



US00D550731S

(12) **United States Design Patent** (10) **Patent No.:** **US D550,731 S**  
**Ishihara et al.** (45) **Date of Patent:** **\*\* Sep. 11, 2007**

(54) **PREHEATER FOR MELTING SOLDER**

D445,812 S \* 7/2001 Shimizu et al. .... D15/144  
 6,294,759 B1 \* 9/2001 Dunn, Jr. .... 228/51  
 D490,448 S \* 5/2004 Ishihara .... D15/144

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**OTHER PUBLICATIONS**

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

Printout of Hakko's website regarding "Hakko 853 Pre-Heater" dated Aug. 28, 2006.

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

\* cited by examiner

(21) Appl. No.: **29/272,075**

*Primary Examiner*—Antoine D. Davis

(22) Filed: **Jan. 31, 2007**

*Assistant Examiner*—Patricia Palasik

(30) **Foreign Application Priority Data**

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

Aug. 31, 2006 (JP) ..... D2006-023150

(57) **CLAIM**

(51) **LOC (8) Cl.** ..... **15-09**

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

(52) **U.S. Cl.** ..... **D15/144.2**

(58) **Field of Classification Search** ..... D15/144,  
D15/144.1, 144.2; 219/125.1, 130.5, 132;  
228/20.5, 40, 46, 51

**DESCRIPTION**

See application file for complete search history.

FIG. 1 is a perspective view of a preheater for melting solder;

(56) **References Cited**

FIG. 2 is a front view thereof;

**U.S. PATENT DOCUMENTS**

FIG. 3 is a rear view thereof;

D274,882 S \* 7/1984 Rittmann ..... D15/144

FIG. 4 is a left side view thereof;

D277,636 S \* 2/1985 Rittmann ..... D15/144

FIG. 5 is a right side view thereof;

D290,927 S \* 7/1987 Pagani ..... D8/30

FIG. 6 is a top view thereof; and,

5,048,742 A \* 9/1991 Fortune ..... 228/20.5

FIG. 7 is a bottom view thereof.

5,411,197 A \* 5/1995 Nakamura et al. .... 228/34

D398,016 S \* 9/1998 Neef ..... D15/144.2

D428,427 S \* 7/2000 Neef ..... D15/144.2

**1 Claim, 4 Drawing Sheets**

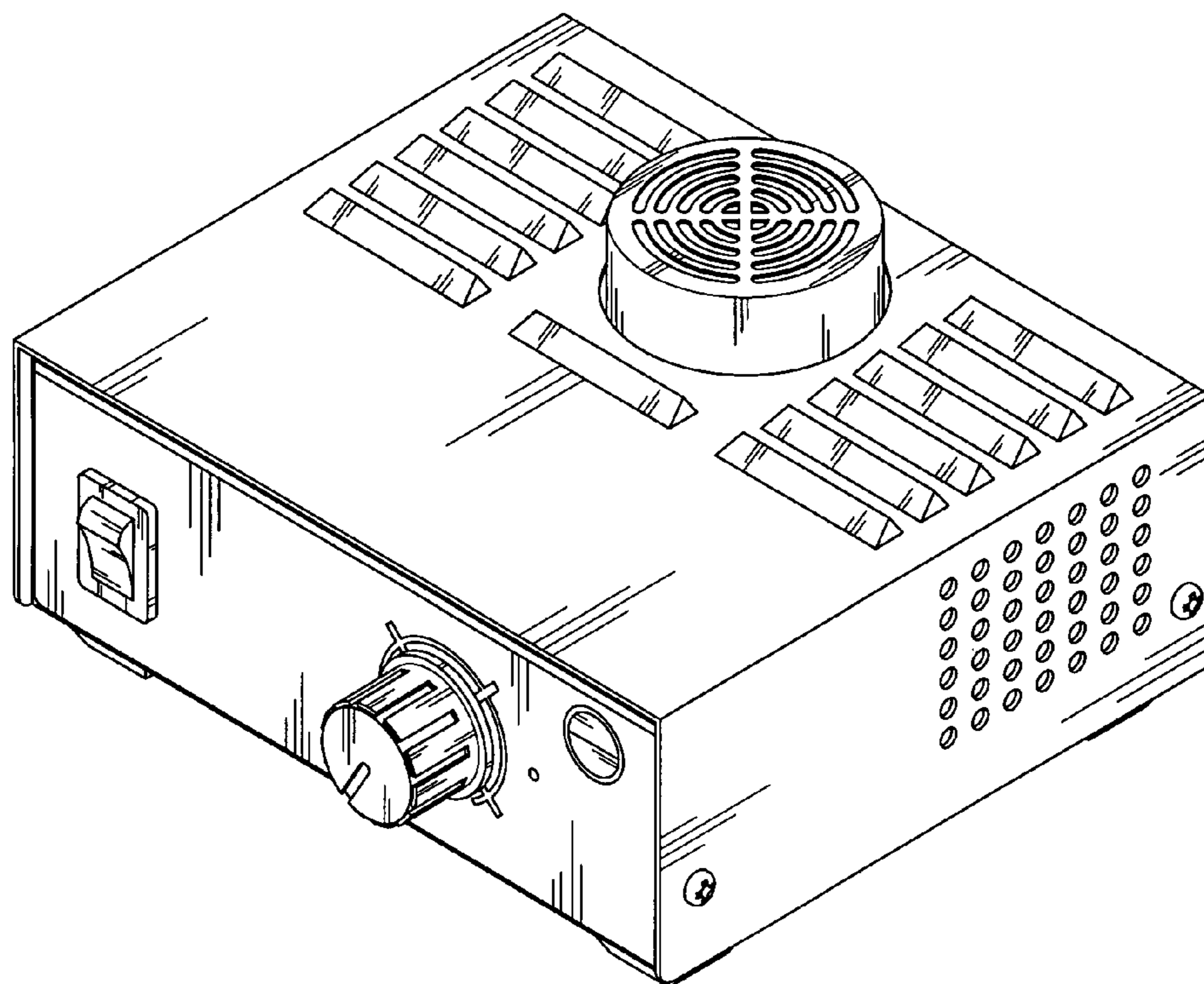


Fig.1

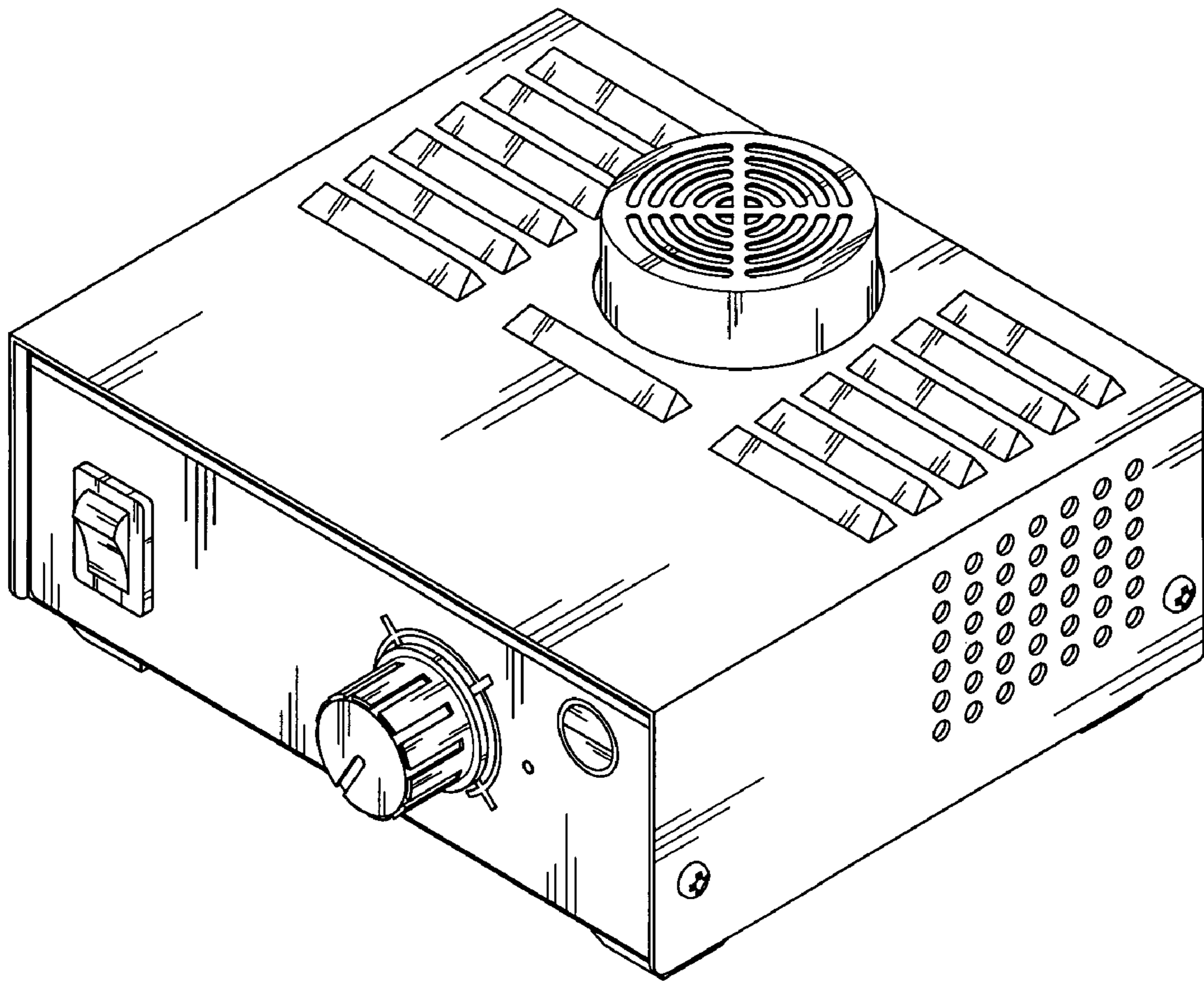


Fig.2

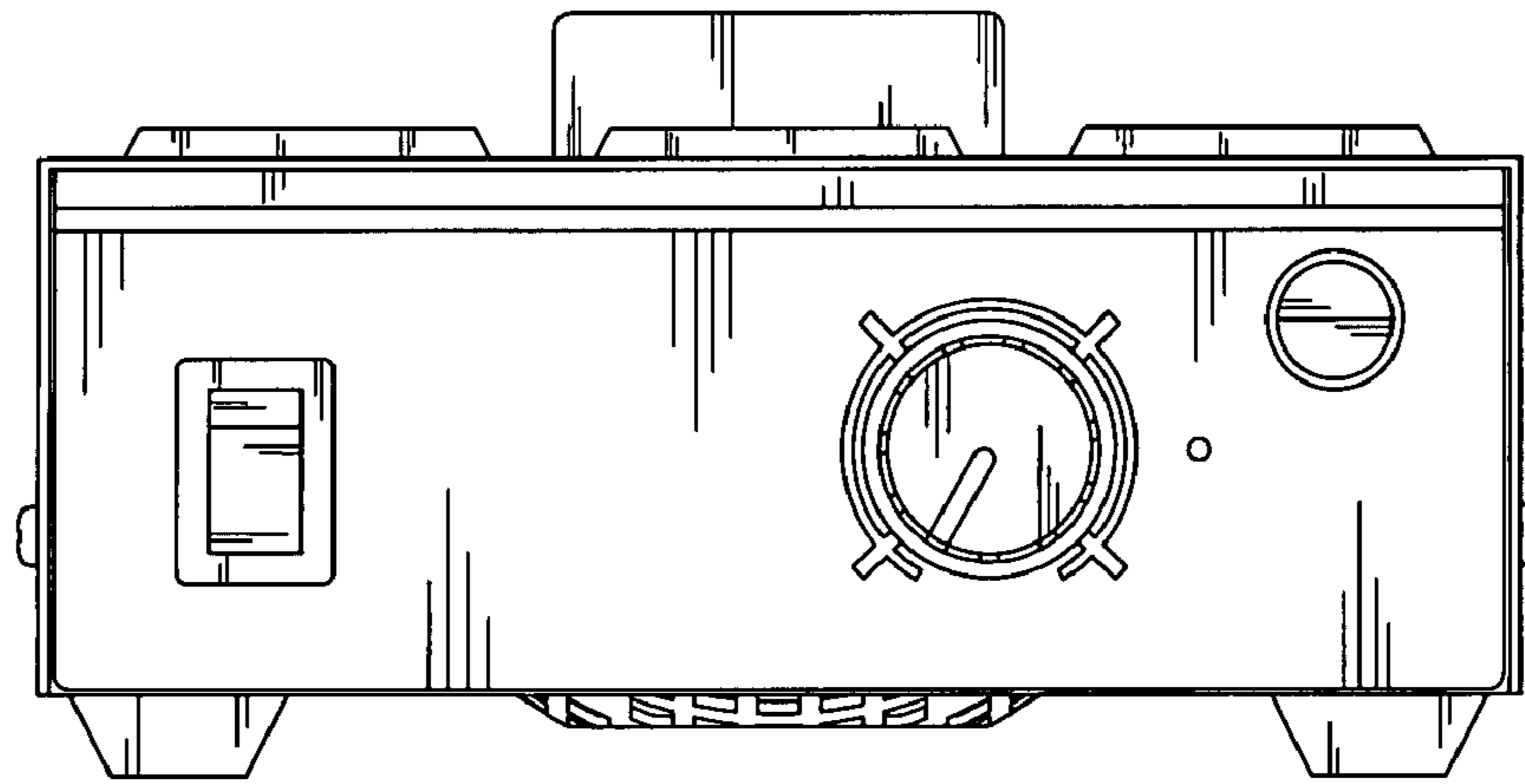


Fig.3

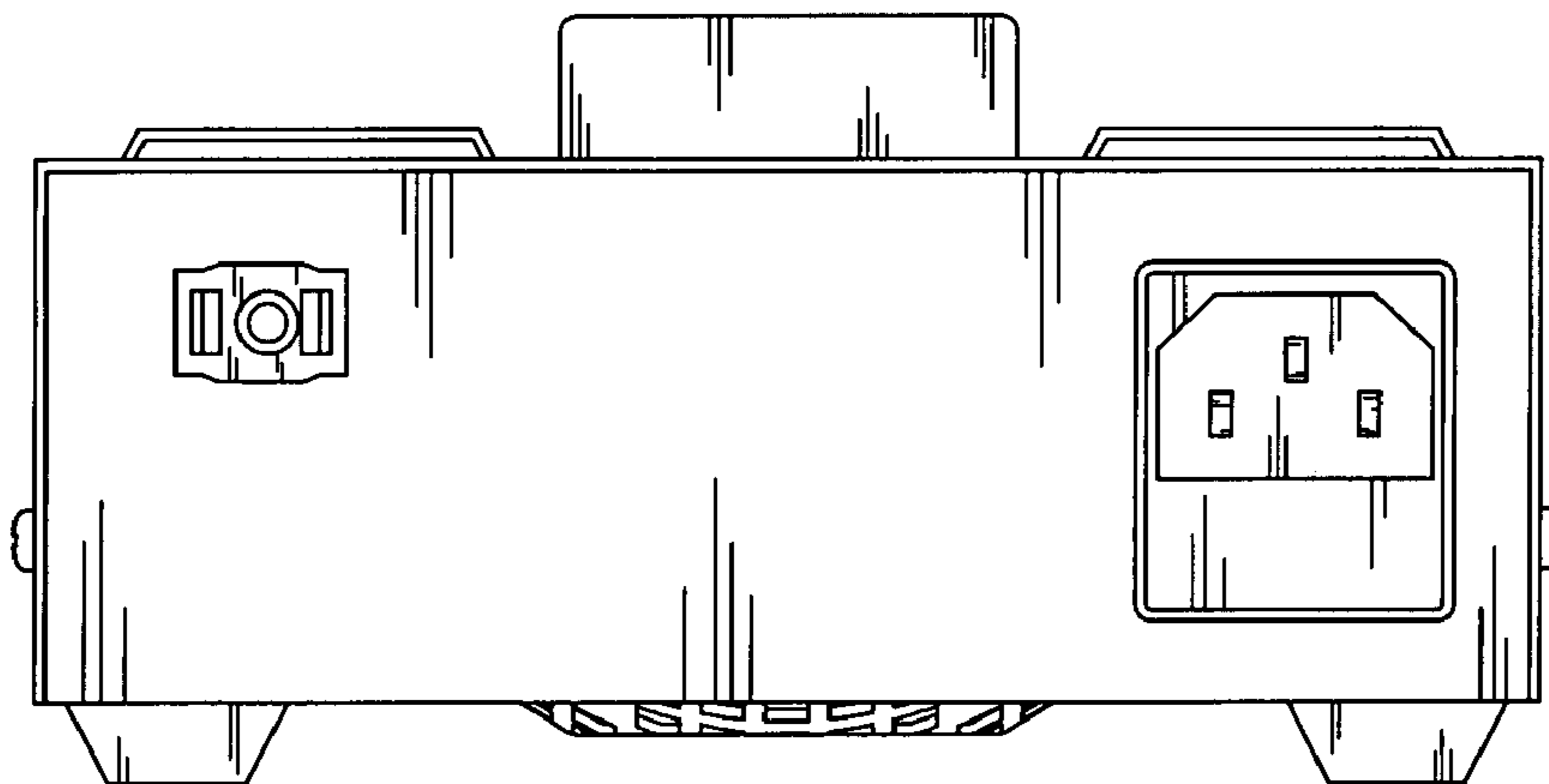


Fig.4

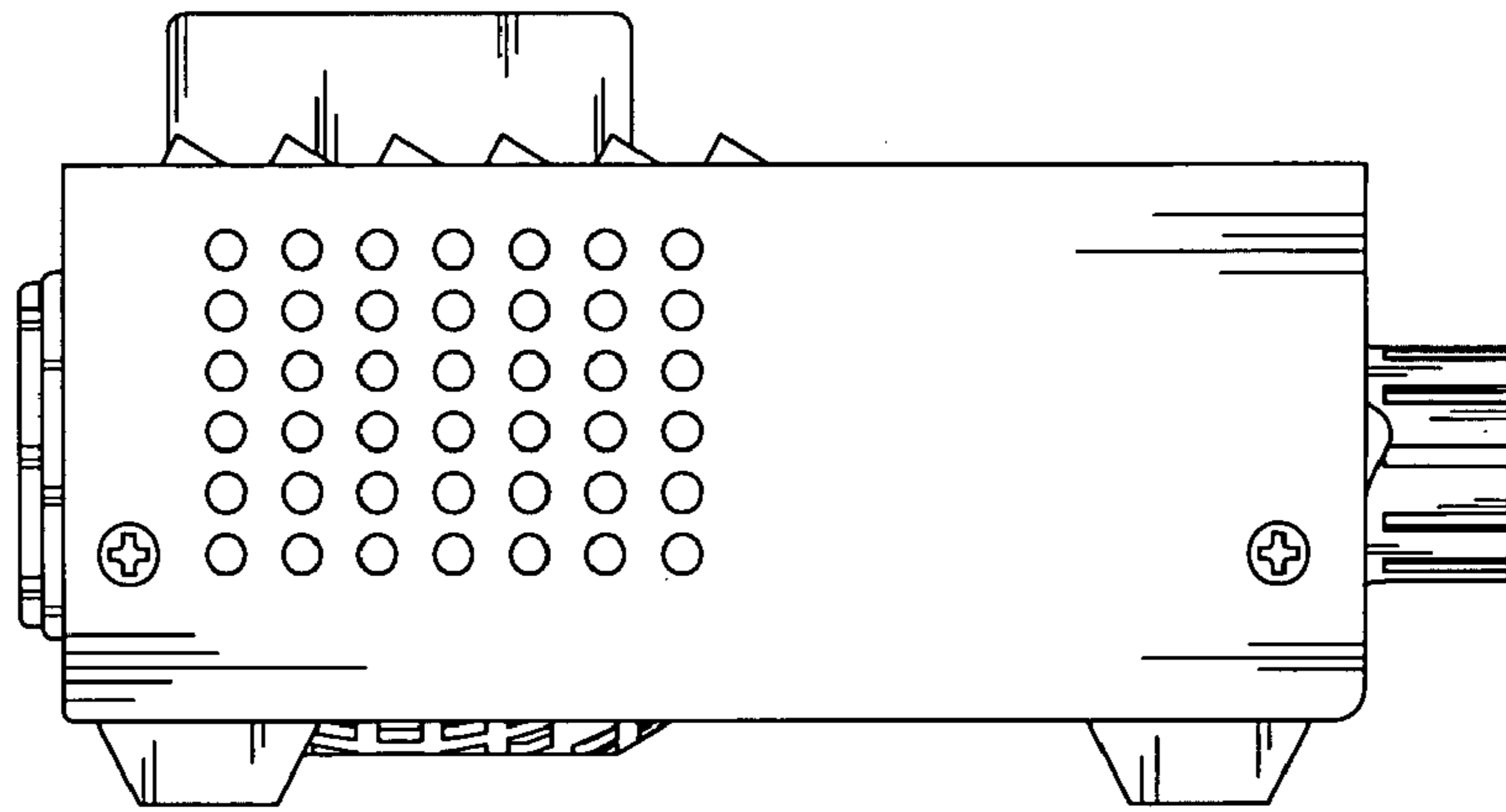


Fig.5

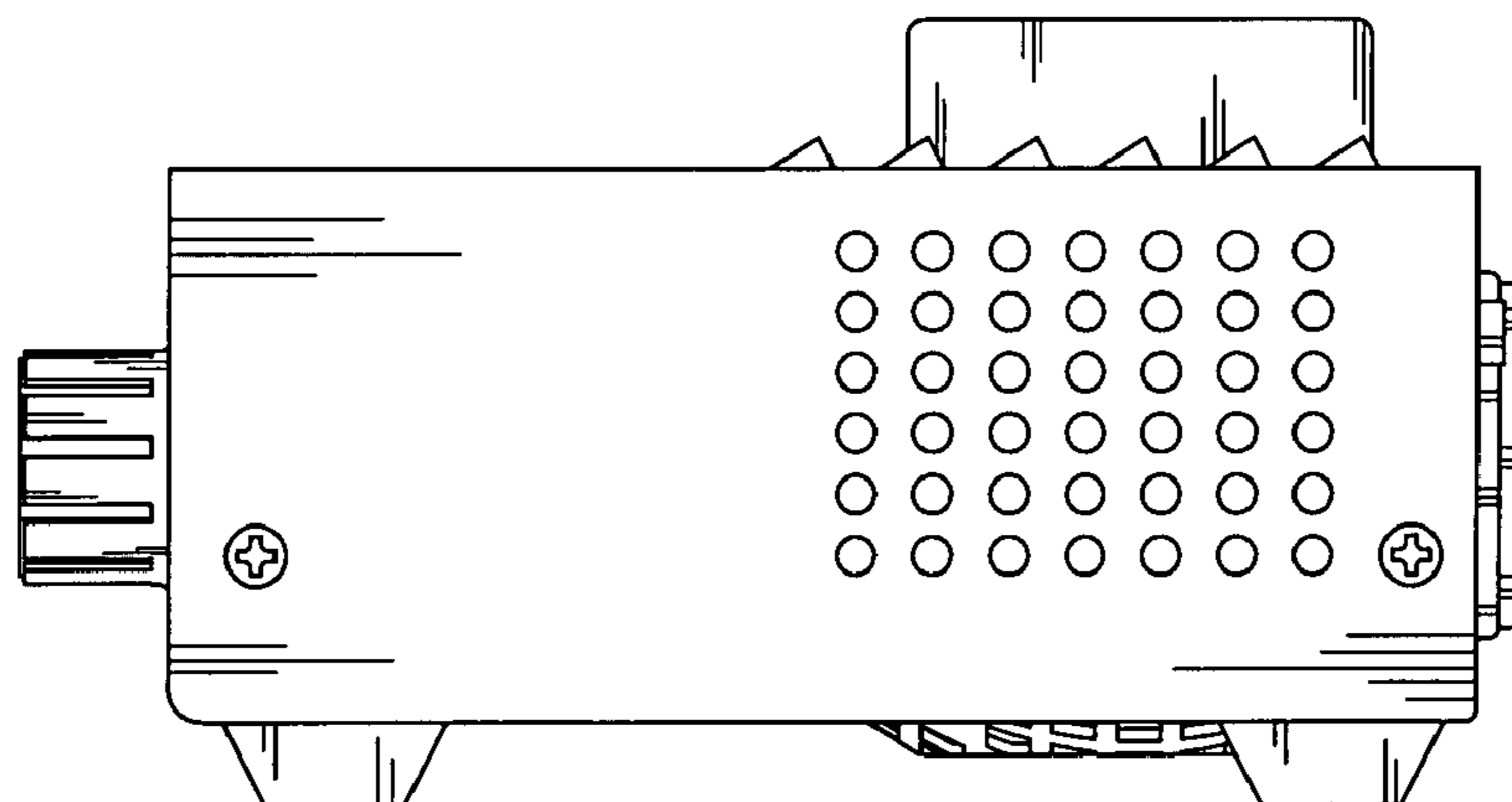


Fig.6

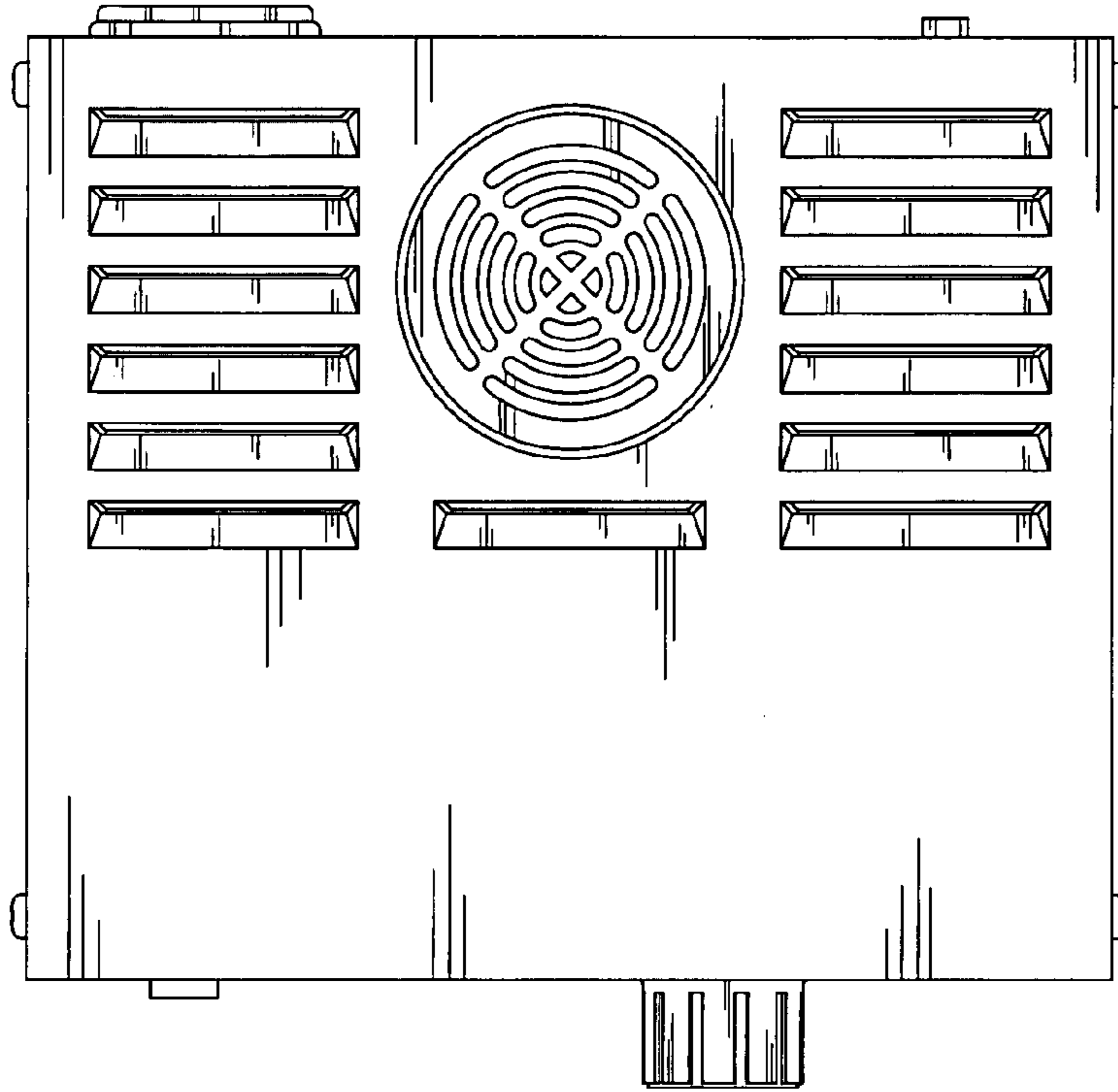


Fig.7

