



US00D870911S

(12) **United States Design Patent** (10) **Patent No.:** **US D870,911 S**
Kang (45) **Date of Patent:** **** *Dec. 24, 2019**

(54) **FEED PUMP FOR LIQUID CHROMATOGRAPHIC ANALYSIS**

(71) Applicant: **SHIMADZU CORPORATION**, Kyoto (JP)

(72) Inventor: **Hyeri Kang**, Kyoto (JP)

(73) Assignee: **SHIMADZU CORPORATION**, Kyoto (JP)

(*) Notice: This patent is subject to a terminal disclaimer.

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

(21) Appl. No.: **29/657,839**

(22) Filed: **Jul. 25, 2018**

(30) **Foreign Application Priority Data**

Jan. 26, 2018 (JP) 2018-001490

(51) **LOC (12) Cl.** **24-01**

(52) **U.S. Cl.**
USPC **D24/216; D24/232**

(58) **Field of Classification Search**
USPC D24/107, 111, 169, 170, 216–219,
D24/185–186, 224, 231–234; D10/81
CPC G01N 2035/00306; G01N 2035/00326;
G01N 2035/00336; G01N 2030/381;
G01N 2030/386; G01N 2030/027; G01N
2030/8804; G01N 2030/8809; G01N
2030/8813; G01N 2030/8881; G01N
21/76

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,592,822 B1 * 7/2003 Chandler G01N 15/1456
356/72
D598,100 S * 8/2009 Tanaka D24/107

D637,929 S * 5/2011 Kimura D10/81
D637,930 S * 5/2011 Kimura D10/81
D646,189 S * 10/2011 Dinter D10/81
D685,499 S * 7/2013 Kimura D24/232
D691,280 S * 10/2013 Matoba D24/216
D692,155 S * 10/2013 Matoba D24/216
D692,158 S * 10/2013 Matoba D24/216
D693,712 S * 11/2013 Noda D10/81
D693,938 S * 11/2013 Matoba D24/216
D745,185 S * 12/2015 Kimura D10/81
D750,989 S * 3/2016 Shimizu D10/81
D755,405 S * 5/2016 Zhu D10/81
D785,198 S * 4/2017 Lemke D24/232

* cited by examiner

Primary Examiner — Barbara Fox

Assistant Examiner — Mary Shannon Malley

(74) *Attorney, Agent, or Firm* — JCIPRNET

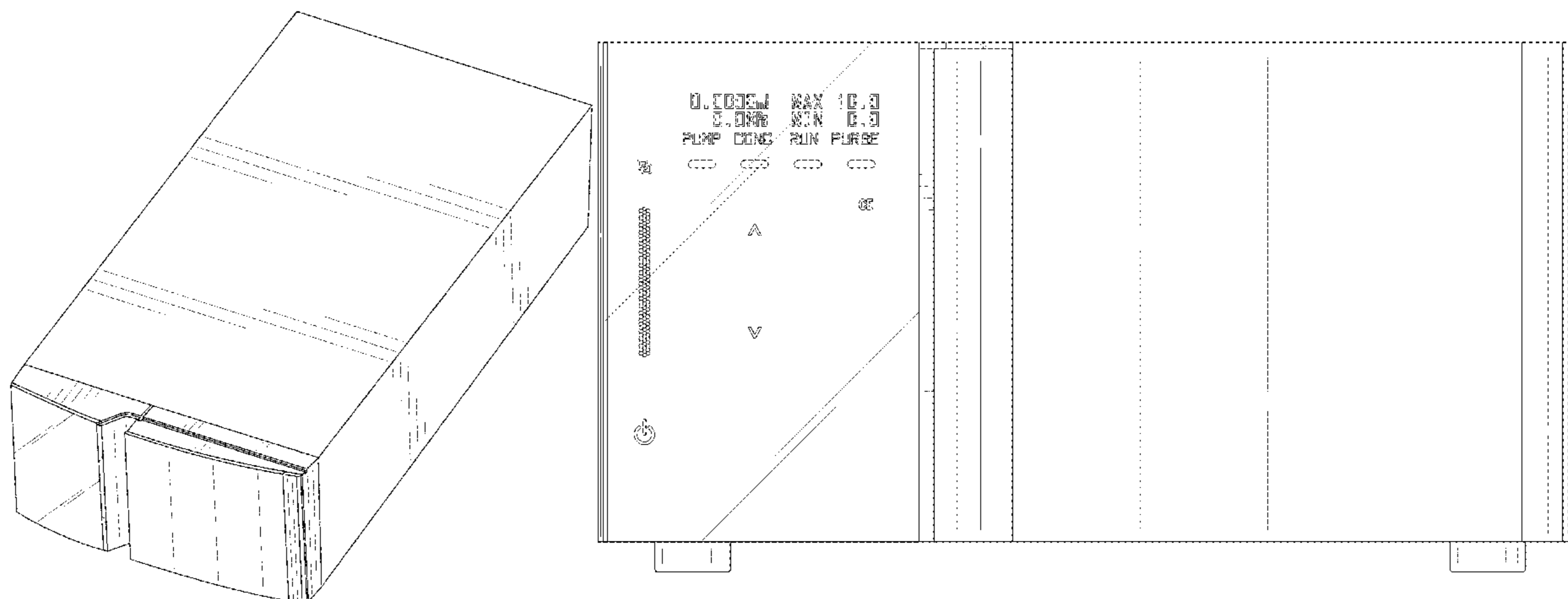
(57) **CLAIM**

The ornamental design for a feed pump for liquid chromatographic analysis, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a feed pump for liquid chromatographic analysis showing my new design; FIG. 2 is another perspective view thereof; FIG. 3 is a front view thereof; FIG. 4 is a rear view thereof; FIG. 5 is a left side view thereof; FIG. 6 is a right side view thereof; FIG. 7 is a top view thereof; FIG. 8 is a bottom view thereof; FIG. 9 is a cross-section view thereof with the internal parts omitted, taken along the line 9-9 of FIG. 3; and, FIG. 10 is an enlarged front view thereof in a state of use. The broken lines show portions of the feed pump for liquid chromatographic analysis that form no part of the claimed design.

1 Claim, 8 Drawing Sheets



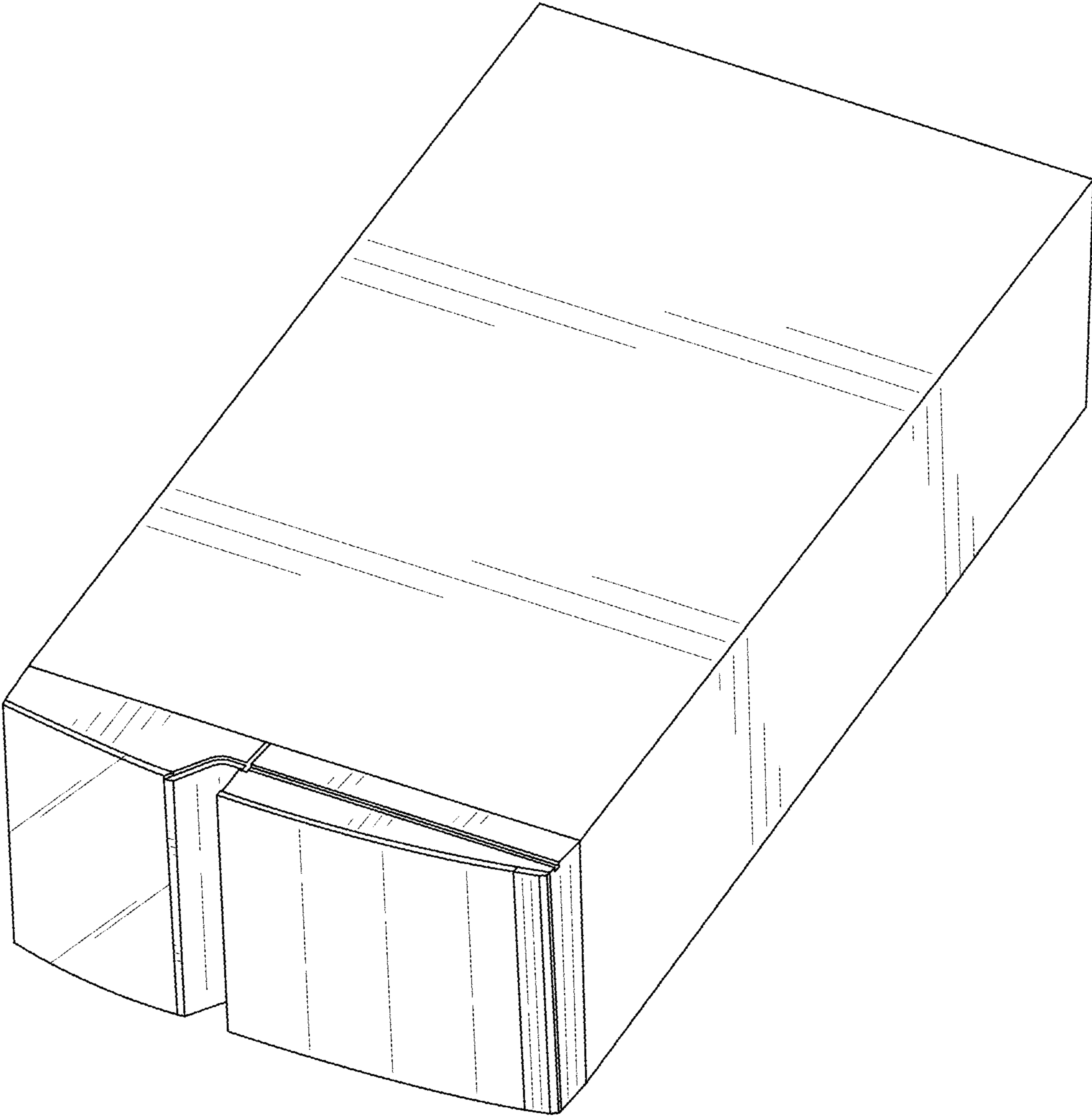


FIG. 1

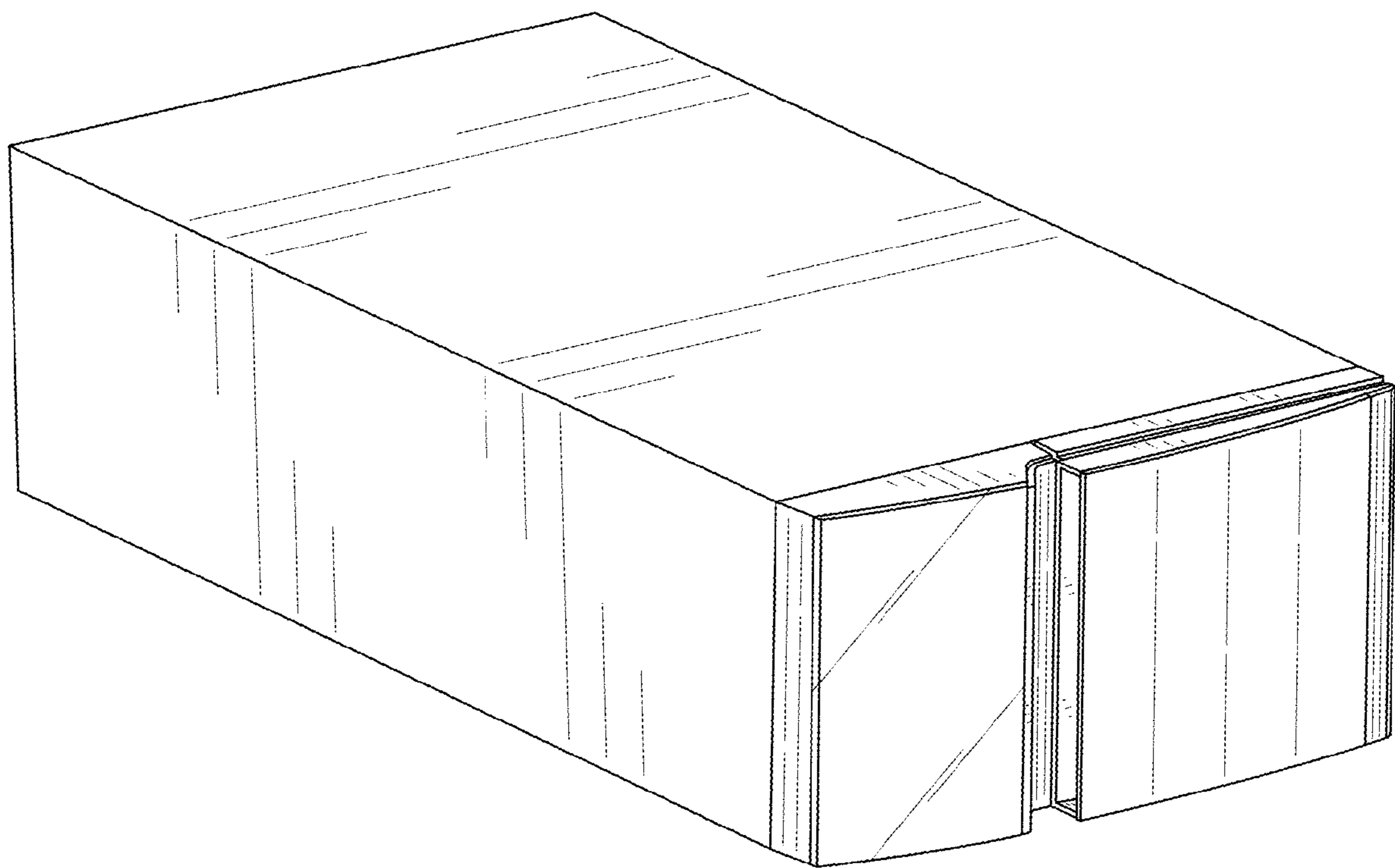


FIG. 2

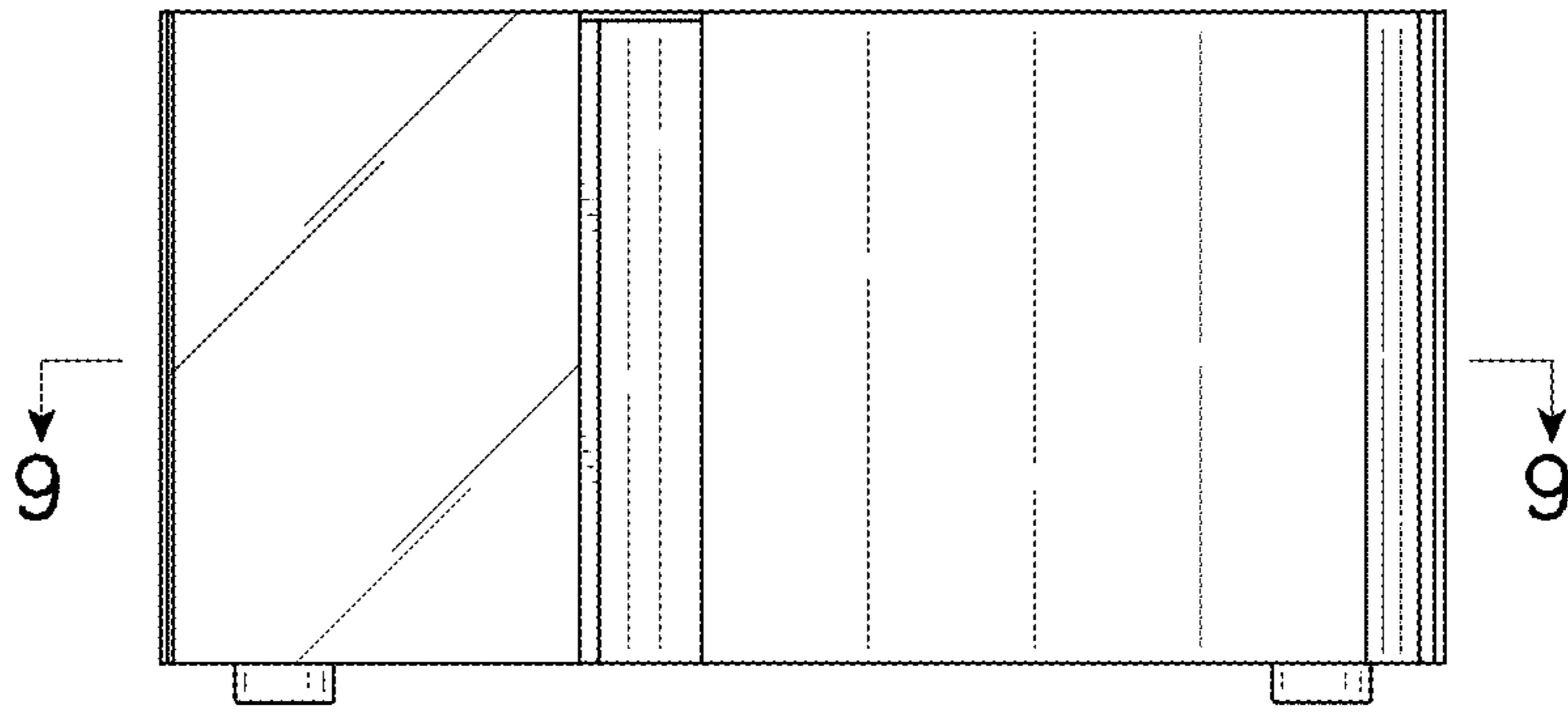


FIG. 3

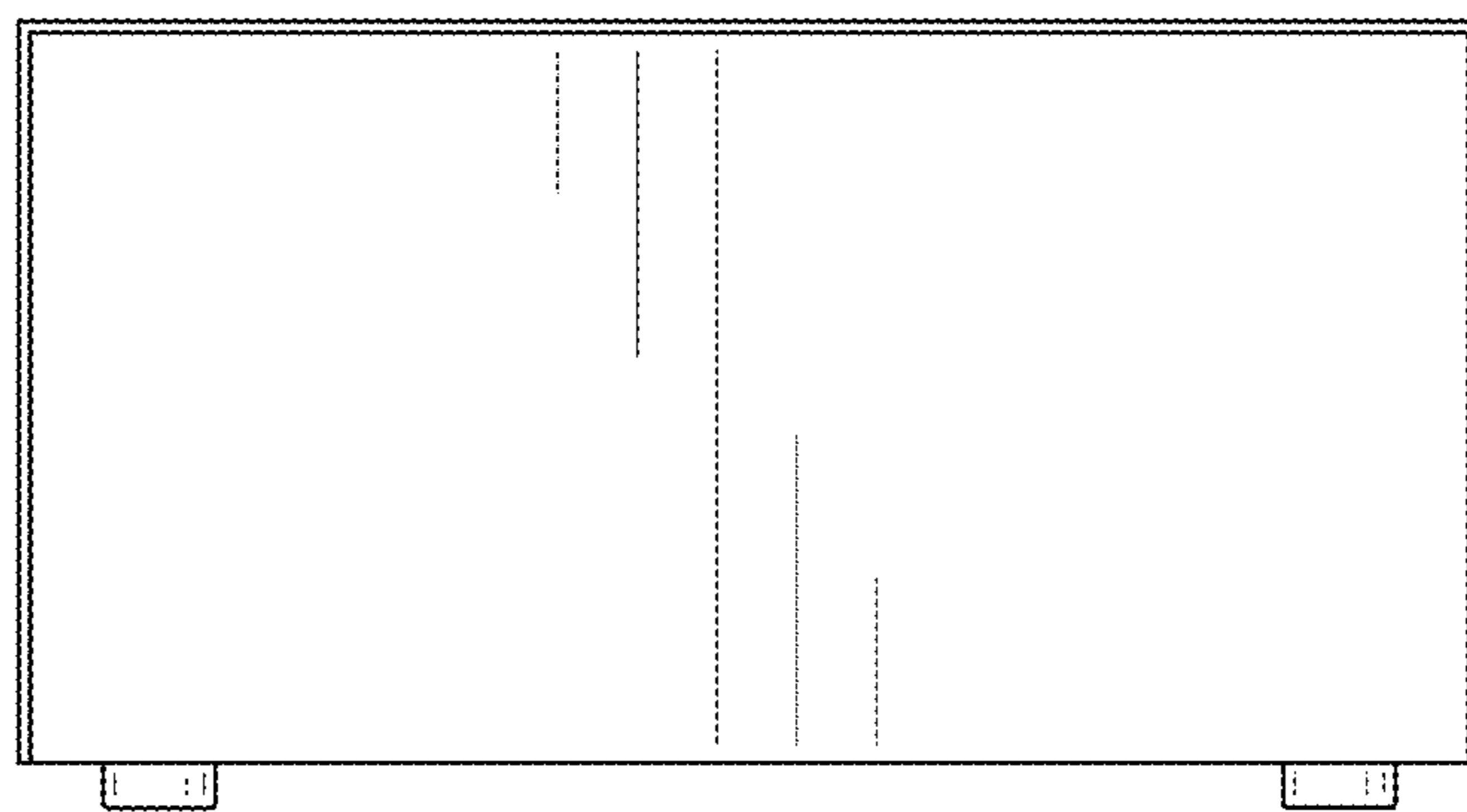


FIG. 4

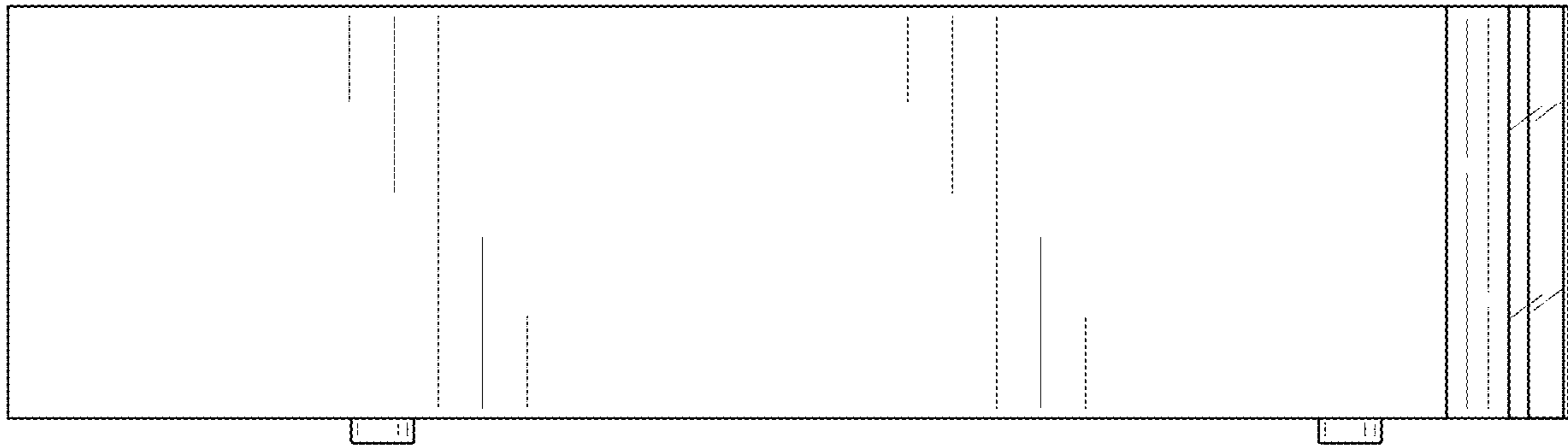


FIG. 5

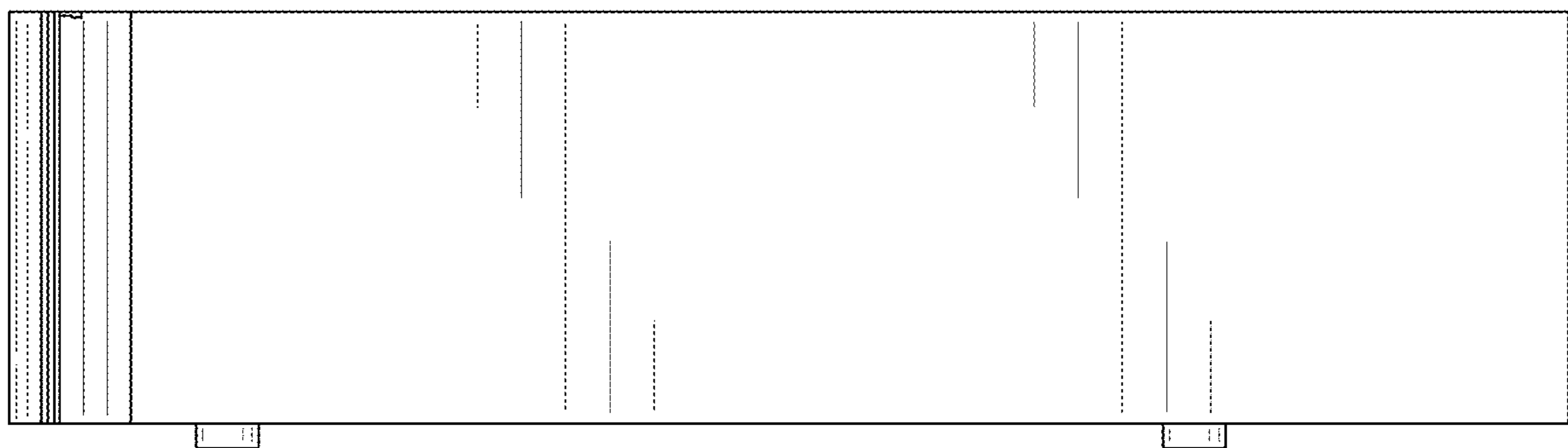


FIG. 6

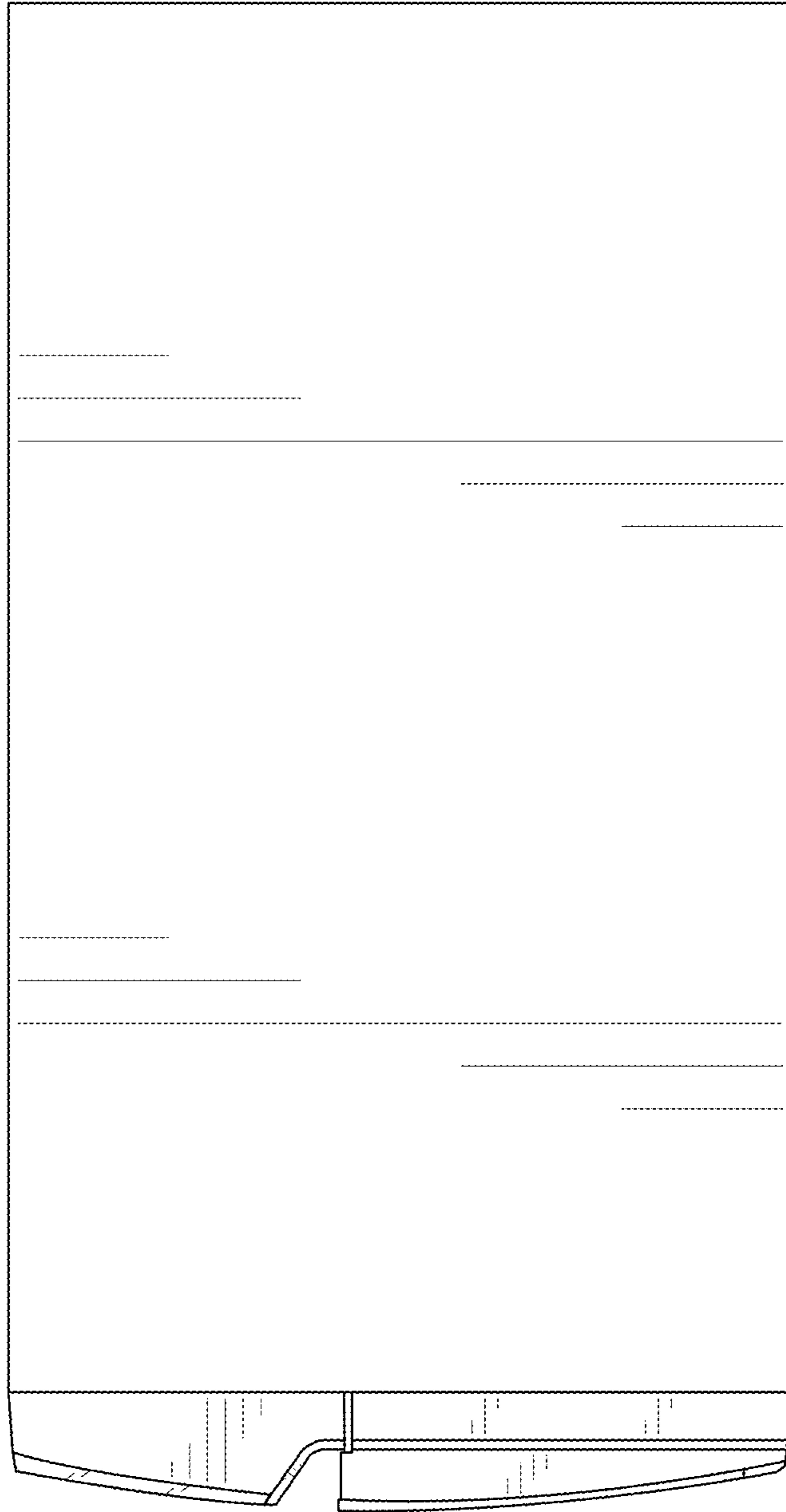


FIG. 7

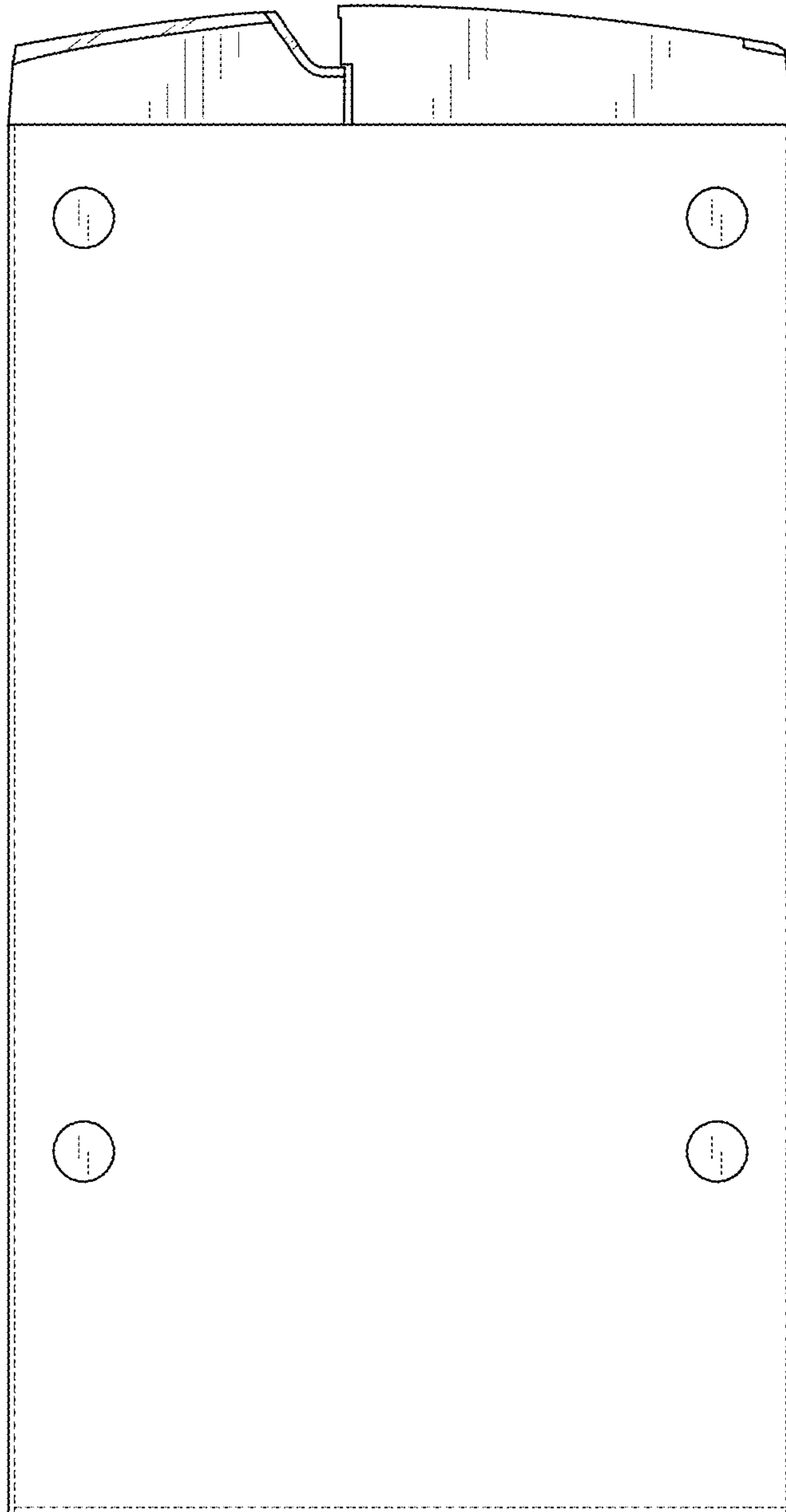


FIG. 8

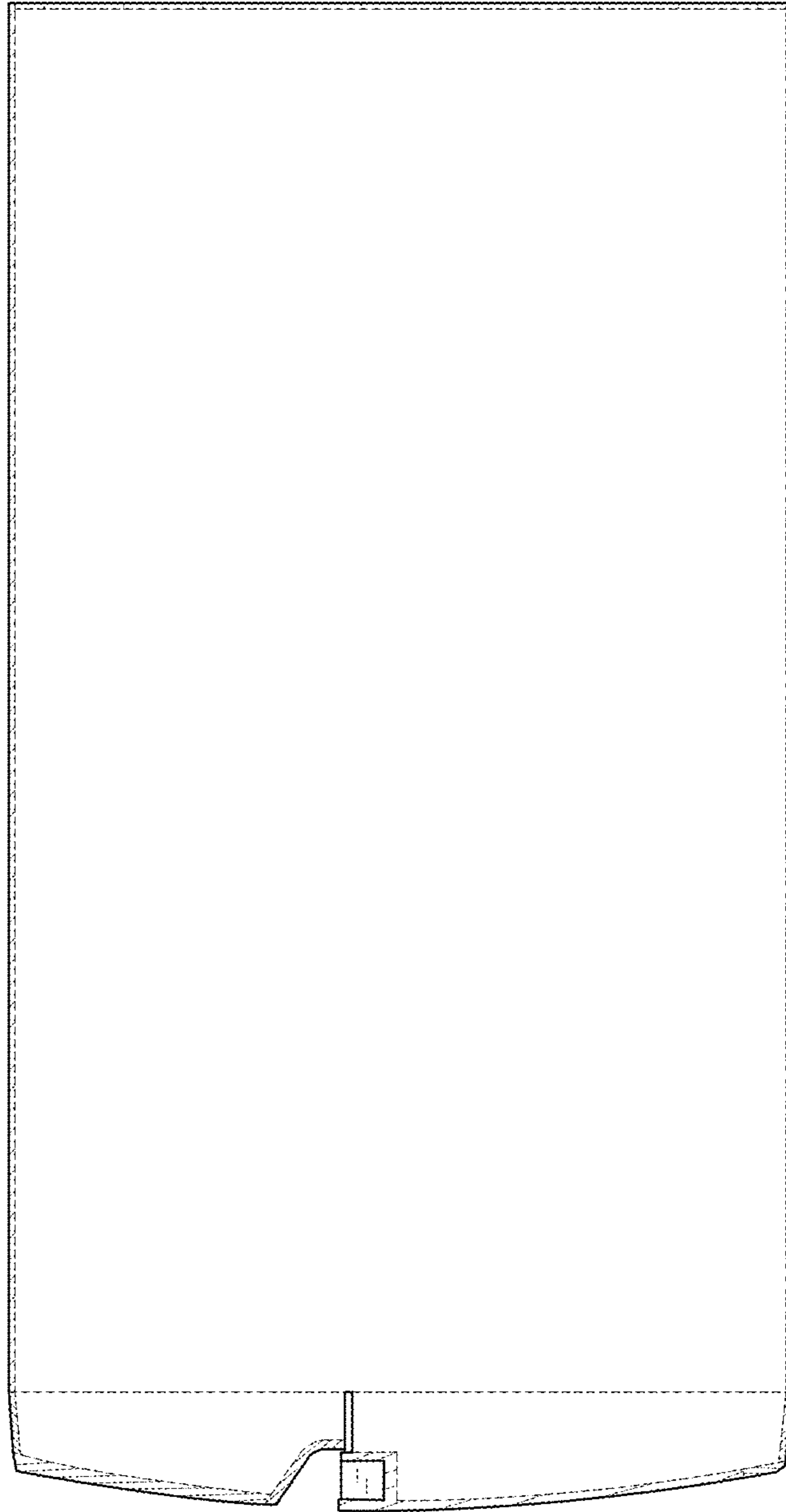


FIG. 9

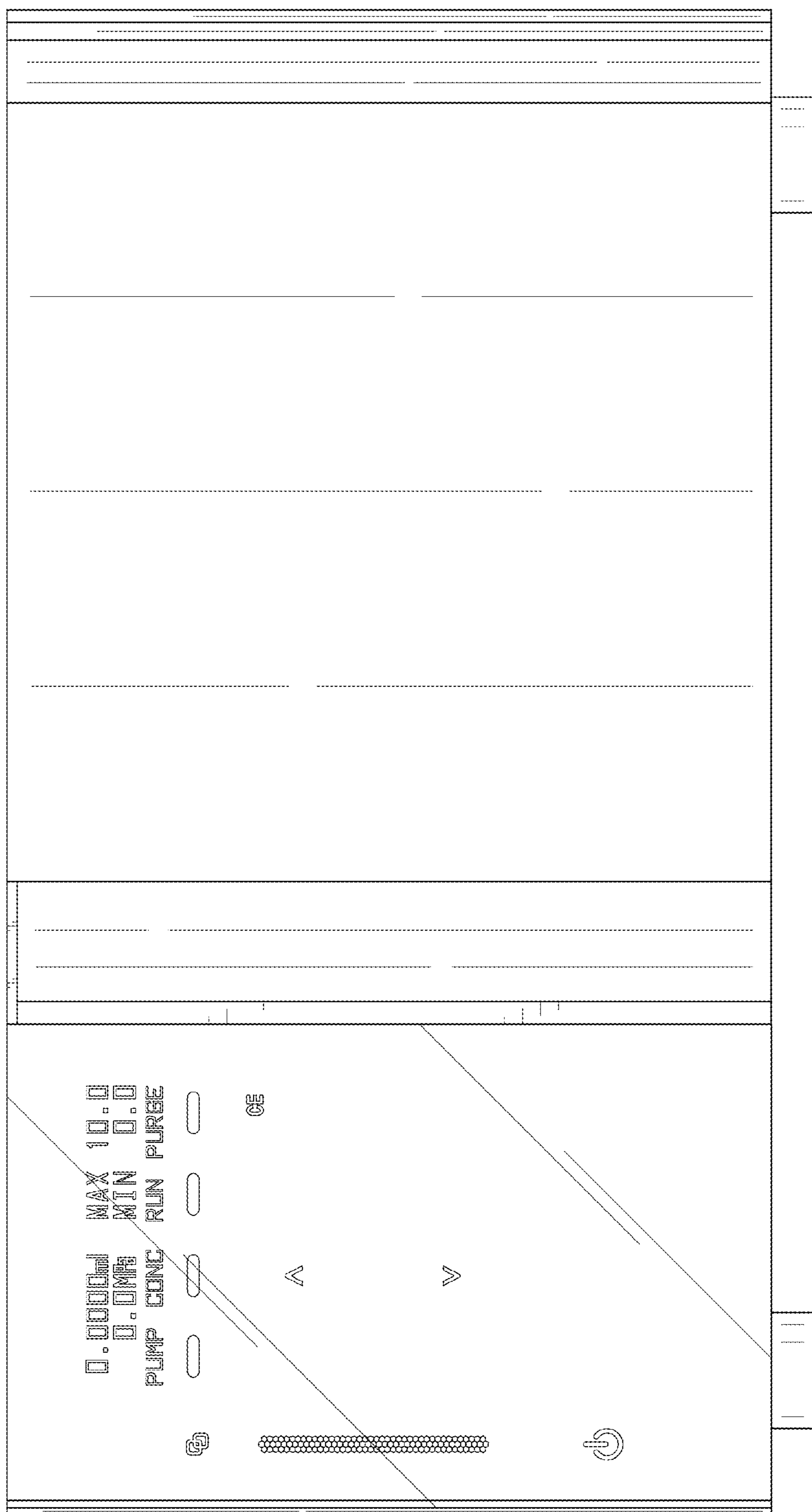


FIG. 10