

US00D516194S

(12) **United States Design Patent** (10) **Patent No.:** **US D516,194 S**  
**Oosawa et al.** (45) **Date of Patent:** **\*\* Feb. 28, 2006**

(54) **AXIAL FAN WITH DOUBLE IMPELLERS  
ROTATING IN MUTUALLY OPPOSITE  
DIRECTIONS**

JP 11-037093 2/1999

\* cited by examiner

(75) Inventors: **Honami Oosawa**, Nagano (JP);  
**Katsumichi Ishihara**, Nagano (JP);  
**Yoshihiko Aizawa**, Nagano (JP)

*Primary Examiner*—Lisa Lichtenstein

(74) *Attorney, Agent, or Firm*—Rankin, Hill, Porter &  
Clark LLP

(73) Assignee: **Sanyo Denki Co., Ltd.**, Tokyo (JP)

(57) **CLAIM**

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

The ornamental design for an axial fan with double impellers rotating in mutually opposite directions, as shown and described.

(21) Appl. No.: **29/187,661**

### DESCRIPTION

(22) Filed: **Aug. 5, 2003**

### (30) Foreign Application Priority Data

Apr. 26, 2003 (JP) ..... 2003-015559

(51) **LOC (8) Cl.** ..... **23-04**

(52) **U.S. Cl.** ..... **D23/370**

(58) **Field of Classification Search** ..... D23/370,  
D23/379, 383; 415/214.1, 213.1; 220/60,  
220/66, 68

See application file for complete search history.

### (56) References Cited

#### U.S. PATENT DOCUMENTS

D297,761 S \* 9/1988 Shiraki ..... D23/379  
5,839,205 A 11/1998 Hung  
6,157,104 A \* 12/2000 Yokozawa et al. .... 310/58  
6,244,818 B1 6/2001 Chang  
6,827,549 B1 \* 12/2004 Horng et al. .... 415/68

#### FOREIGN PATENT DOCUMENTS

JP 05-005499 1/1993

**1 Claim, 4 Drawing Sheets**

This article relates to an axial fan with double impellers rotating in mutually opposite directions to be used for cooling an electronic component. The fan takes in air through an opening provided at one of the ends of the article in an axial direction, and discharges the air out of an opening provided at the other end of the article in the axial direction. Inside the air intake opening, an impeller having five blades is installed. Inside the air discharge opening, an impeller having four blades is installed. The impeller having five blades and the one having four blades rotate in an opposite direction to each other.

FIG. 1 is a front view of our new design.

FIG. 2 is a rear view thereof.

FIG. 3 is a right side view thereof.

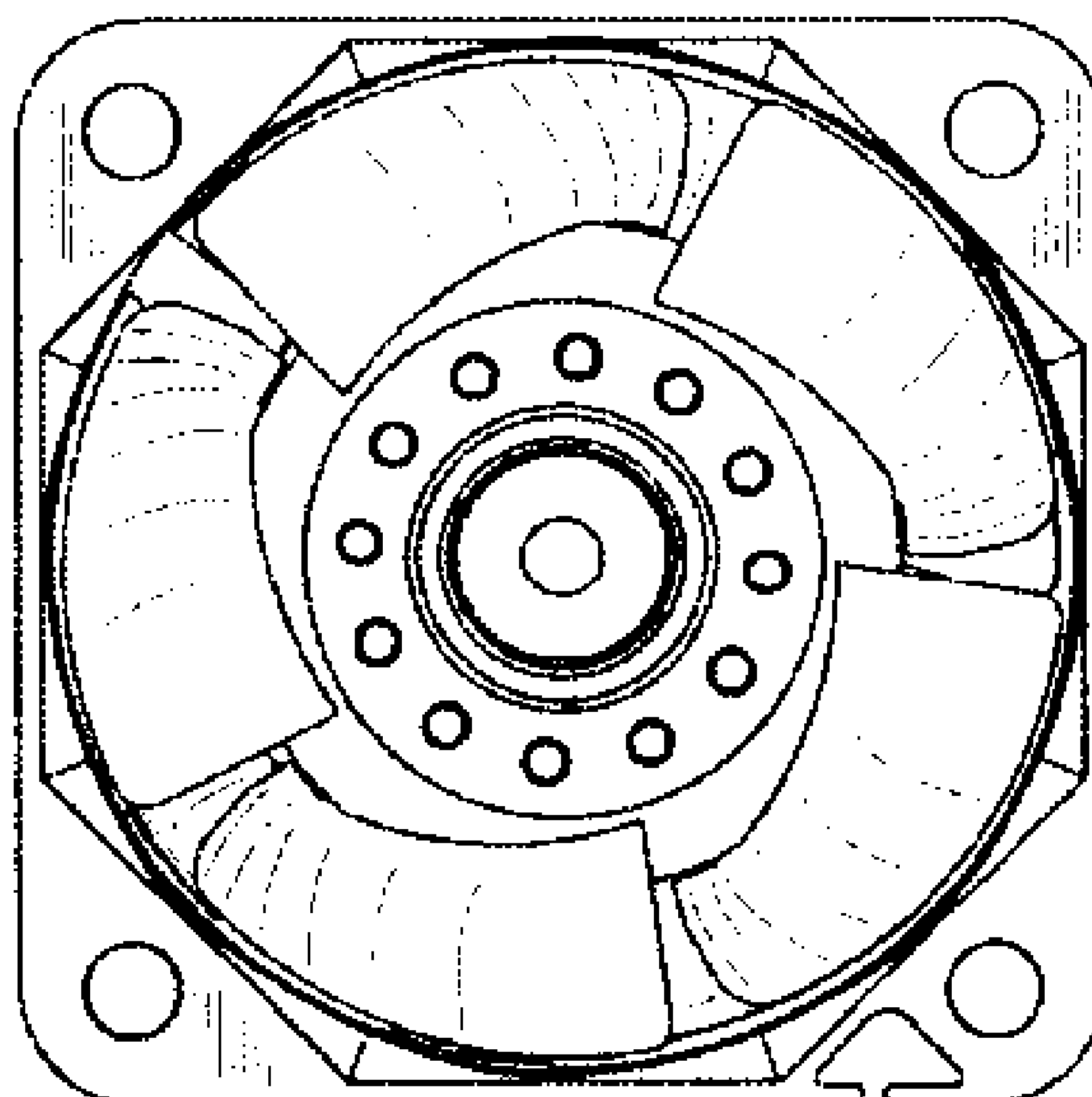
FIG. 4 is a left side view thereof.

FIG. 5 is a top plan view thereof.

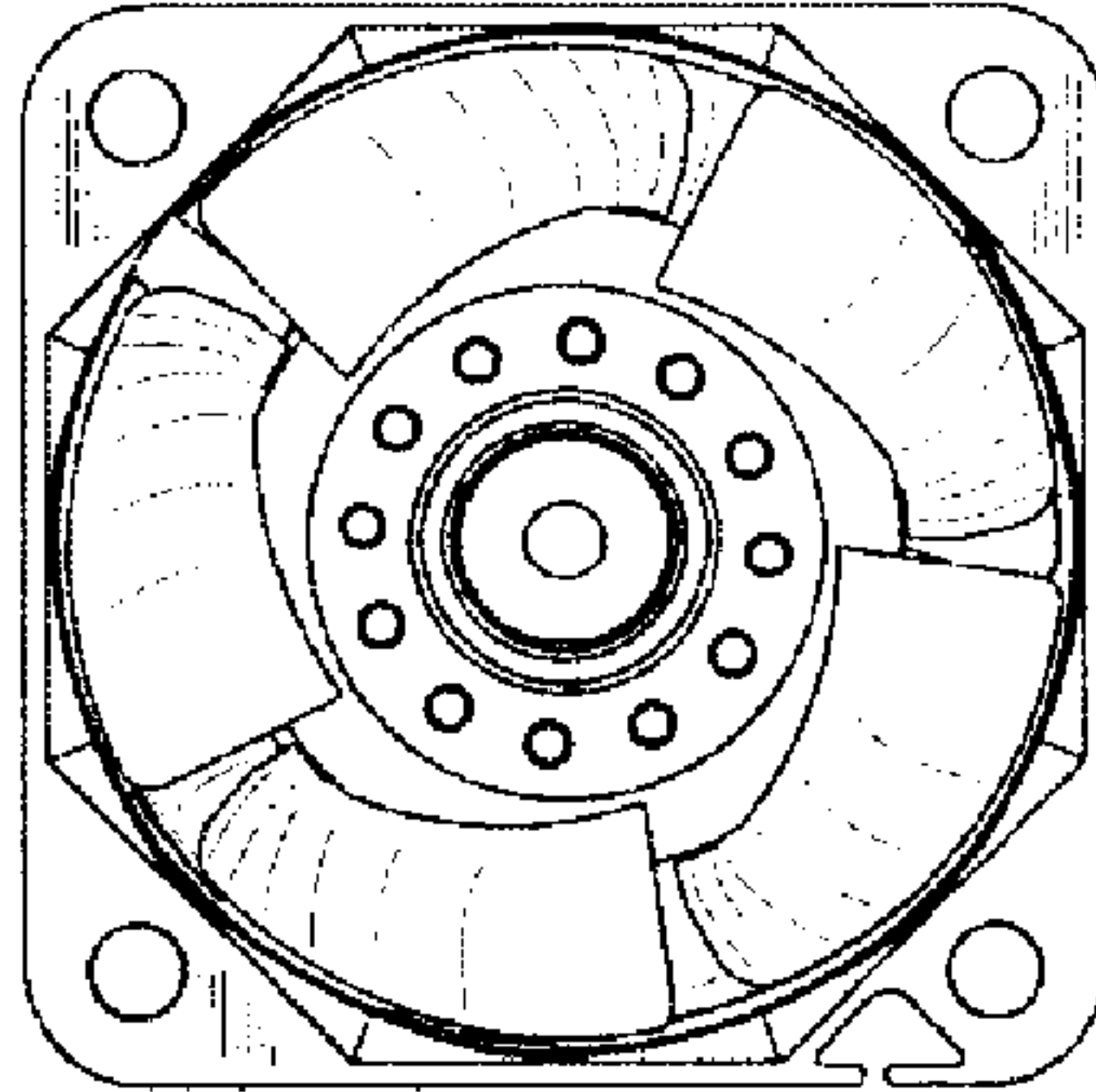
FIG. 6 is a bottom plan view thereof.

FIG. 7 is a perspective view as viewed from the front of our new design; and,

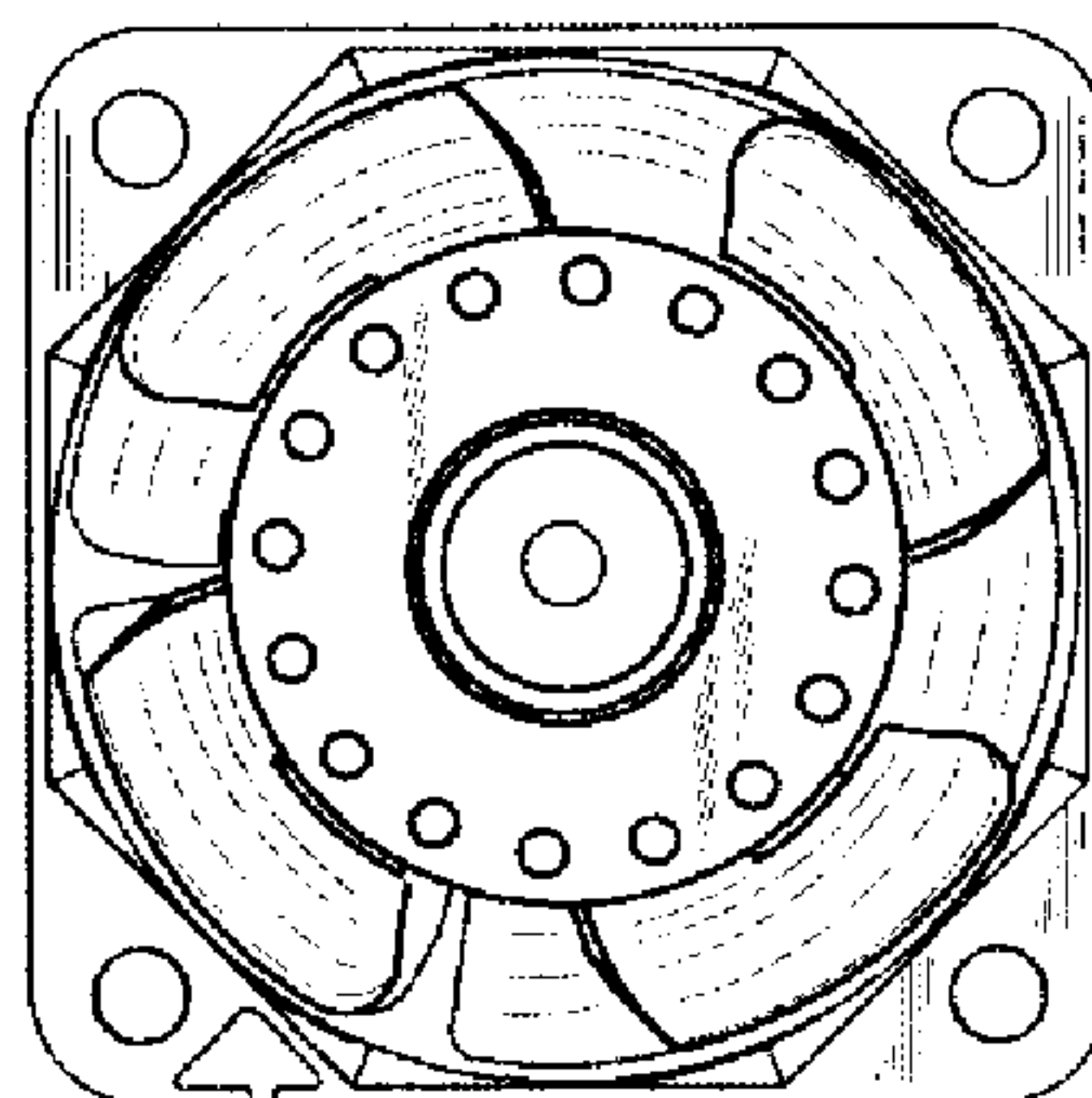
FIG. 8 is a perspective view as viewed from the rear of our new design.



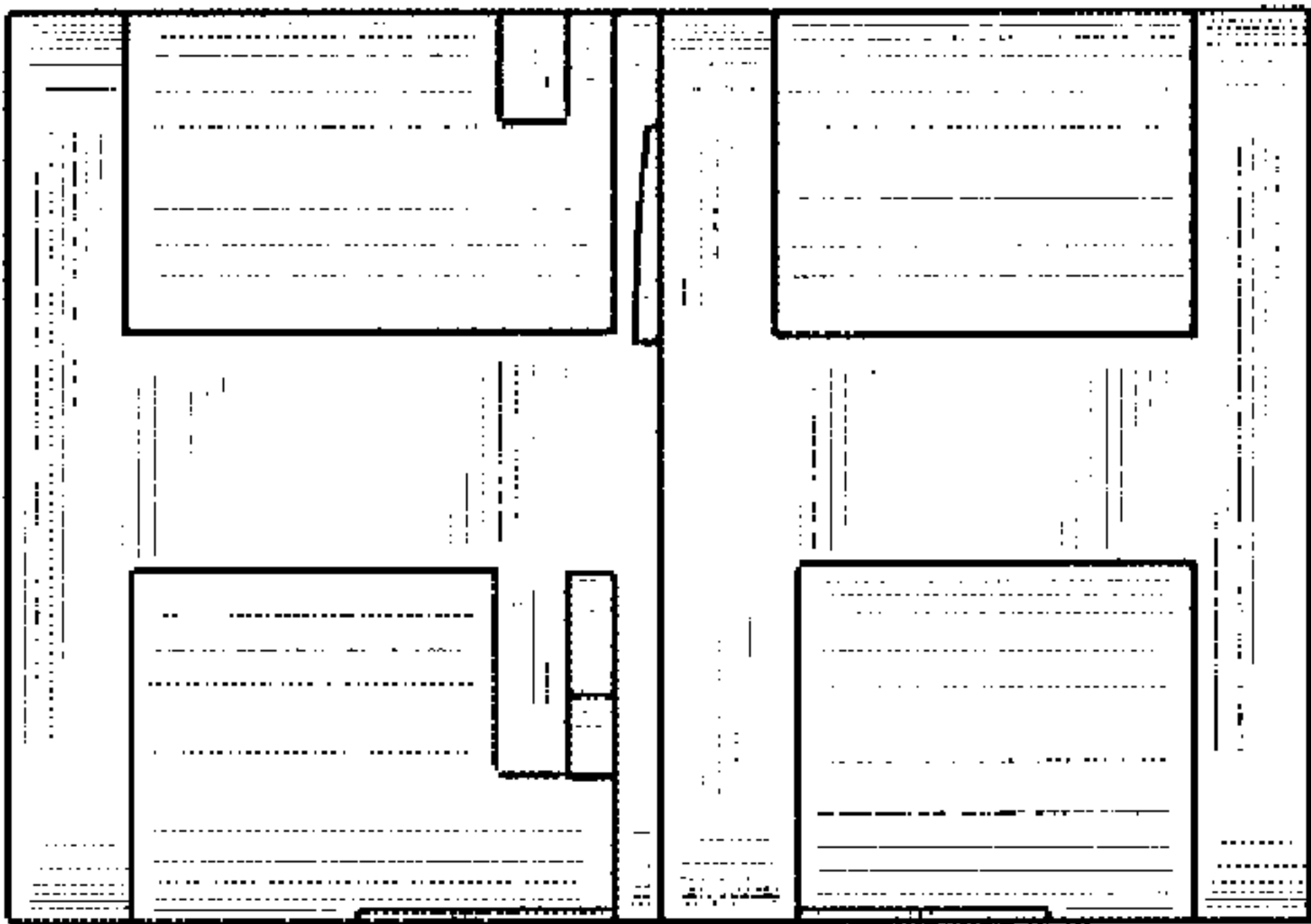
*Fig.1*



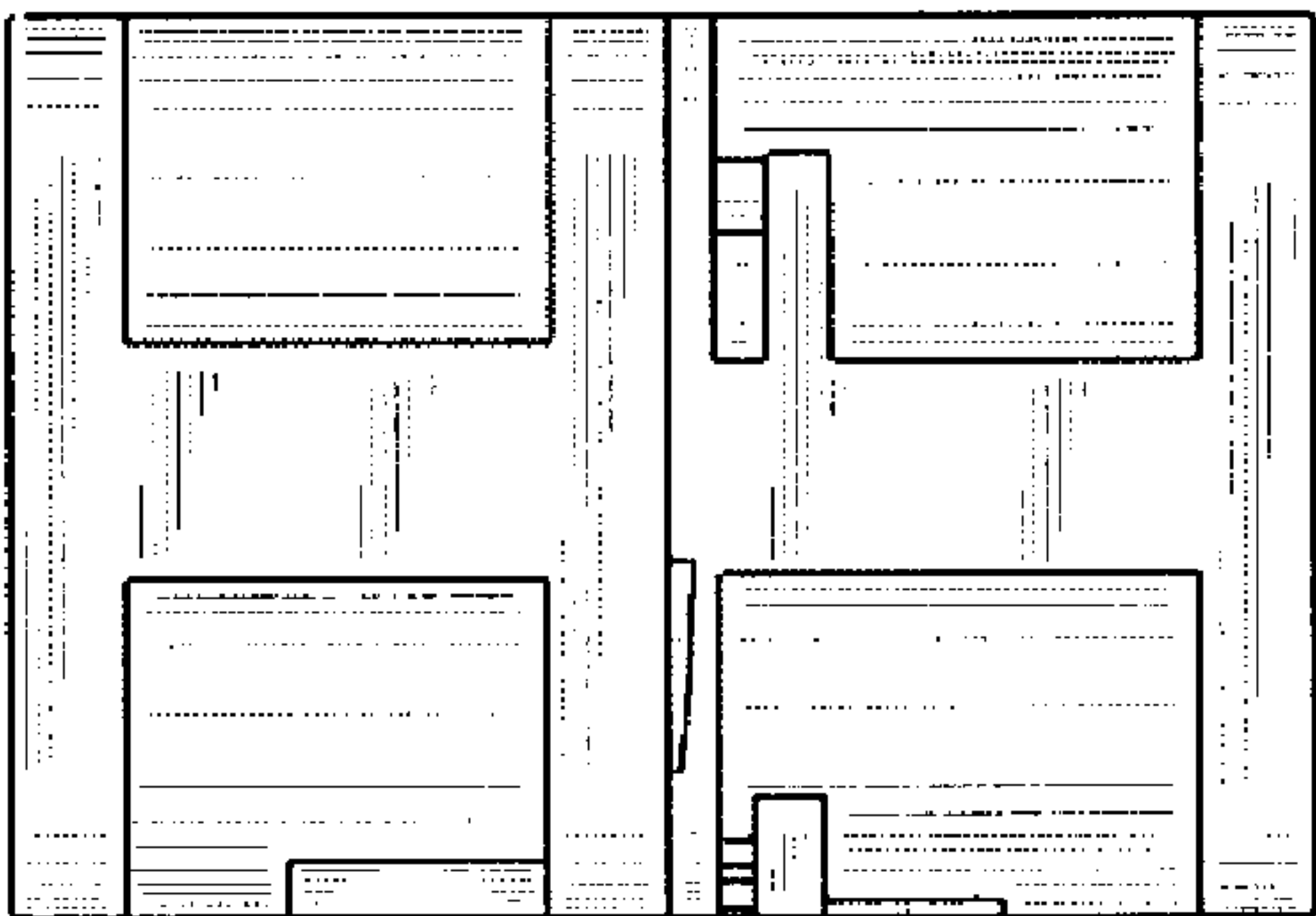
*Fig.2*



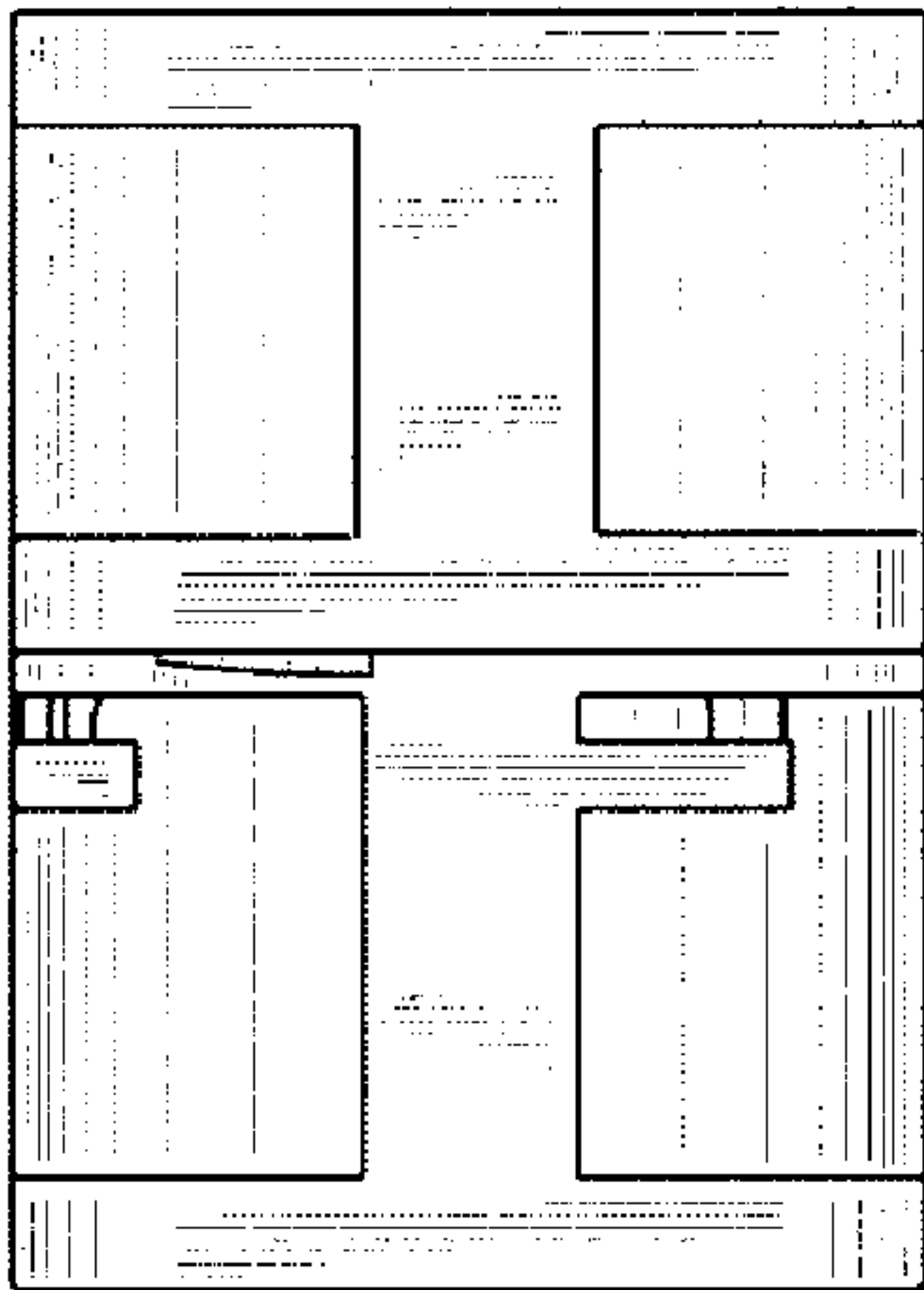
*Fig.3*



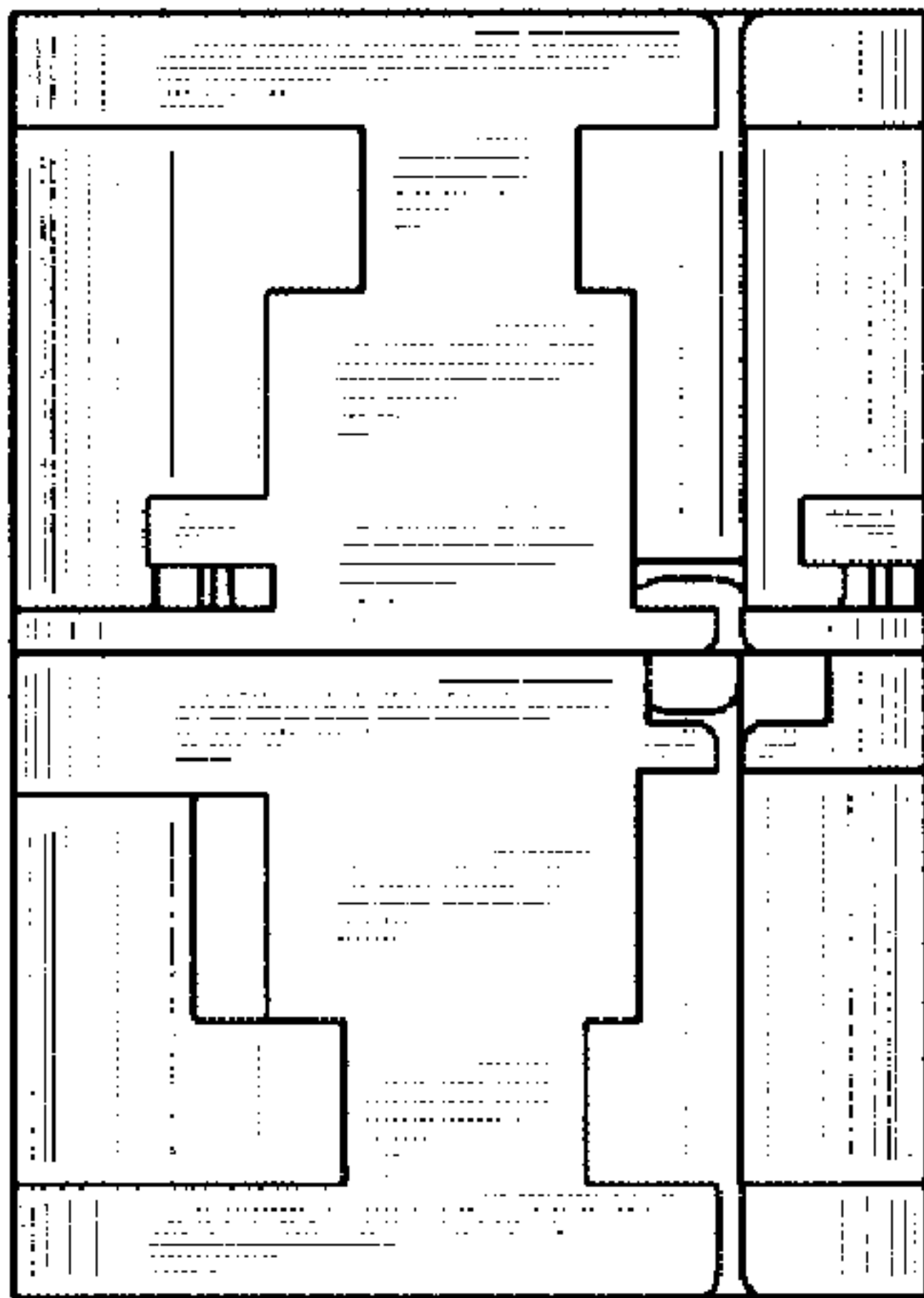
*Fig.4*



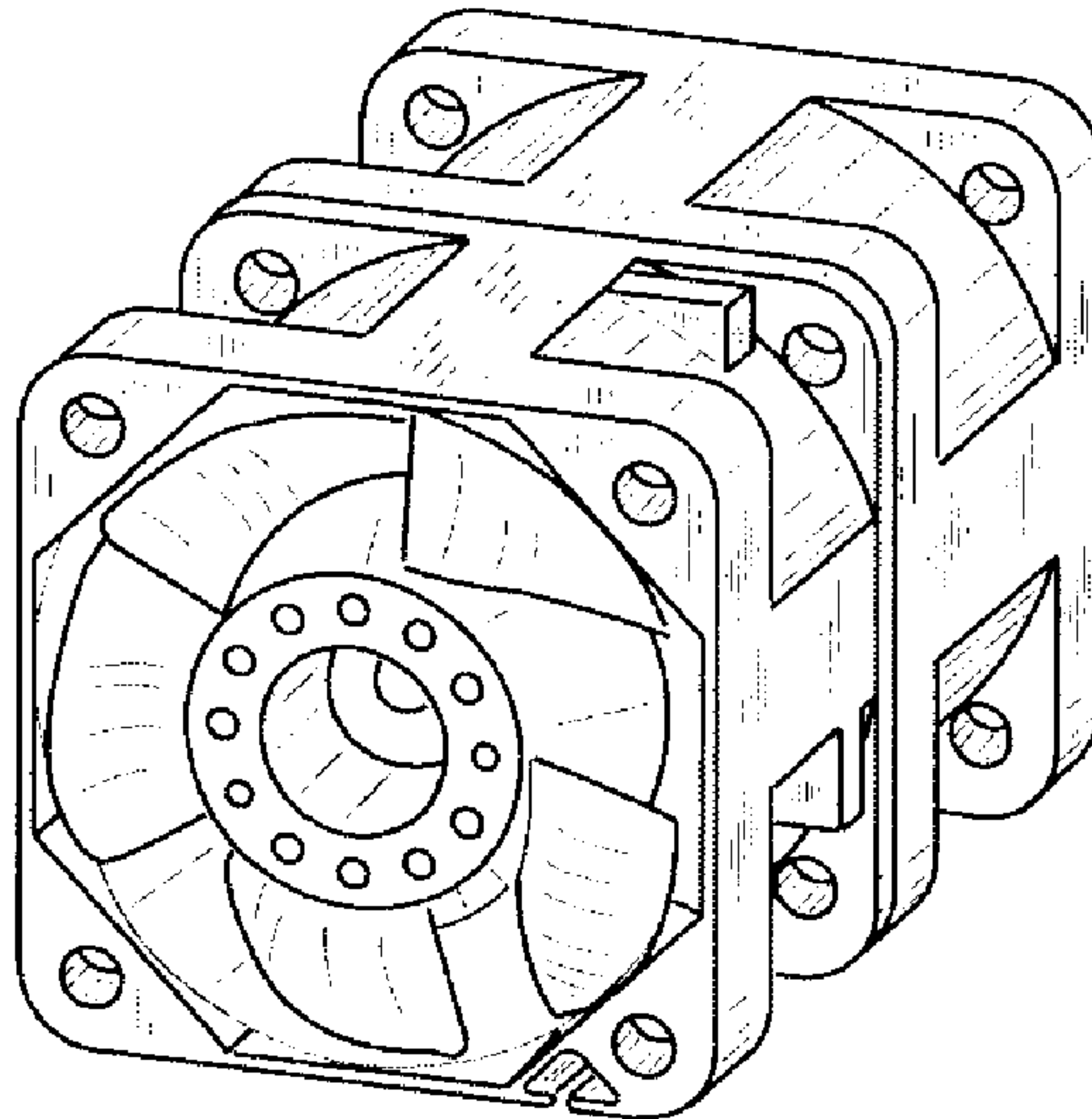
*Fig. 5*



*Fig. 6*



*Fig. 7*



*Fig. 8*

