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

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(45) **Date of Patent:** **** Jan. 8, 2013**

(54) **MEMBRANE CARTRIDGE FOR SUBMERGED MEMBRANE SEPARATION**

FOREIGN PATENT DOCUMENTS

JP 1070340 5/2000

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* cited by examiner

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(57) **CLAIM**

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

The ornamental design for a membrane cartridge for submerged membrane separation, as shown and described.

(21) Appl. No.: **29/335,407**

(22) Filed: **Apr. 15, 2009**

DESCRIPTION

(30) **Foreign Application Priority Data**

Oct. 17, 2008 (JP) 2008-026685

(51) **LOC (9) Cl.** **23-01**

(52) **U.S. Cl.** **D23/210**

(58) **Field of Classification Search** D23/200,
D23/207, 209, 210, 233-237, 244-249, 259-269,
D23/310; 210/226-228, 231, 323.1, 335,
210/348

See application file for complete search history.

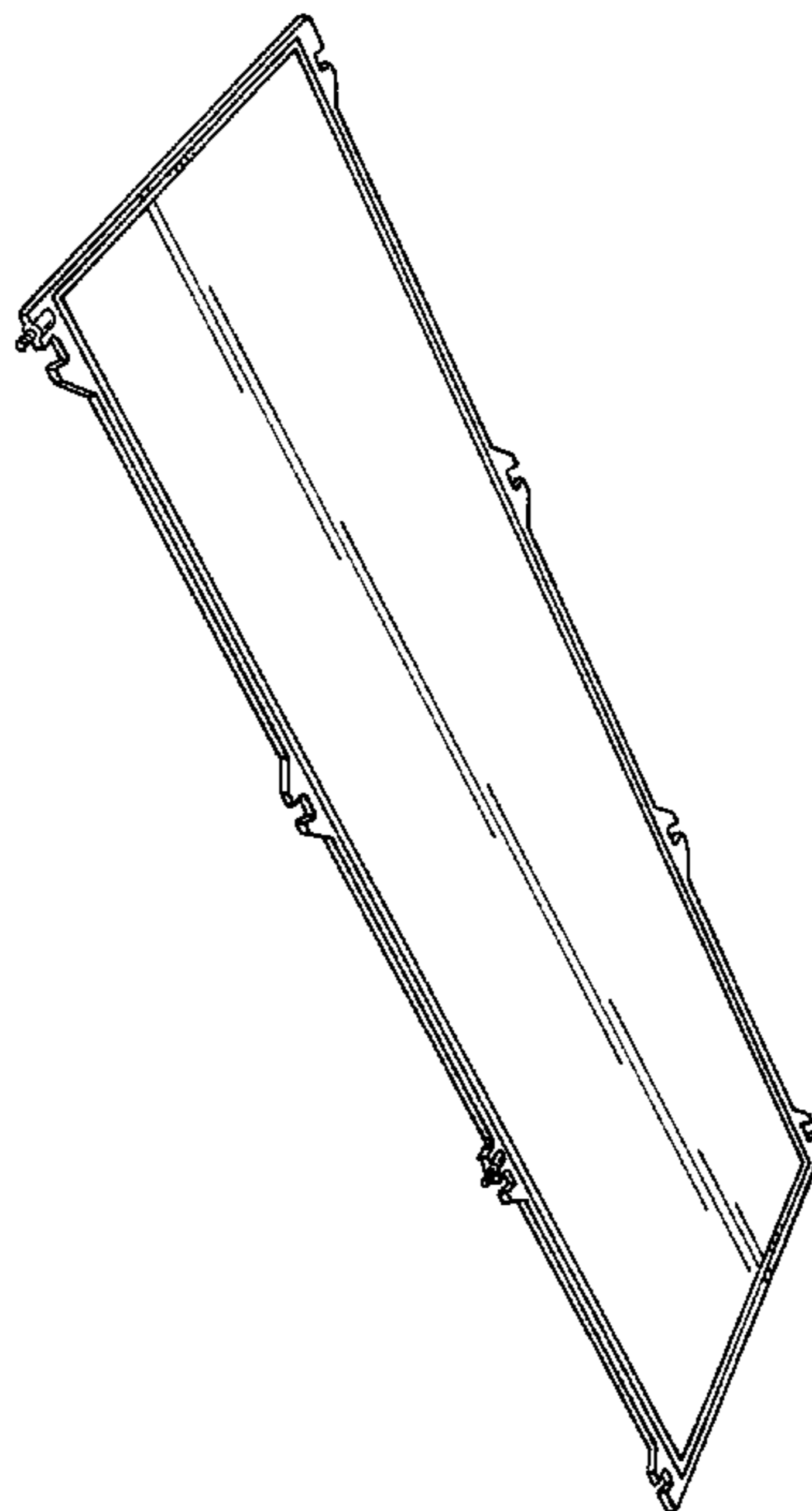
FIG. 1 is a front view of a membrane cartridge for submerged membrane separation showing our new design;
FIG. 2 is a rear view thereof;
FIG. 3 is a top plan view thereof;
FIG. 4 is a bottom view thereof;
FIG. 5 is a right side view thereof;
FIG. 6 is a left side view thereof;
FIG. 7 is a front perspective view thereof;
FIG. 8 is an enlarged view thereof, showing section 8-8 of FIG. 1;
FIG. 9 is an enlarged view thereof, showing section 9-9 of FIG. 1;
FIG. 10 is an enlarged view thereof, showing section 10-10 of FIG. 1;
FIG. 11 is an enlarged view thereof, showing section 11-11 of FIG. 1;
FIG. 12 is an enlarged, partial, perspective view thereof, showing the upper nozzle; and,
FIG. 13 is an enlarged, partial, perspective view thereof, showing the lower nozzle.

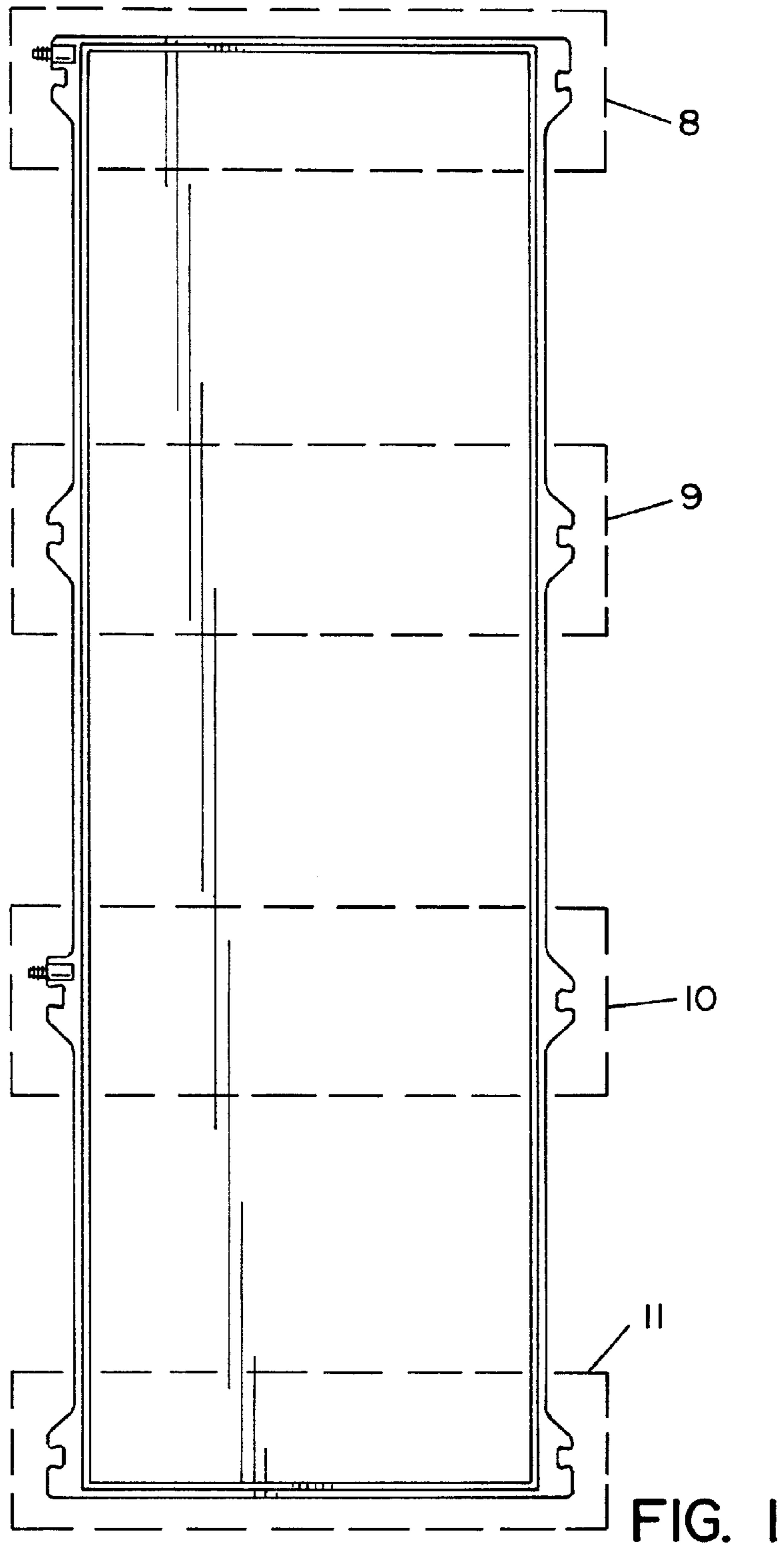
(56) **References Cited**

U.S. PATENT DOCUMENTS

D273,223 S * 3/1984 Horvath D23/209
6,277,209 B1 * 8/2001 Yamada et al. 134/28
D481,782 S * 11/2003 Okazaki D23/209
6,843,908 B2 * 1/2005 Okajima et al. 210/151
D526,044 S * 8/2006 Torichigai et al. D23/209
D538,418 S * 3/2007 Pippel et al. D23/209
D651,280 S * 12/2011 Okawa et al. D23/209
D655,779 S * 3/2012 Honda et al. D23/209
D655,780 S * 3/2012 Honda et al. D23/209

1 Claim, 8 Drawing Sheets





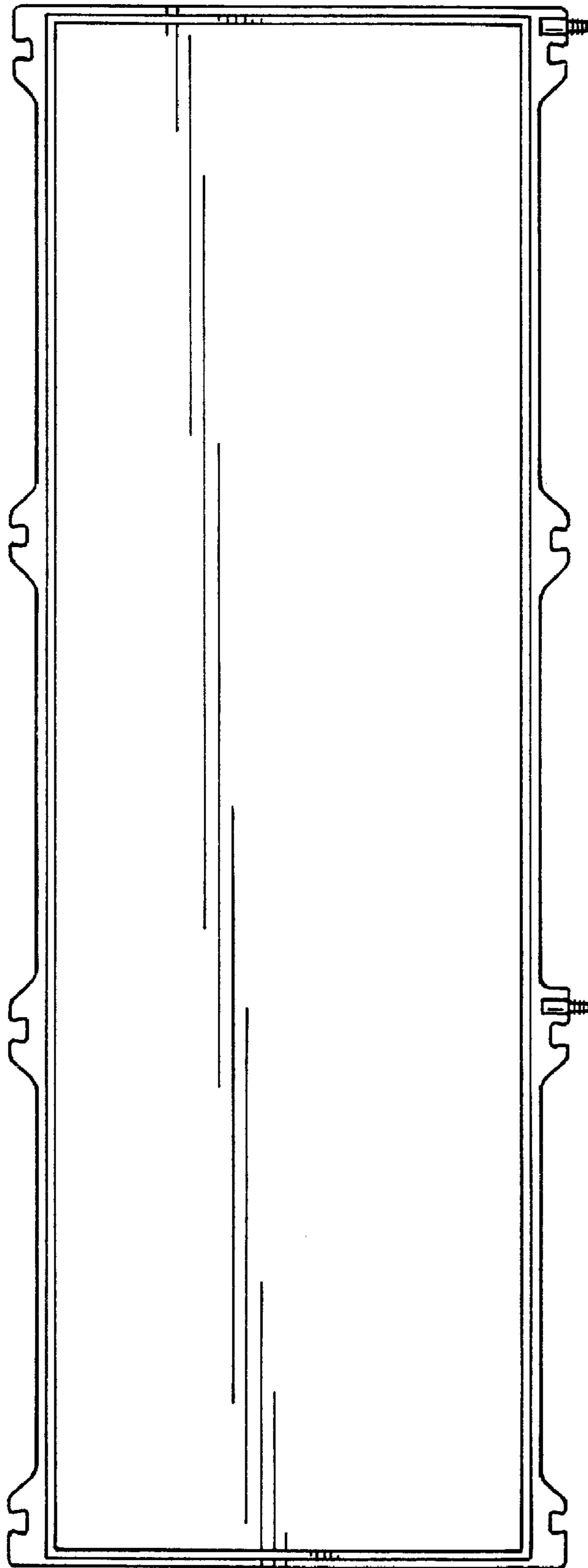


FIG. 2

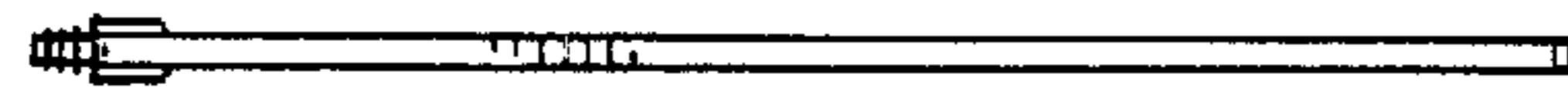


FIG. 3

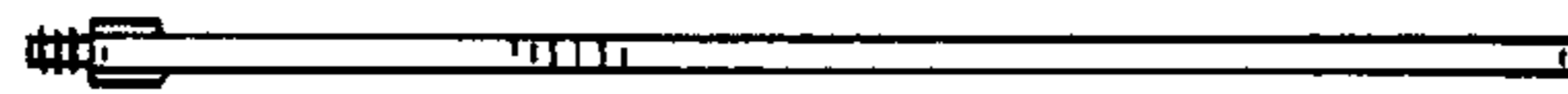


FIG. 4



FIG. 5

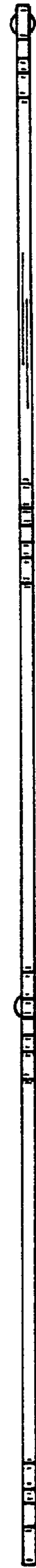


FIG. 6

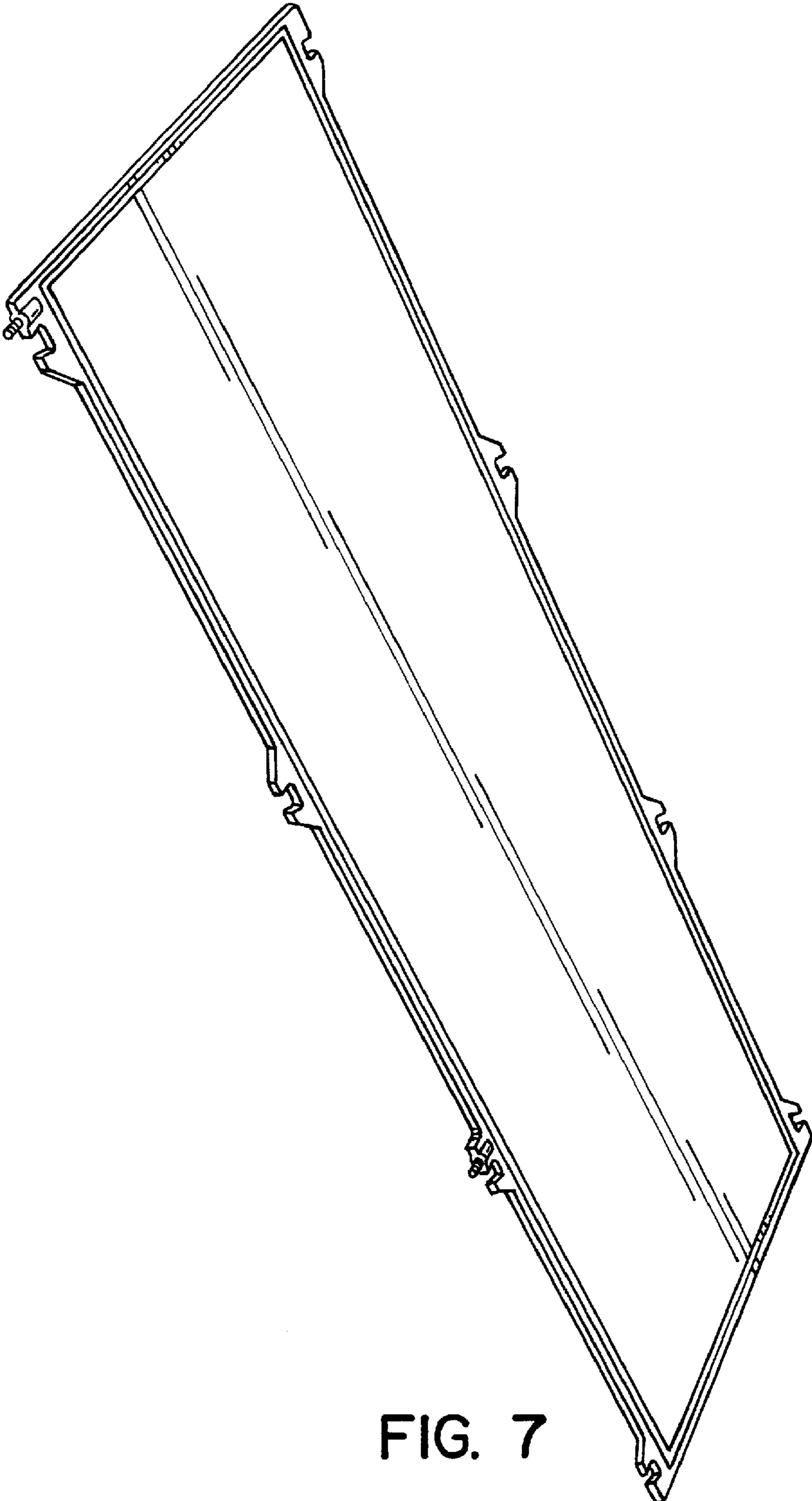


FIG. 7

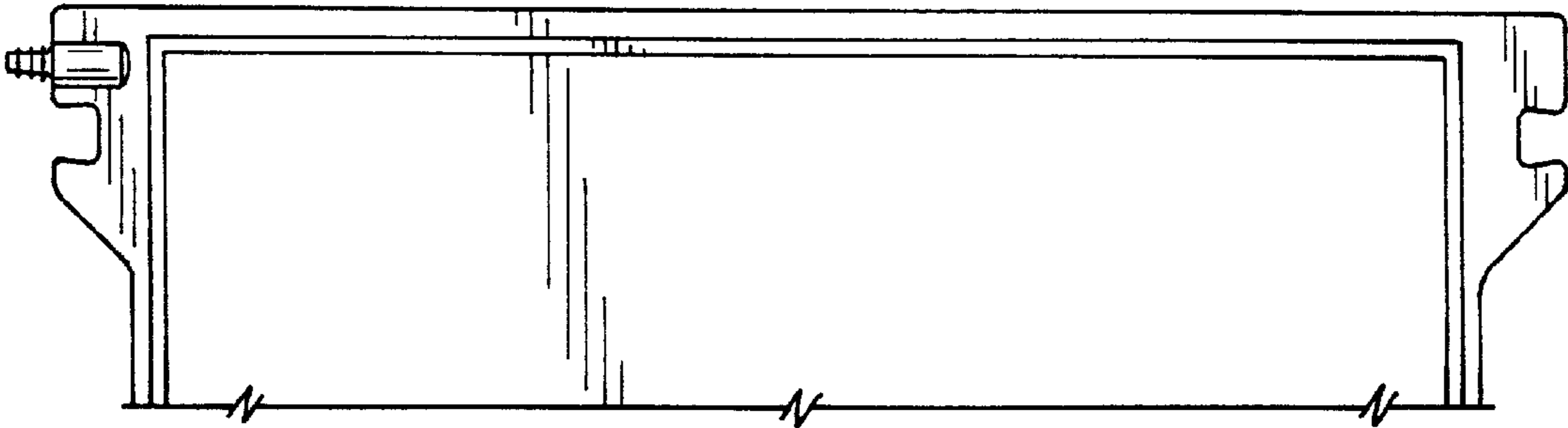


FIG. 8

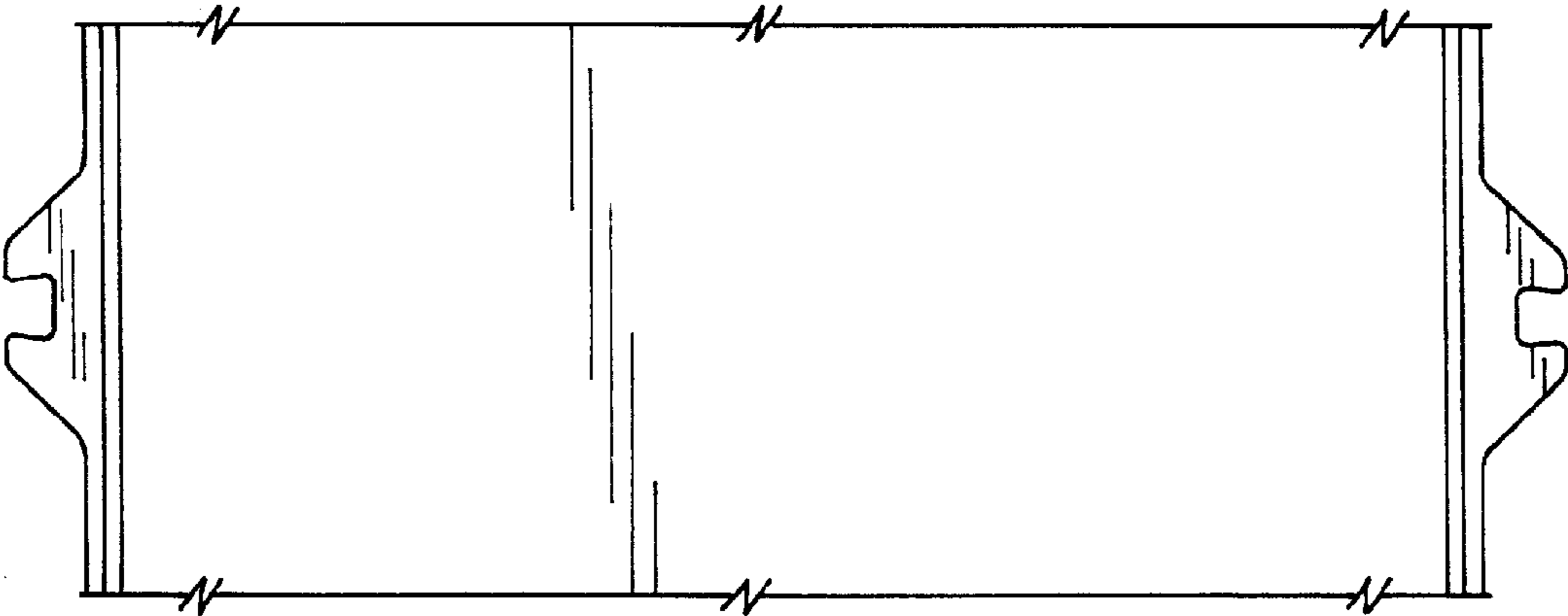


FIG. 9

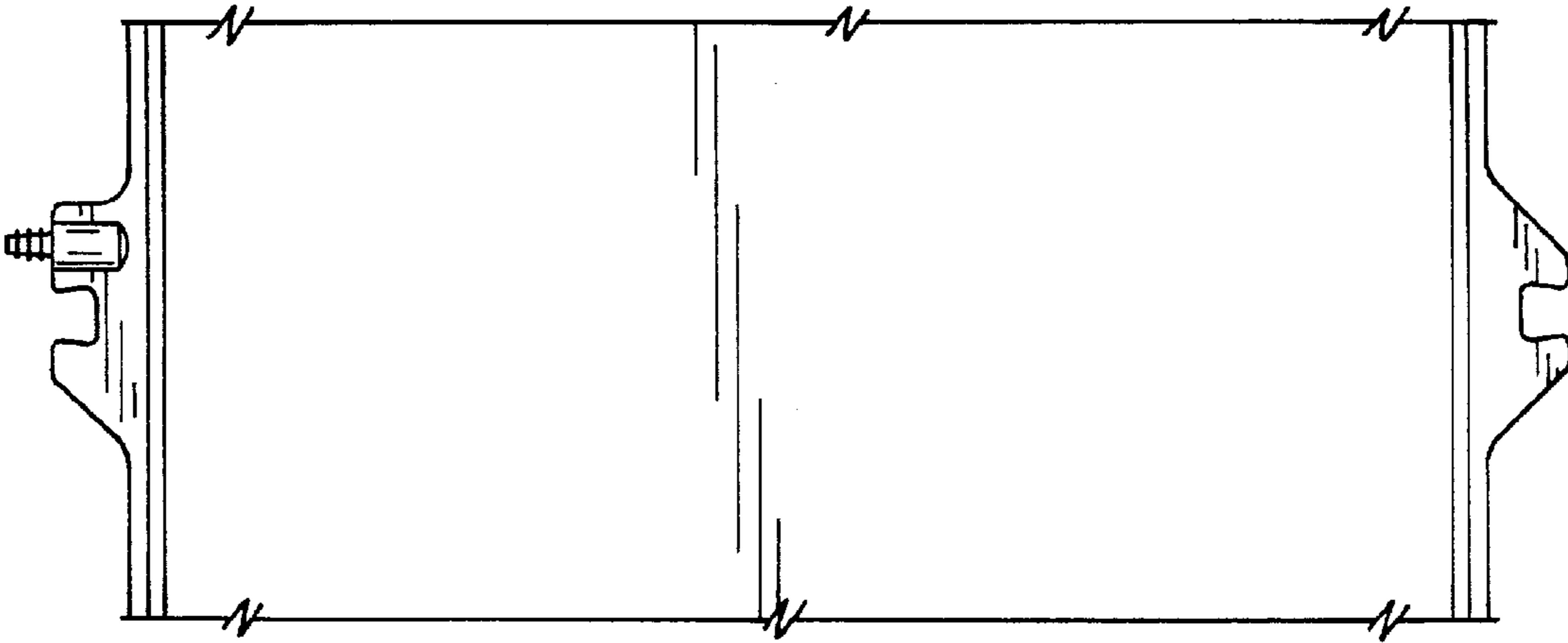


FIG. 10

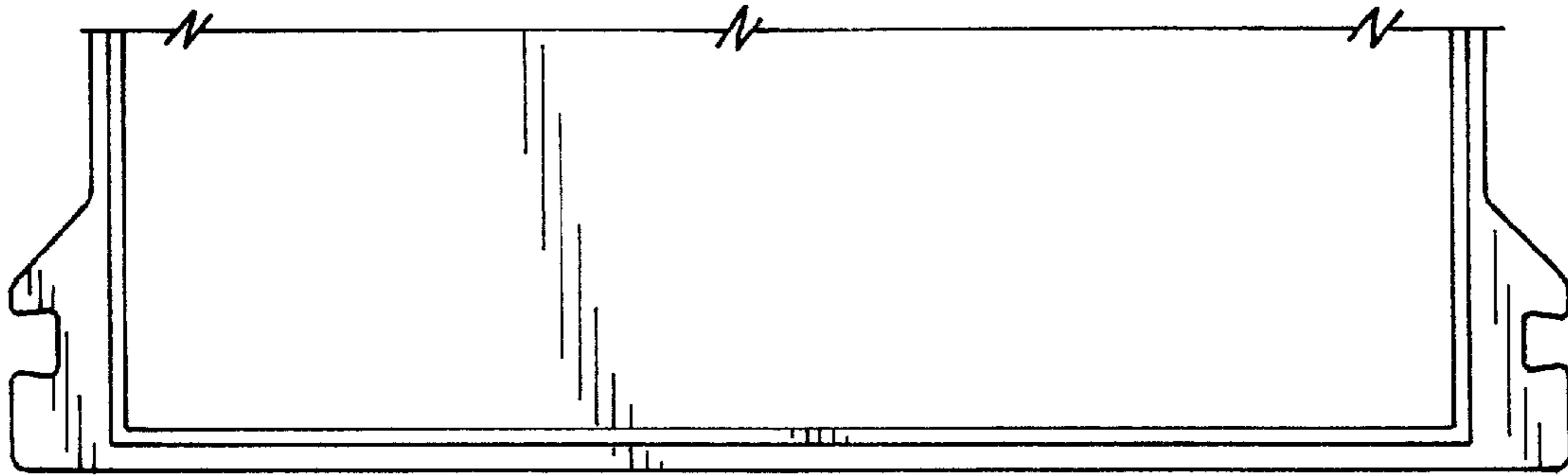


FIG. 11

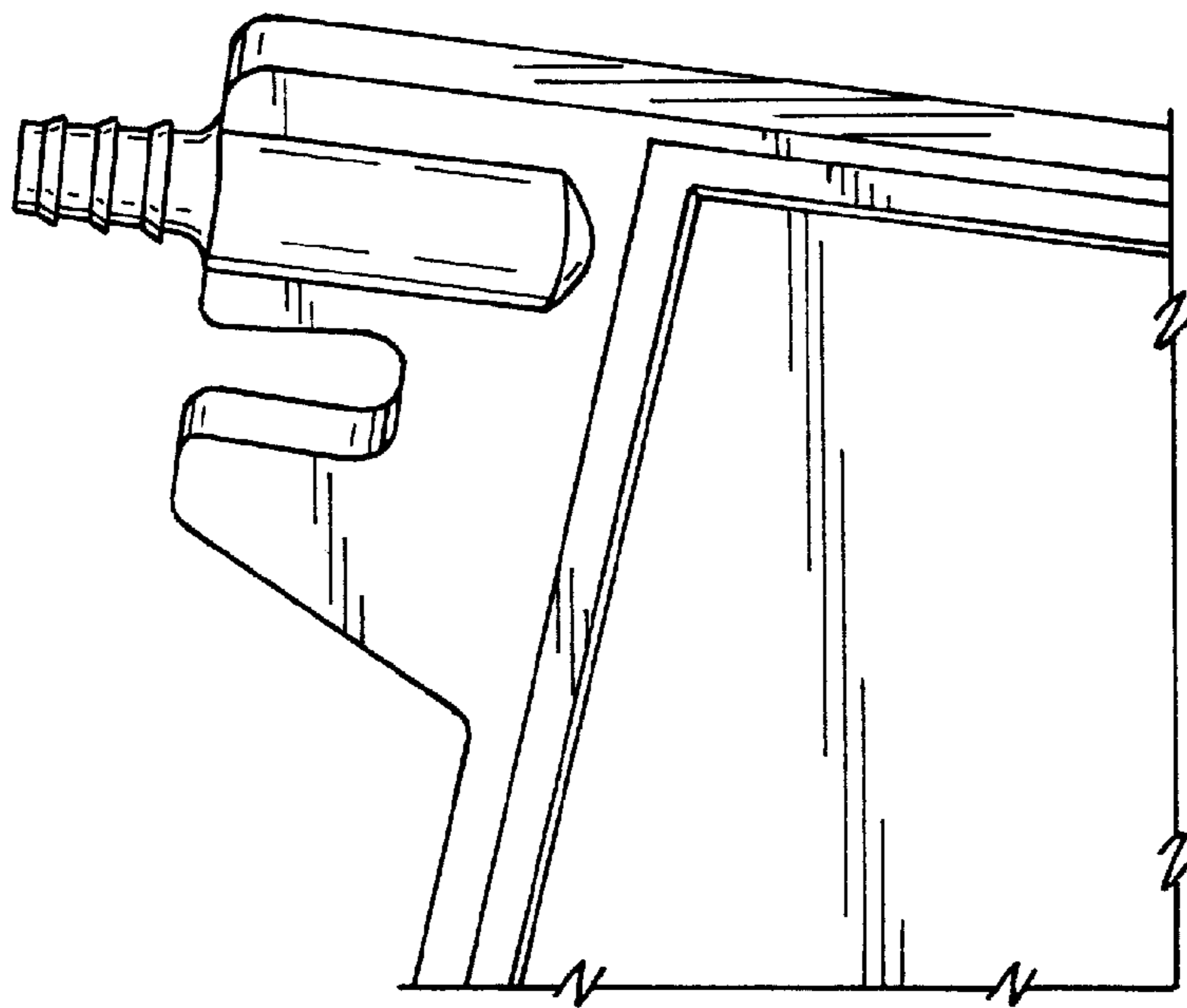


FIG. 12

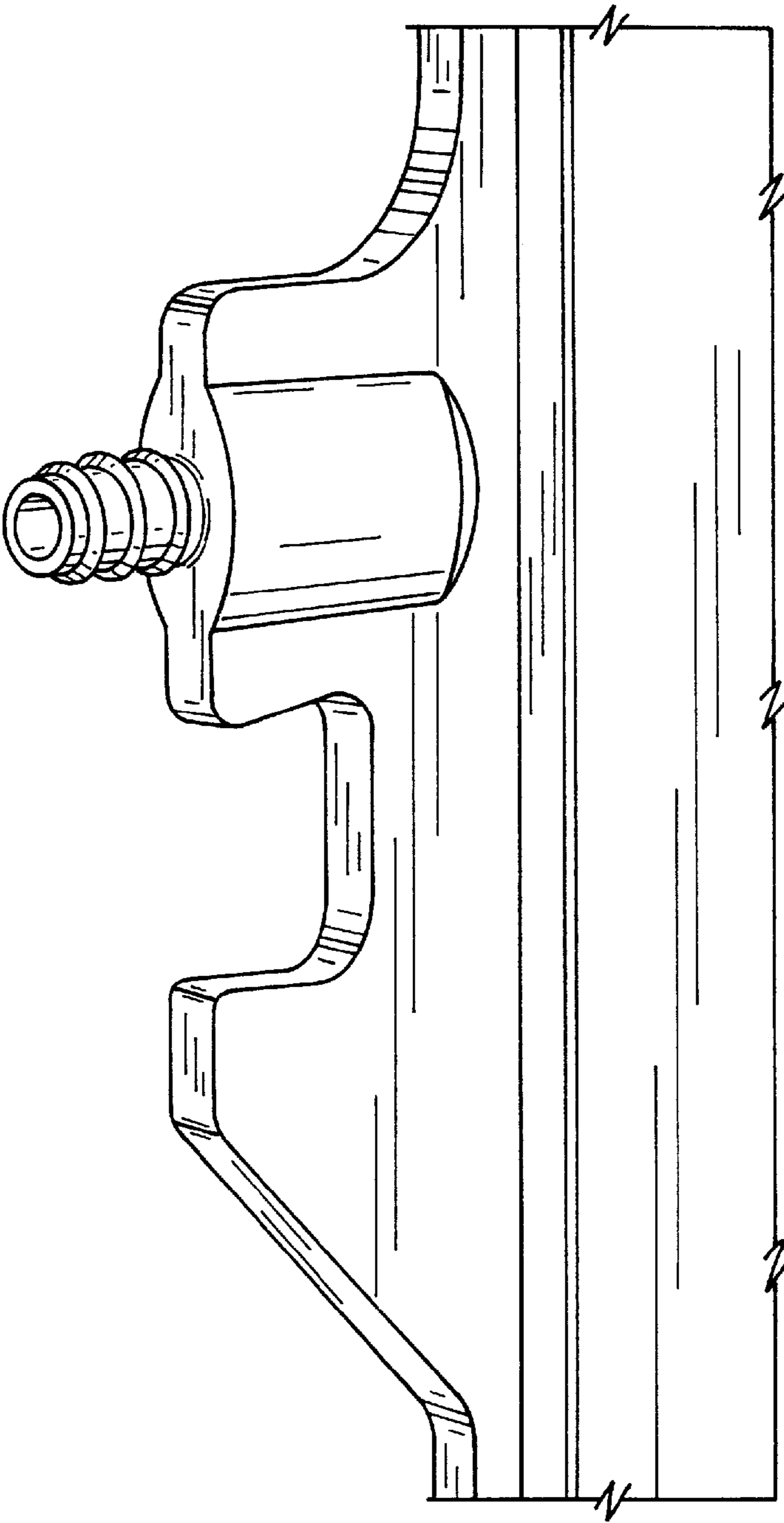


FIG. 13