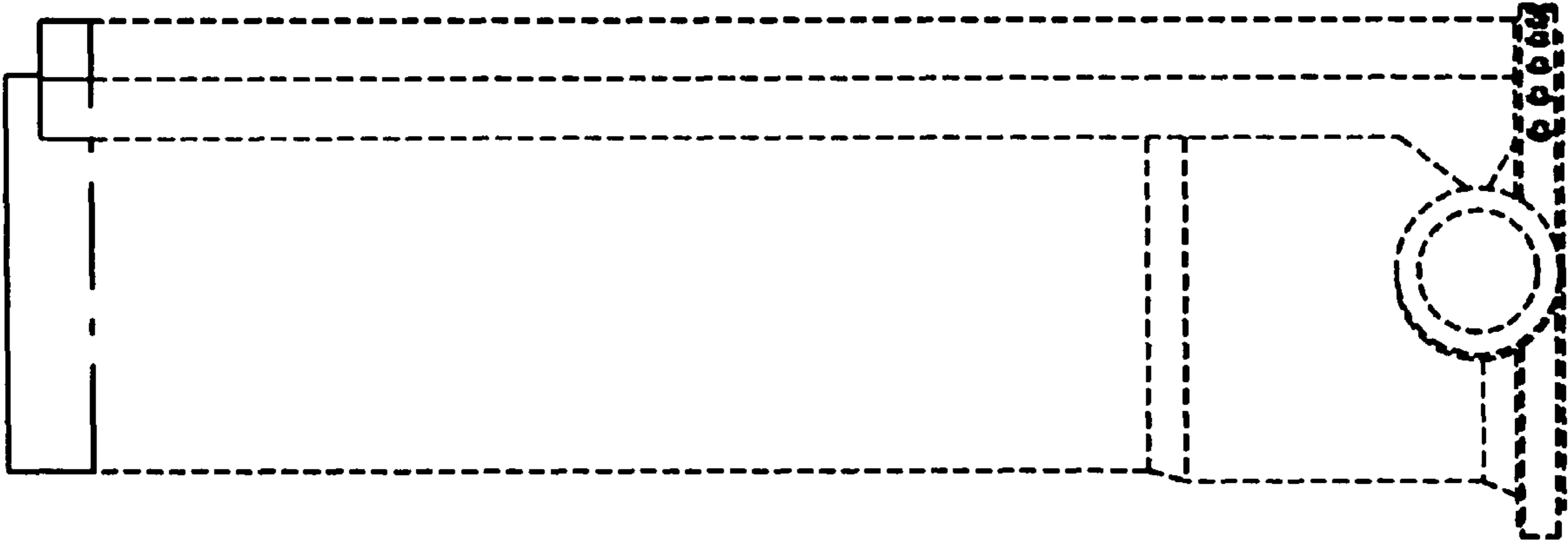


FIG. 5

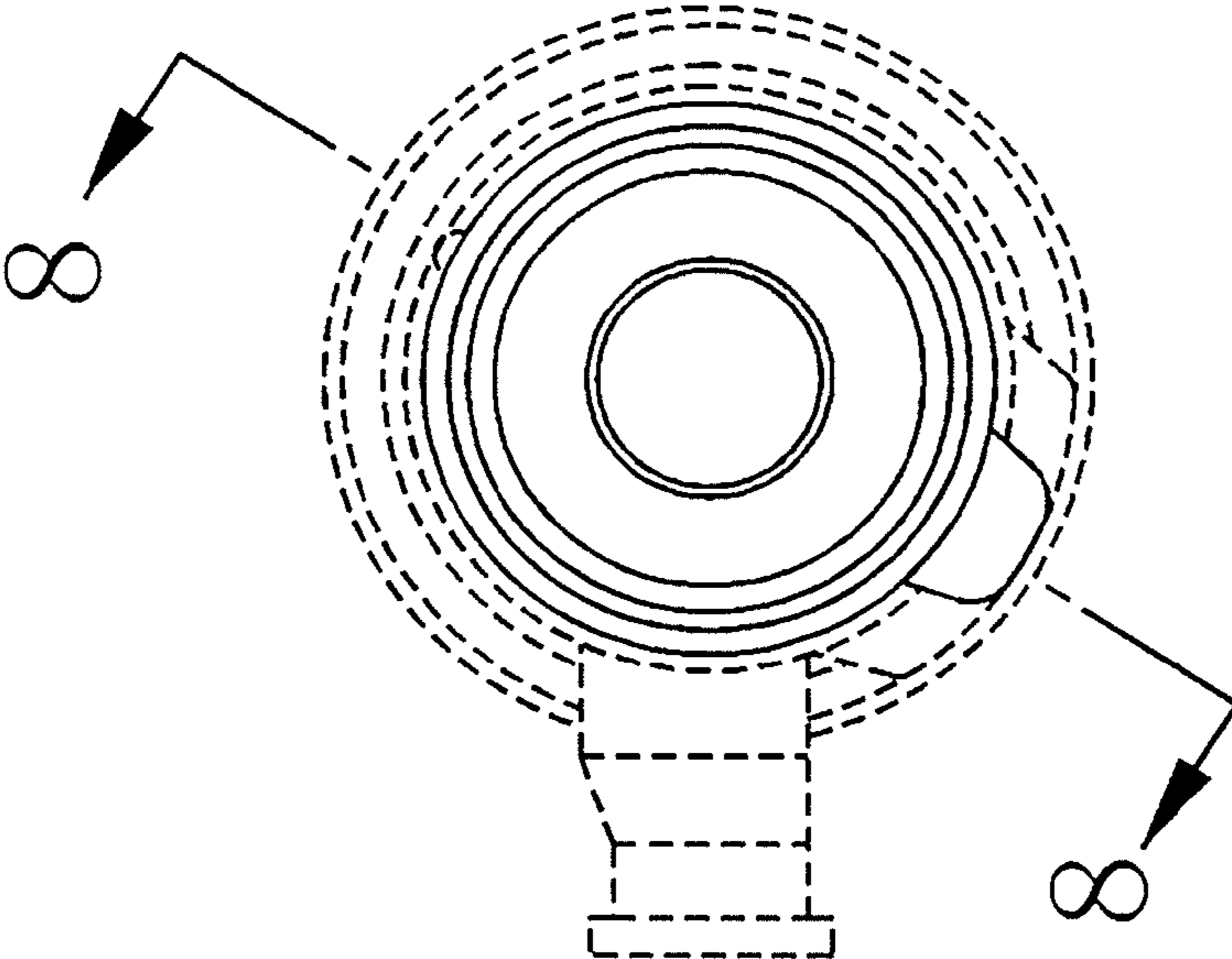


FIG. 6

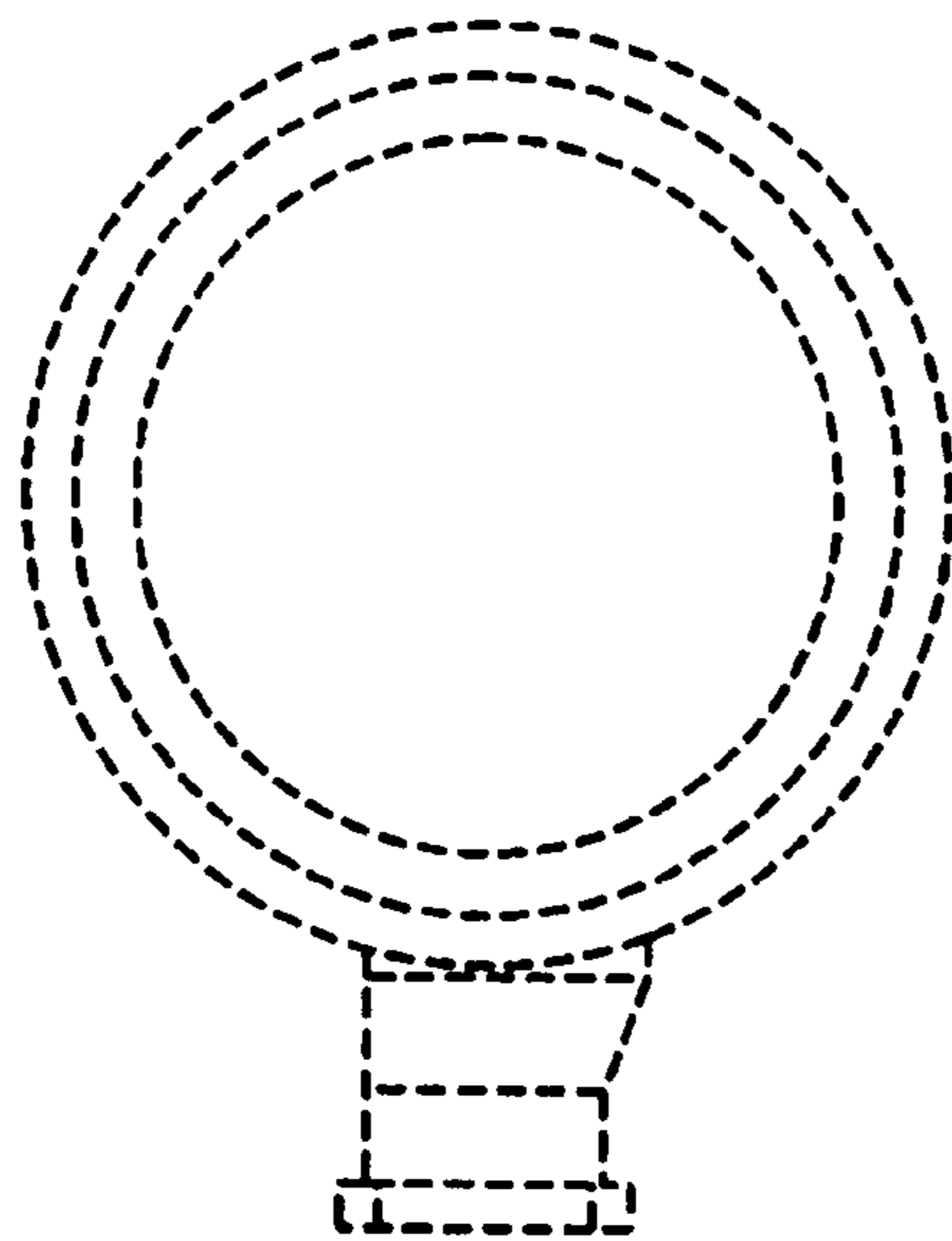


FIG. 7

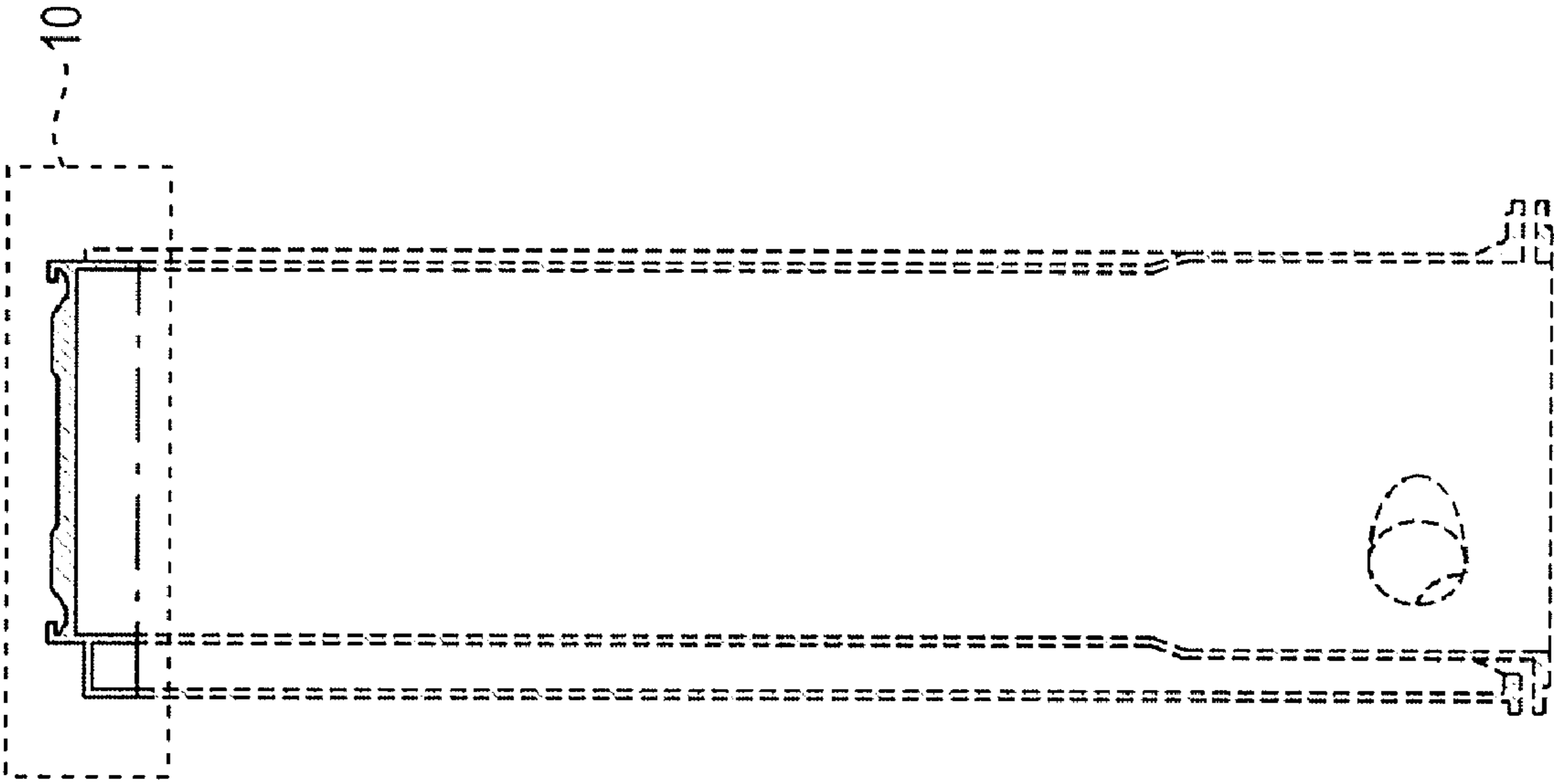


FIG. 8

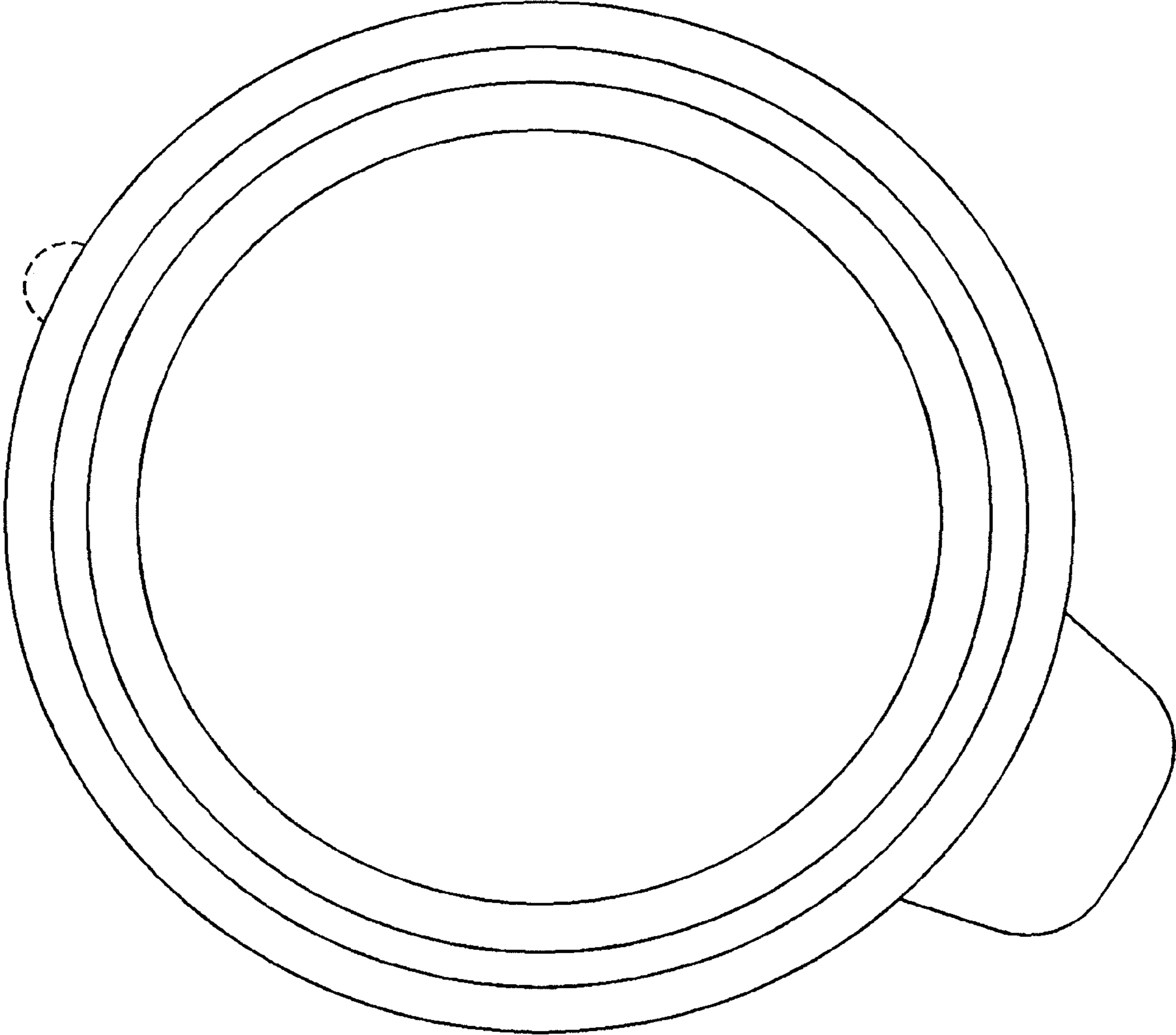


FIG. 9

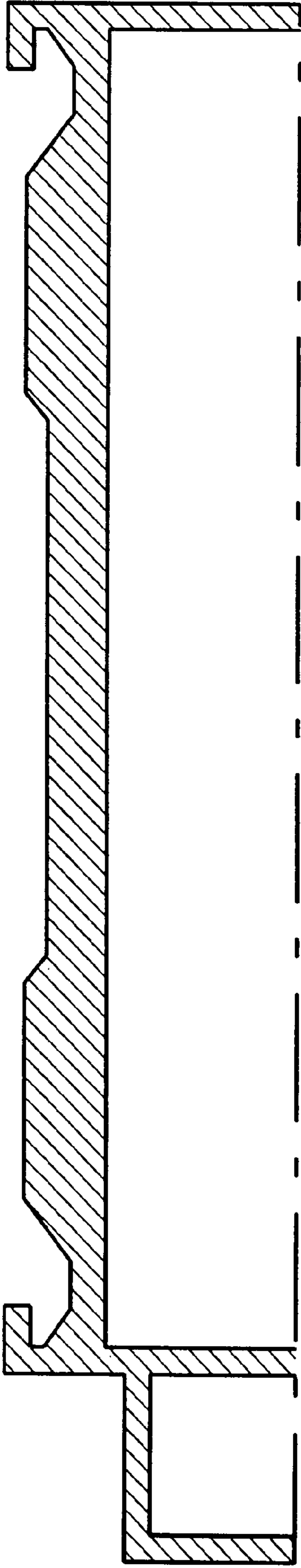


FIG. 10