



US00D666645S

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

(10) **Patent No.:** **US D666,645 S**
(45) **Date of Patent:** **** Sep. 4, 2012**

(54) **PREHEATER FOR MELTING SOLDER**

(75) Inventor: **Tomomi Sugiyama**, Osaka (JP)

(73) Assignee: **Hakko Corporation**, Osaka (JP)

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

(21) Appl. No.: **29/378,913**

(22) Filed: **Nov. 11, 2010**

(30) **Foreign Application Priority Data**

May 28, 2010 (JP) D2010-013173

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

(52) **U.S. Cl.** **D15/144.2; 15/30**

(58) **Field of Classification Search** D8/29.1,
D8/30; D13/123, 133; D15/144, 144.1,
D15/144.2; 219/125.1, 130.5, 132, 240,
219/616; 228/8, 20, 20.5, 40, 46, 51, 111.5
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 4,418,268 A * 11/1983 Munshaw 219/242
- D274,819 S * 7/1984 Bouman D15/144
- D274,882 S * 7/1984 Rittmann D15/144
- D290,927 S * 7/1987 Pagani D8/30
- 5,048,742 A * 9/1991 Fortune 228/20.5
- D398,016 S * 9/1998 Neef D15/144.2
- D415,435 S * 10/1999 Yoshimura D10/50
- D445,812 S * 7/2001 Shimizu et al. D15/144

- D490,448 S * 5/2004 Ishihara D15/144
- D550,731 S * 9/2007 Ishihara et al. D15/144.2
- D620,328 S * 7/2010 Masaki D8/30

OTHER PUBLICATIONS

American Hakko Products, Inc., catalog publication for "FR-1012 Board Preheater", Apr. 2008.

* cited by examiner

Primary Examiner — Patricia Palasik

(74) *Attorney, Agent, or Firm* — Squire Sanders (US) LLP

(57) **CLAIM**

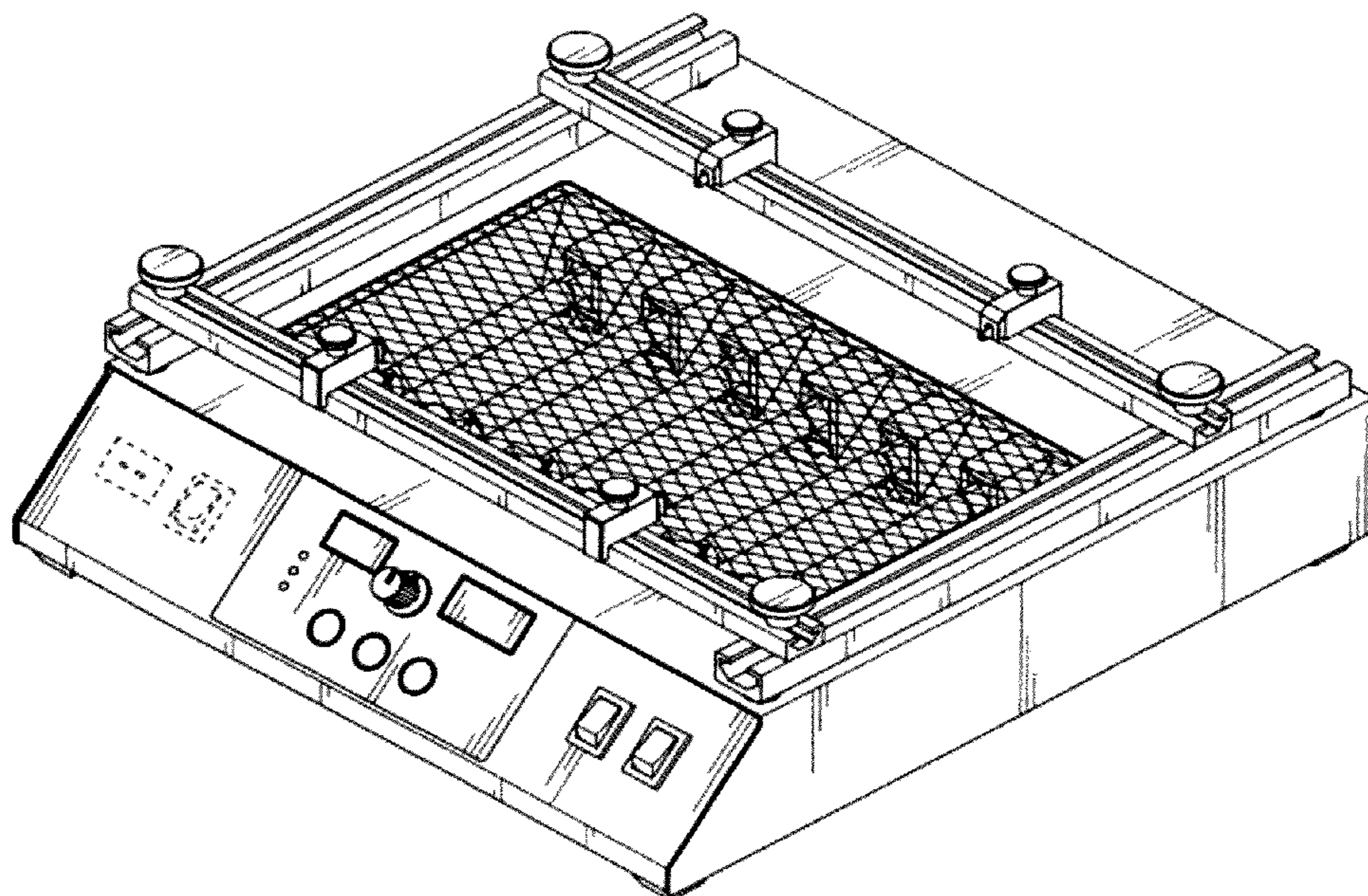
The ornamental design for a preheater for melting solder, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a preheater for melting solder; FIG. 2 is a front view thereof; FIG. 3 is a rear view thereof; FIG. 4 is a left side view thereof; FIG. 5 is a right side view thereof; FIG. 6 is a top view thereof; FIG. 7 is a bottom view thereof; FIG. 8 is a sectional view thereof, taken along line 8-8 in FIG. 2; and, FIG. 9 is a sectional view thereof, taken along line 9-9 in FIG. 4.

The portion shown by broken lines is for illustrative purposes only and forms no part of the claimed design.

1 Claim, 5 Drawing Sheets



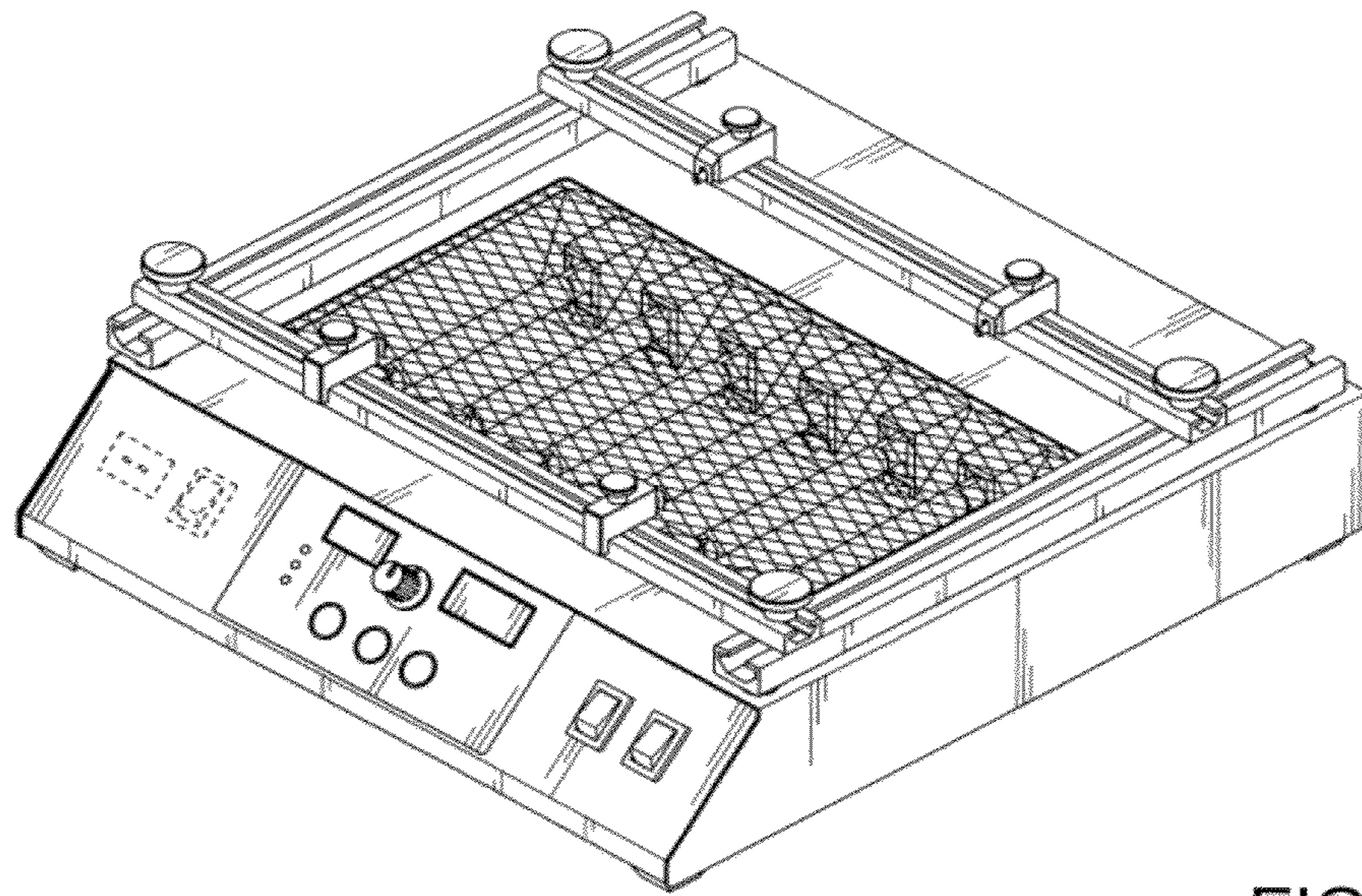


FIG. 1

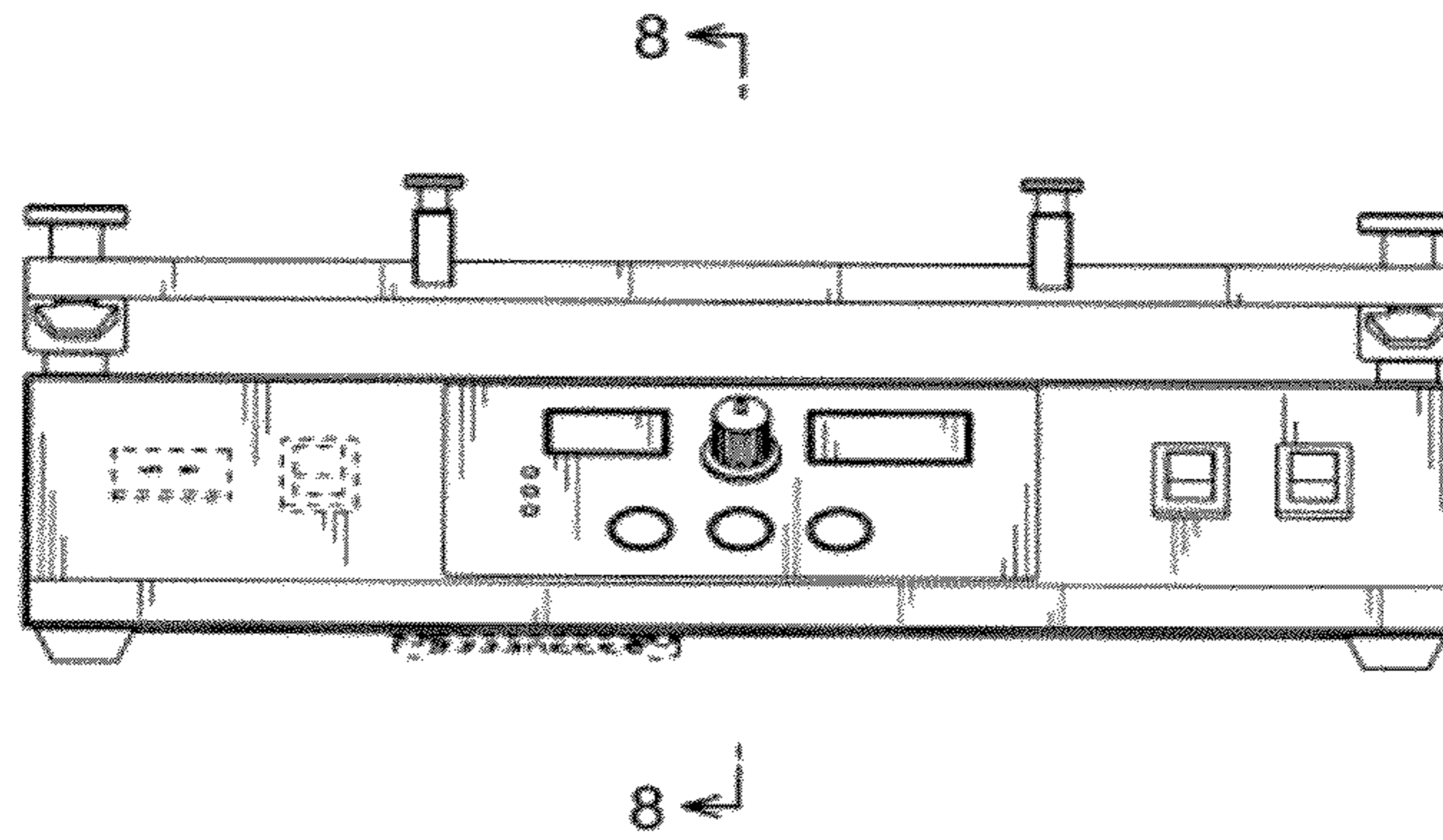


FIG.2

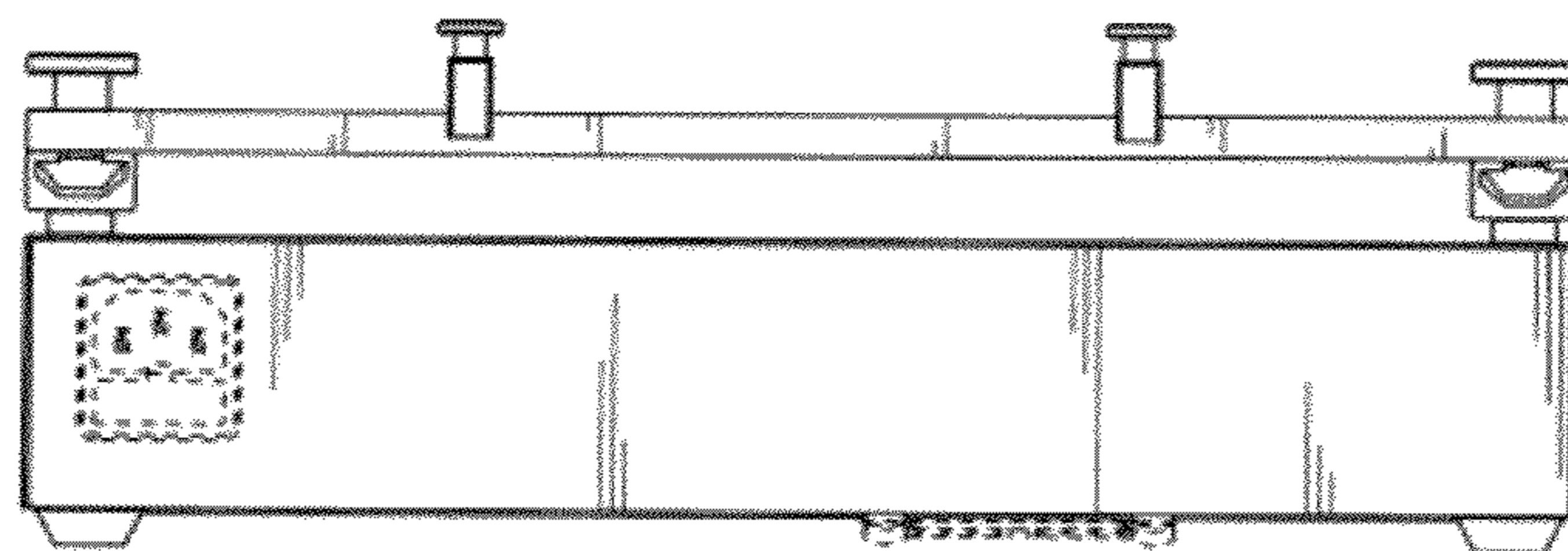


FIG.3

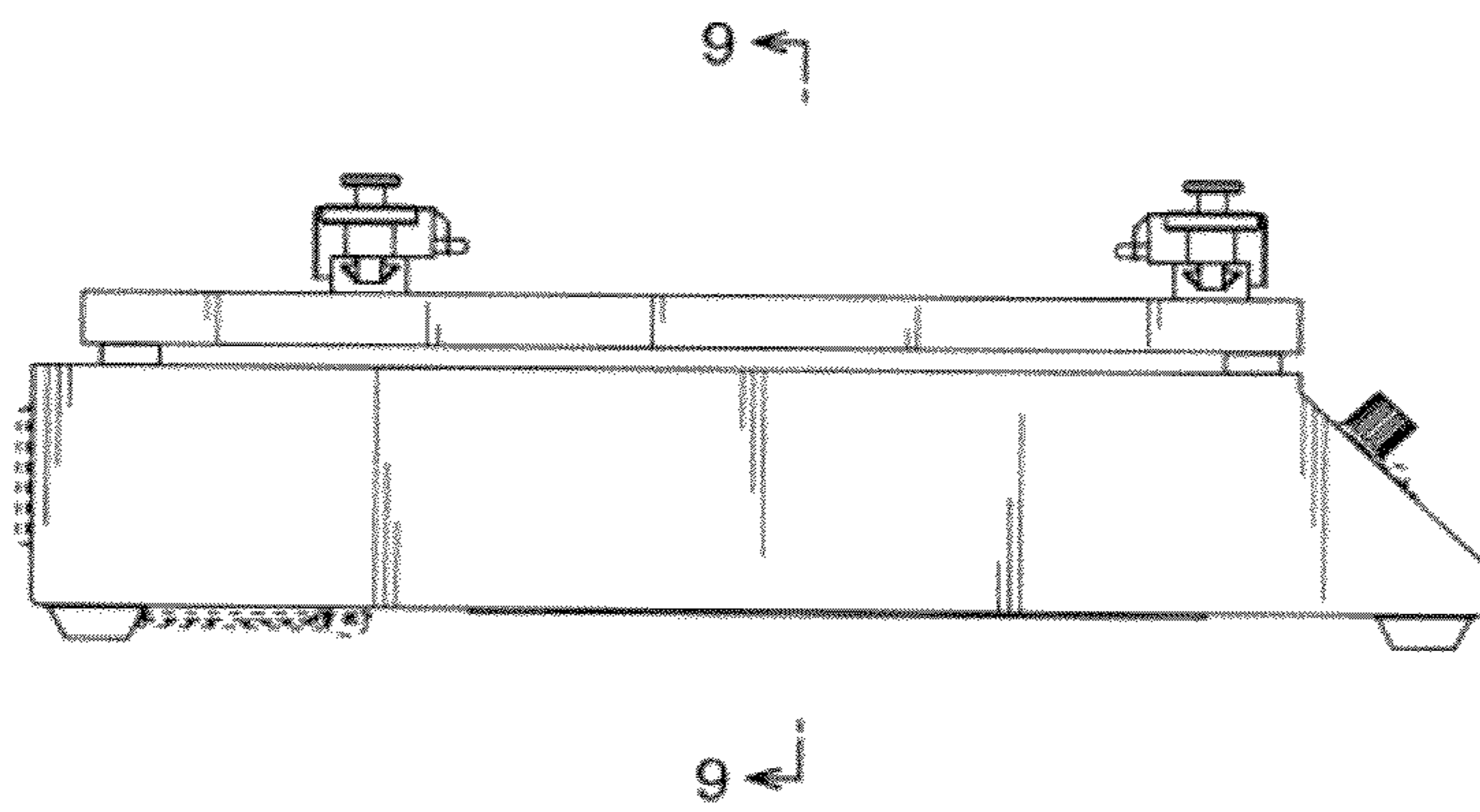


FIG. 4

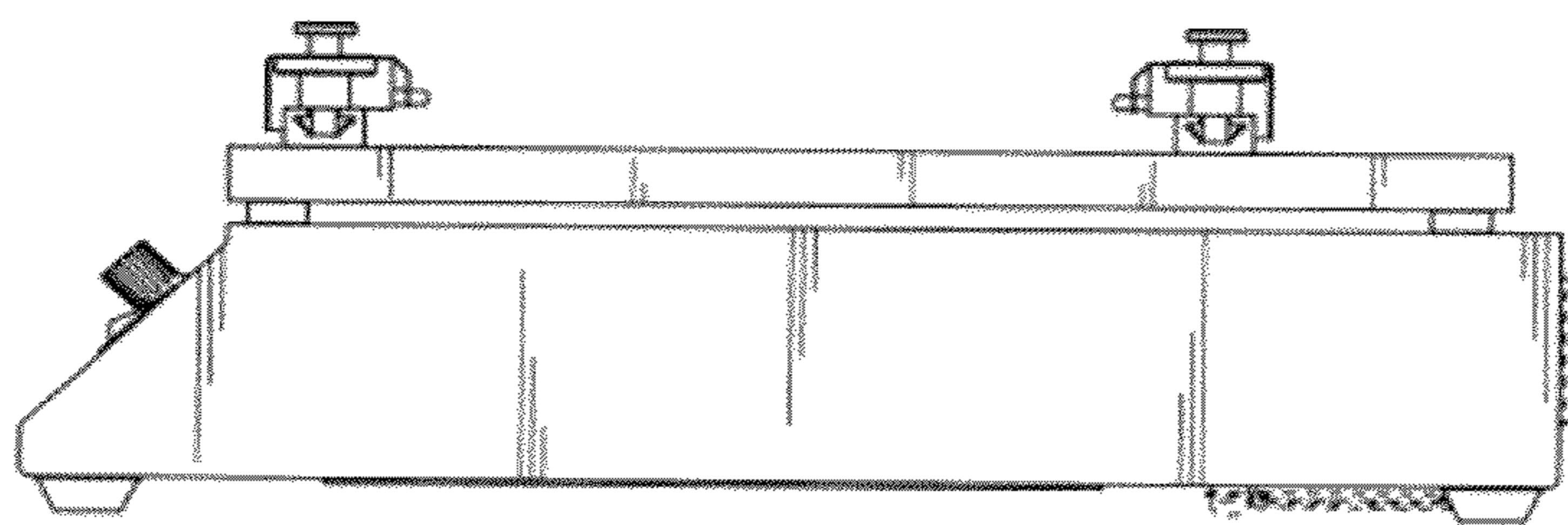


FIG. 5

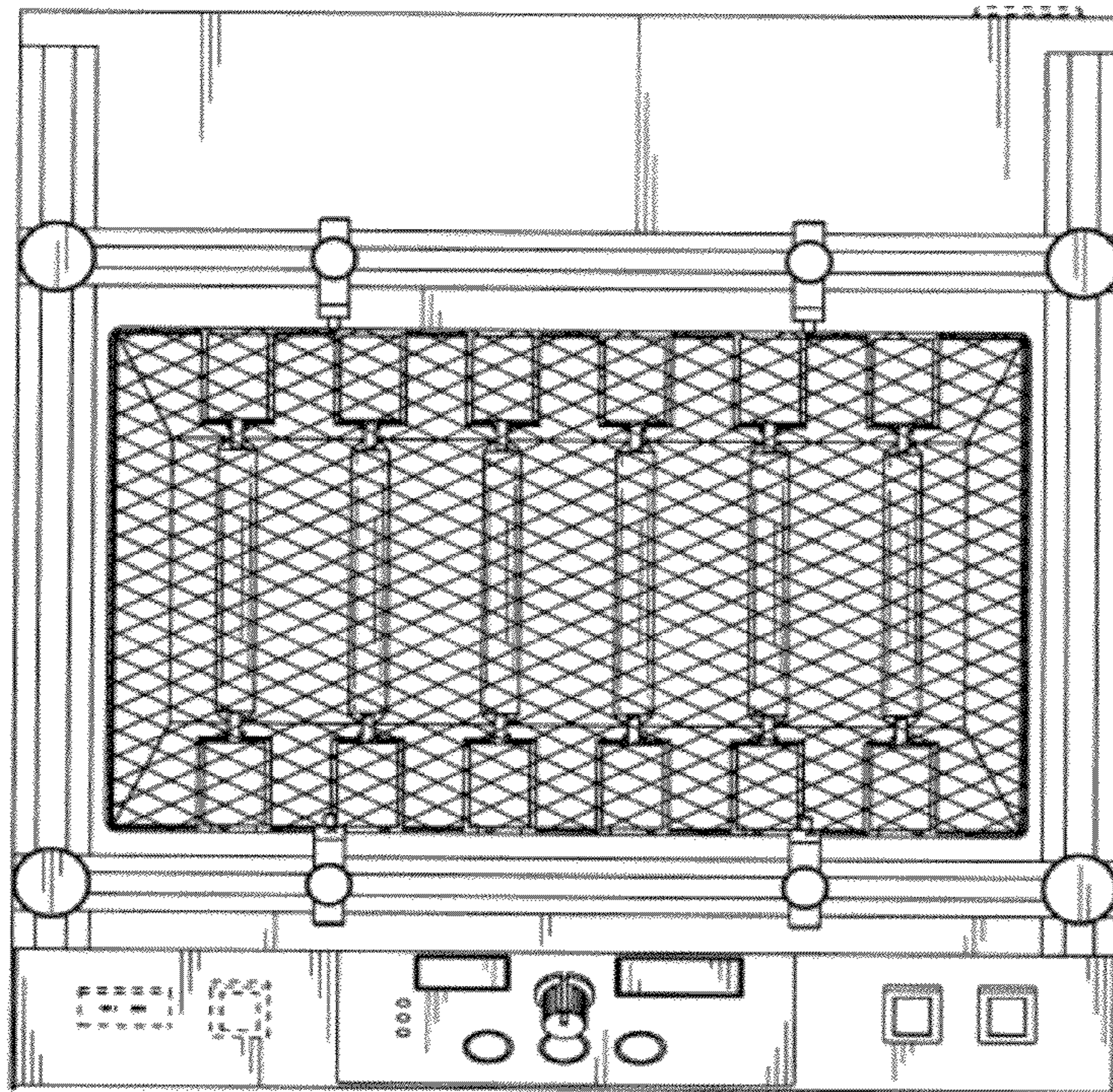


FIG. 6

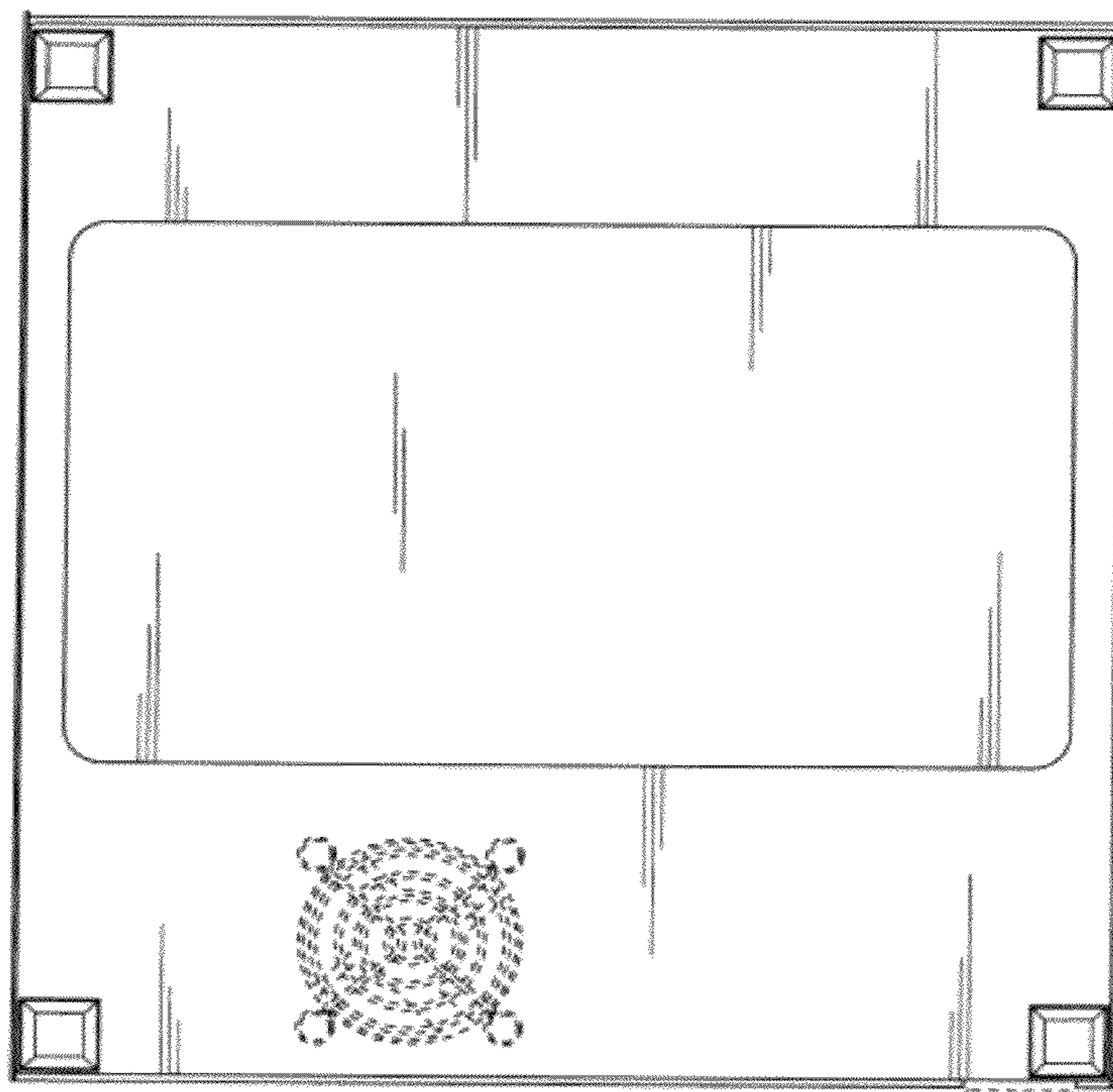


FIG. 7

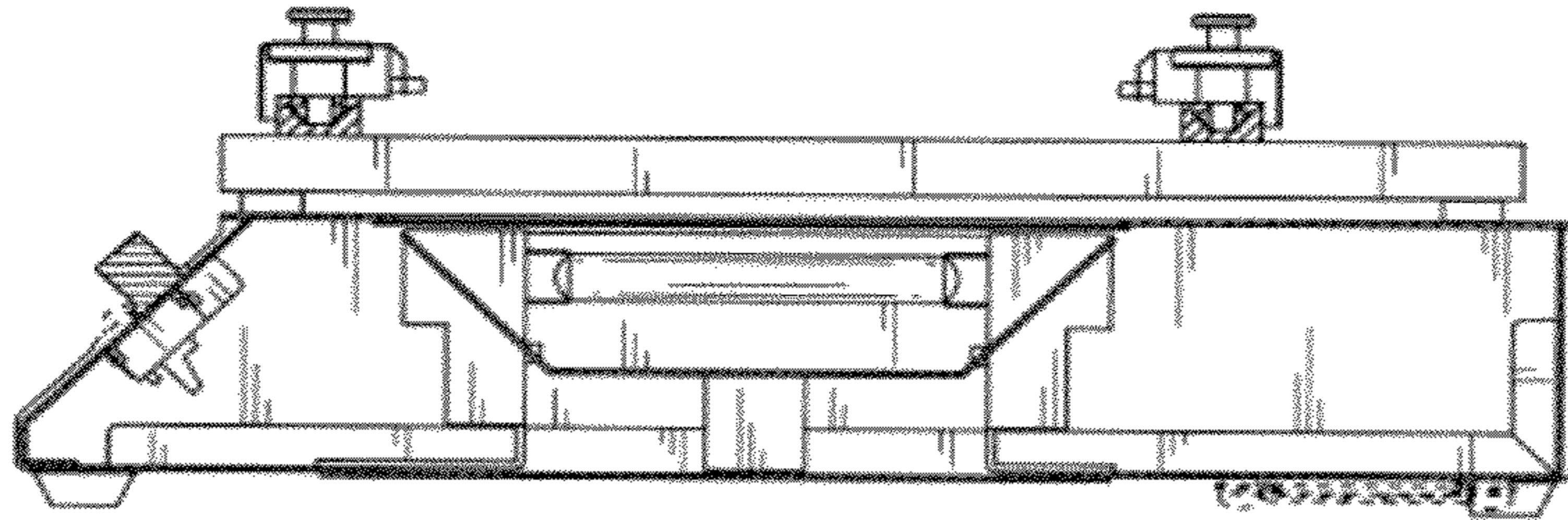


FIG. 8

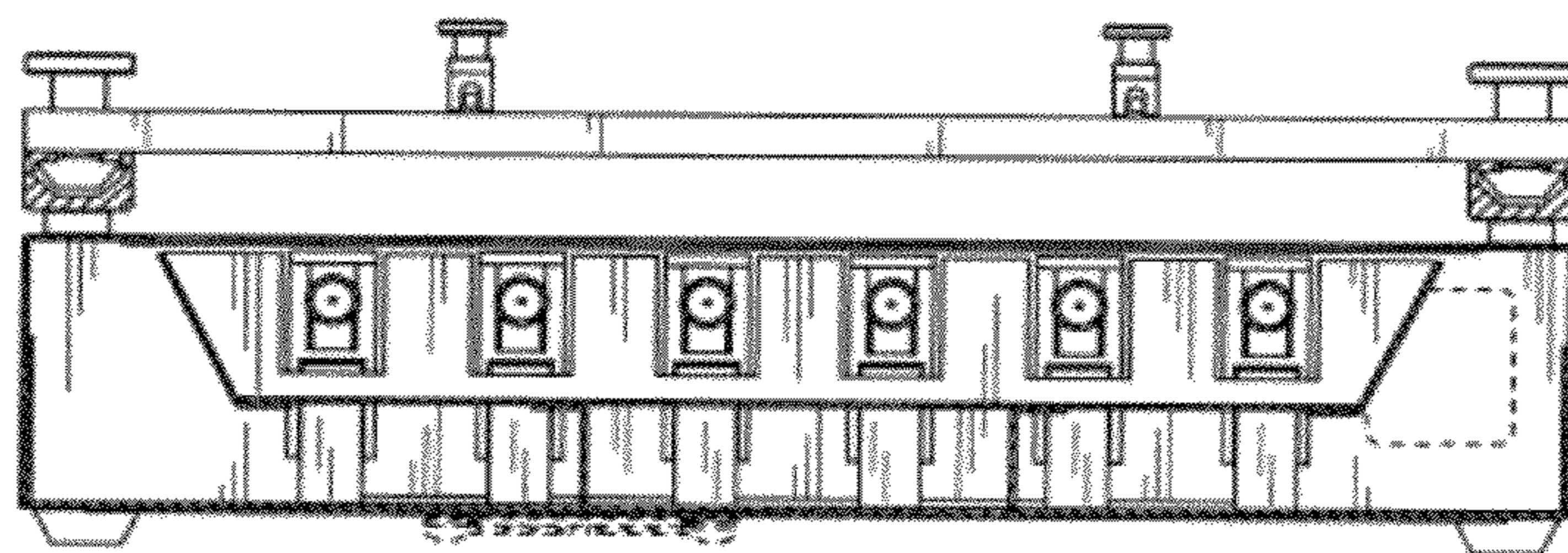


FIG. 9