US00D541229S

(12) United States Design Patent
Watanabe et al.

(10) **Patent No.: US D541,229 S**
(45) **Date of Patent: ** Apr. 24, 2007**

(54) **ELECTRONIC COMPONENT COOLING APPARATUS**

(75) Inventors: **Michinori Watanabe**, Nagano (JP); **Toshiki Ogawara**, Nagano (JP); **Haruhisa Maruyama**, Nagano (JP)

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

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

(21) Appl. No.: **29/216,926**

(22) Filed: **Nov. 10, 2004**

(30) **Foreign Application Priority Data**

May 13, 2004	(JP)	2004-014192
May 13, 2004	(JP)	2004-014193
May 13, 2004	(JP)	2004-014194
May 13, 2004	(JP)	2004-014195

(51) **LOC (8) Cl.** **13-03**
(52) **U.S. Cl.** **D13/179**
(58) **Field of Classification Search** D23/370, D23/379; D13/179; 165/80.3, 121, 122, 146; 361/274.3, 695, 697, 700, 702, 709
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,785,116 A 7/1998 Wagner

(Continued)

FOREIGN PATENT DOCUMENTS

JP 1138843 2/2002

(Continued)

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

(57) **CLAIM**

The ornamental design for an electronic component cooling apparatus, as shown and described.

DESCRIPTION

FIG. **1** is a front elevation view of a first embodiment of an electronic component cooling apparatus showing our new design;

FIG. **2** is a rear elevation view of the first embodiment of the cooling apparatus;

FIG. **3** is a right side elevation view of the first embodiment of the cooling apparatus;

FIG. **4** is a left side elevation view of the first embodiment of the cooling apparatus;

FIG. **5** is a top plan view of the first embodiment of the cooling apparatus;

FIG. **6** is a bottom plan view of the first embodiment of the cooling apparatus;

FIG. **7** is a top plan reference view of the first embodiment of the cooling apparatus;

FIG. **8** is a longitudinal cross sectional view of the first embodiment of the cooling apparatus;

FIG. **9** is a perspective view of the first embodiment of the cooling apparatus;

FIG. **10** is a front elevation view of a second embodiment of an electronic component cooling apparatus showing our new design;

FIG. **11** is a rear elevation view of the second embodiment of the cooling apparatus;

FIG. **12** is a right side elevation view of the second embodiment of the cooling apparatus;

FIG. **13** is a left side elevation view of the second embodiment of the cooling apparatus;

FIG. **14** is a top plan view of the second embodiment of the cooling apparatus;

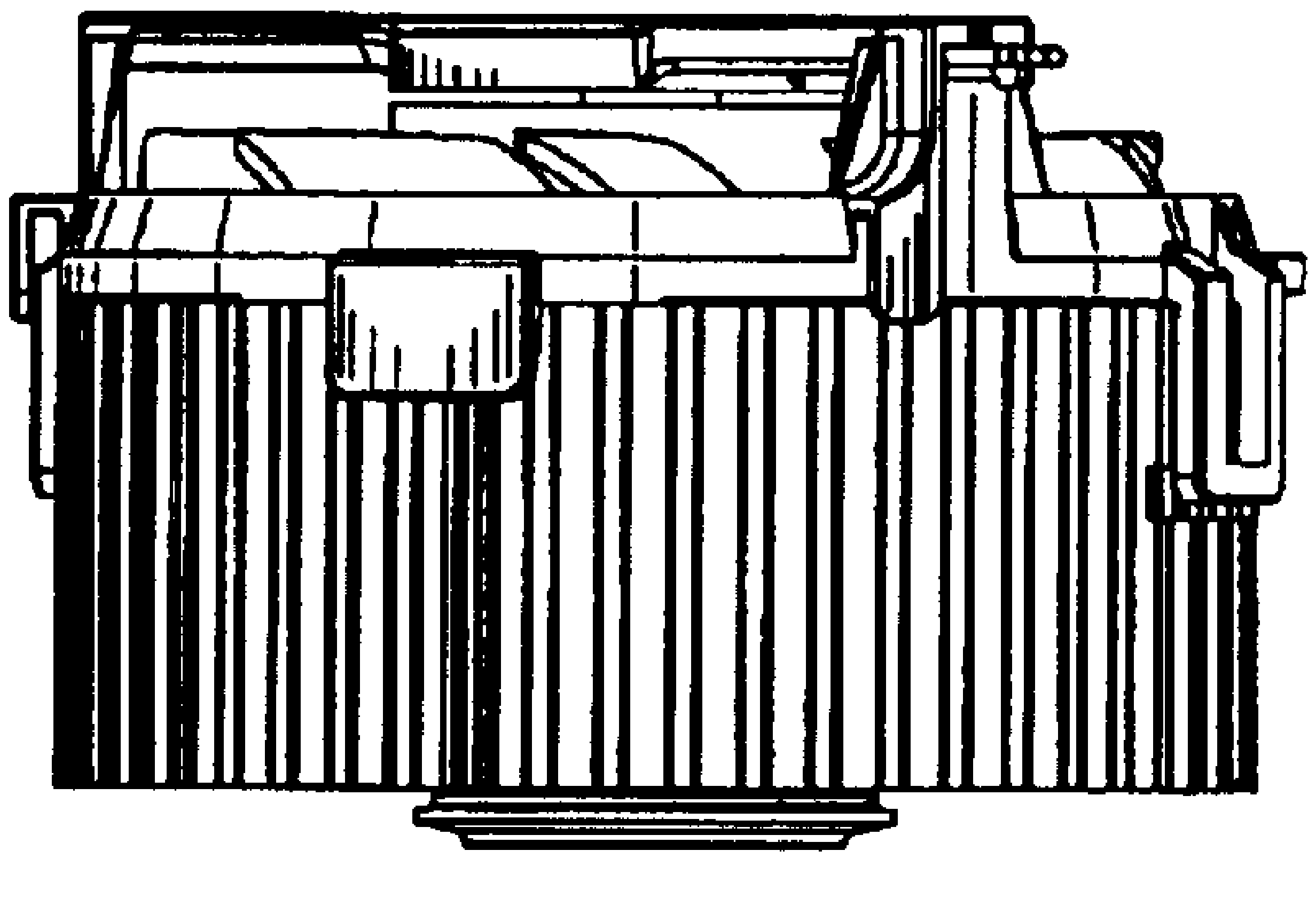
FIG. **15** is a bottom plan view of the second embodiment of the cooling apparatus;

FIG. **16** is a top plan reference view of the second embodiment of the cooling apparatus;

FIG. **17** is a longitudinal cross sectional view of the second embodiment of the cooling apparatus taken along line **17**—**17** in FIG. **16**; and,

FIG. **18** is a perspective view of the third embodiment of the cooling apparatus.

1 Claim, 10 Drawing Sheets



U.S. PATENT DOCUMENTS

5,883,449	A		3/1999	Mehta et al.	
5,975,194	A		11/1999	Wagner	
6,152,214	A		11/2000	Wagner	
6,419,007	B1	*	7/2002	Ogawara et al.	165/80.3
6,480,383	B2	*	11/2002	Kodaira et al.	361/697
6,698,499	B1		3/2004	Wagner	
D501,450	S	*	2/2005	Watanabe et al.	D13/179
D516,526	S	*	3/2006	Watanabe et al.	D13/179

FOREIGN PATENT DOCUMENTS

JP	1157130	9/2002
JP	1186376	8/2003
JP	1186377	8/2003
JP	1222196	9/2004
JP	1222480	9/2004

* cited by examiner

Fig. 1

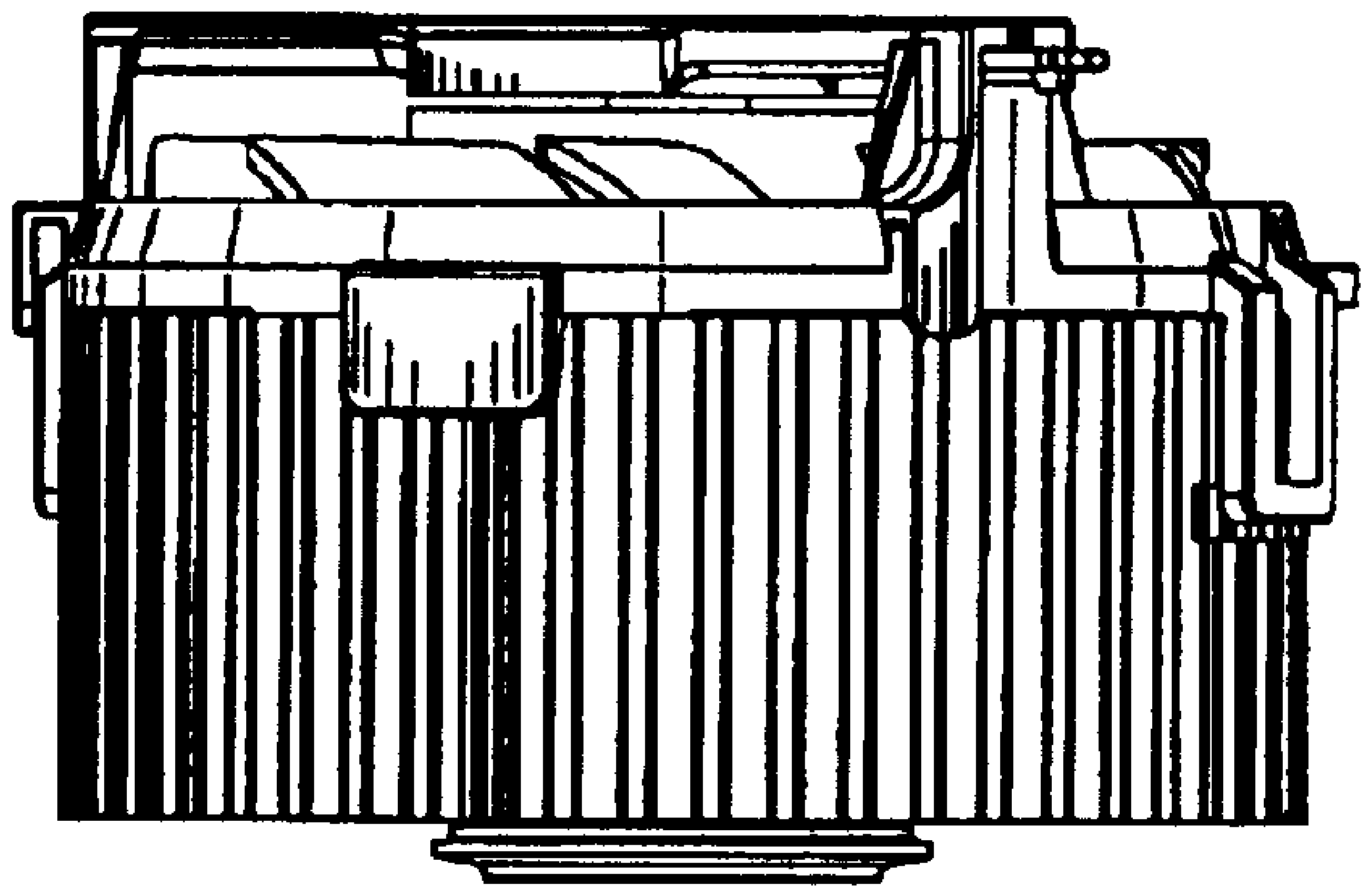


Fig. 2

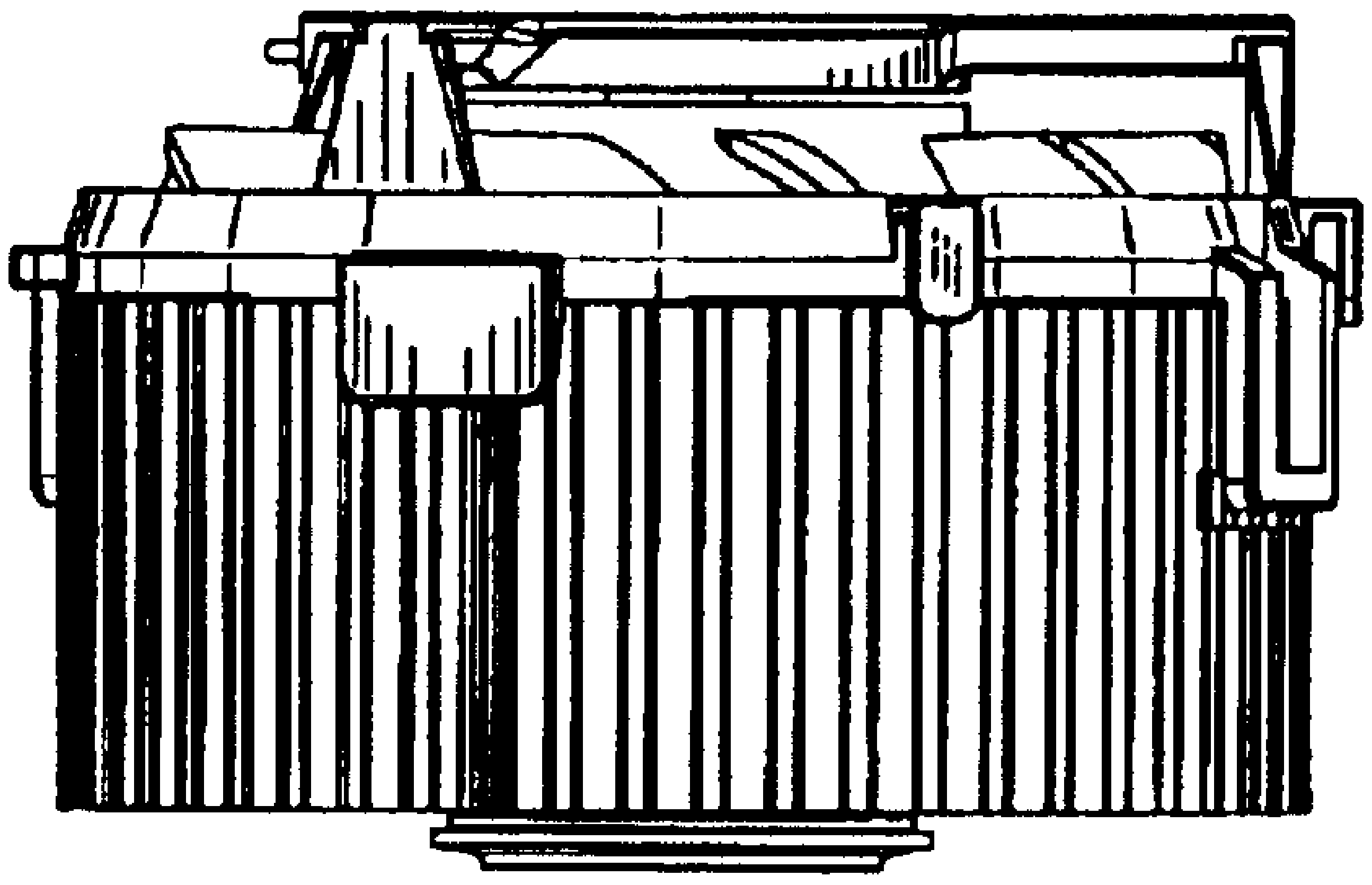


Fig. 3

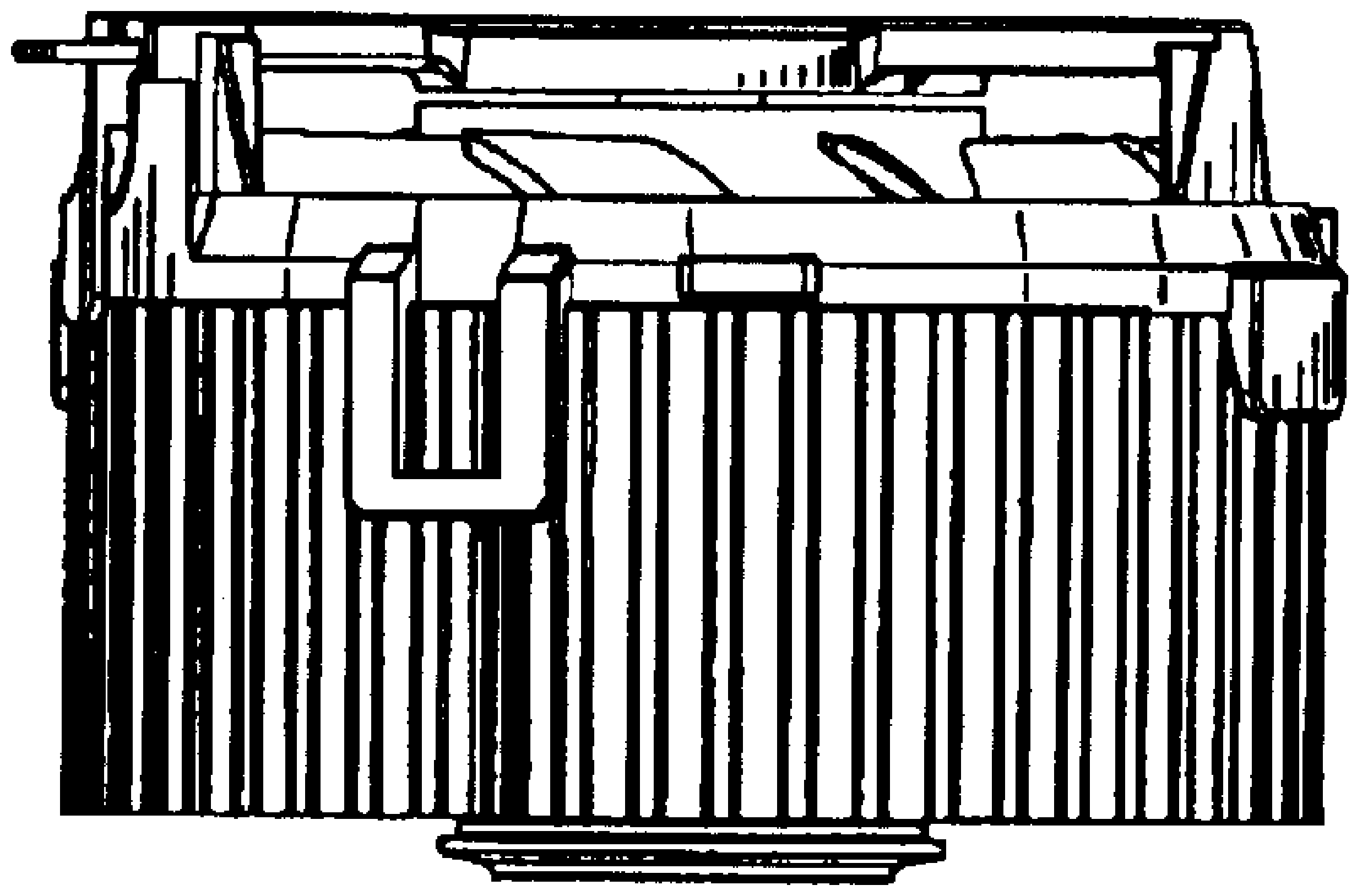


Fig. 4

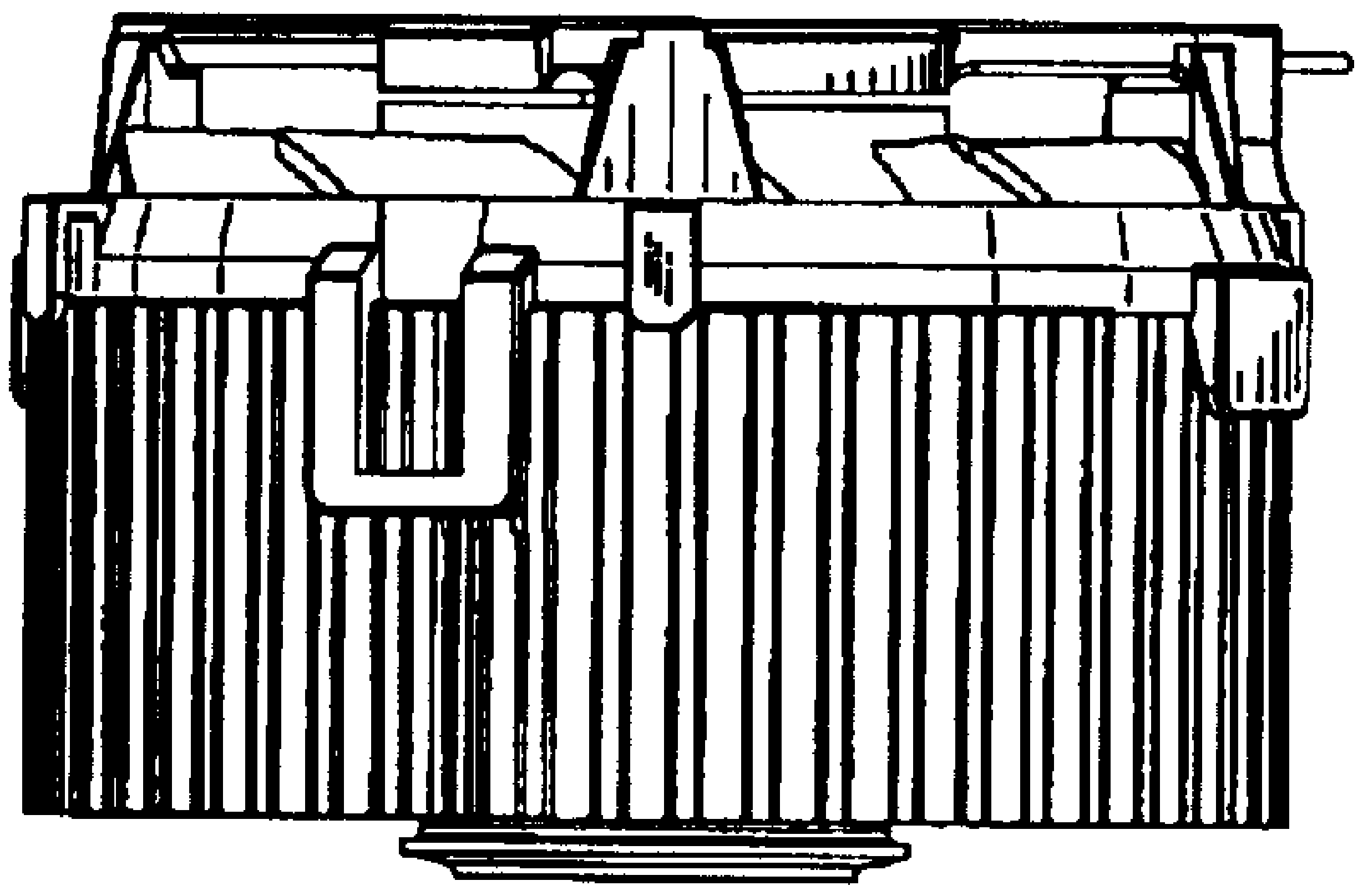


Fig. 5

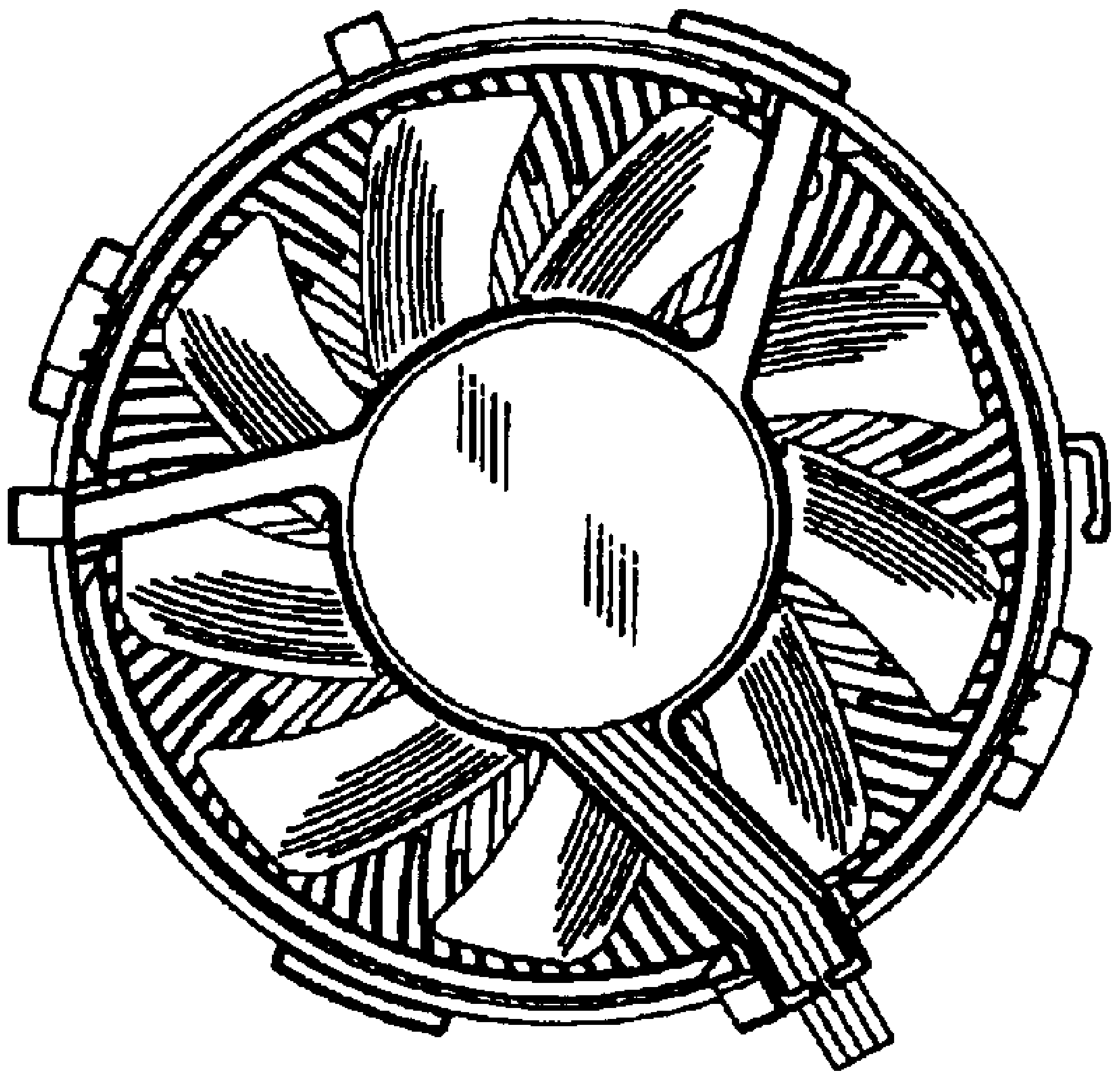


Fig. 6

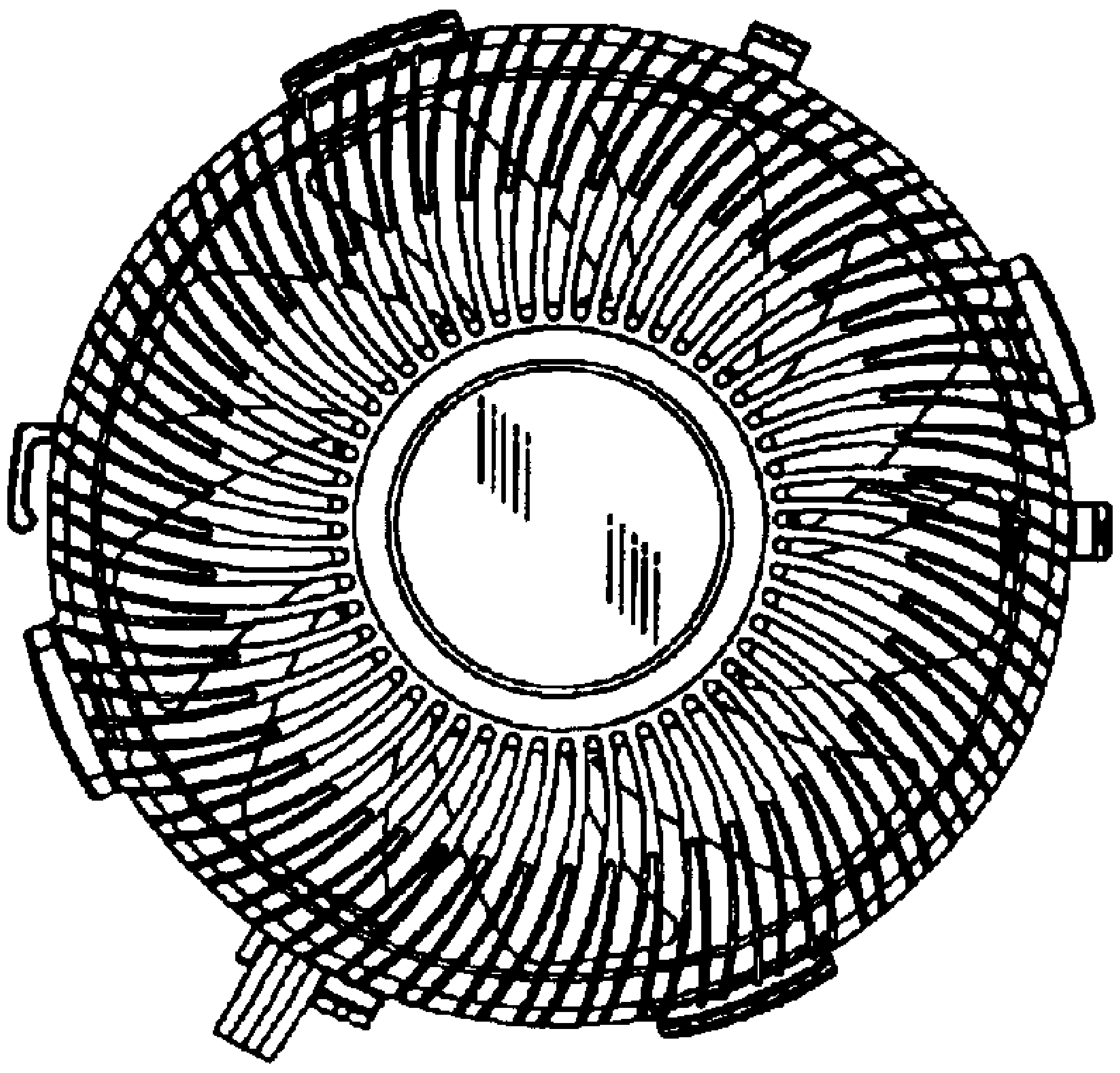


Fig. 7

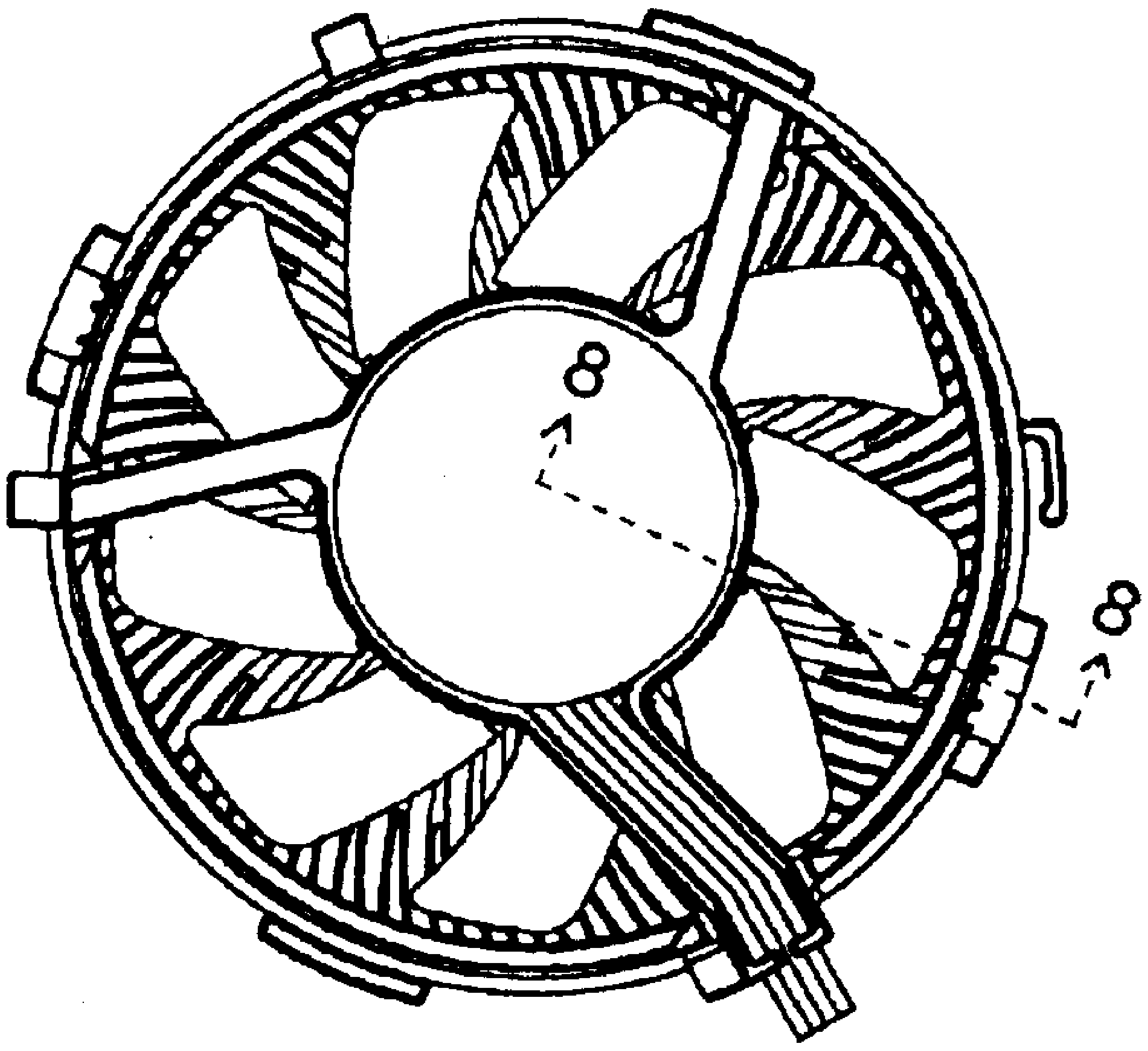


Fig. 8

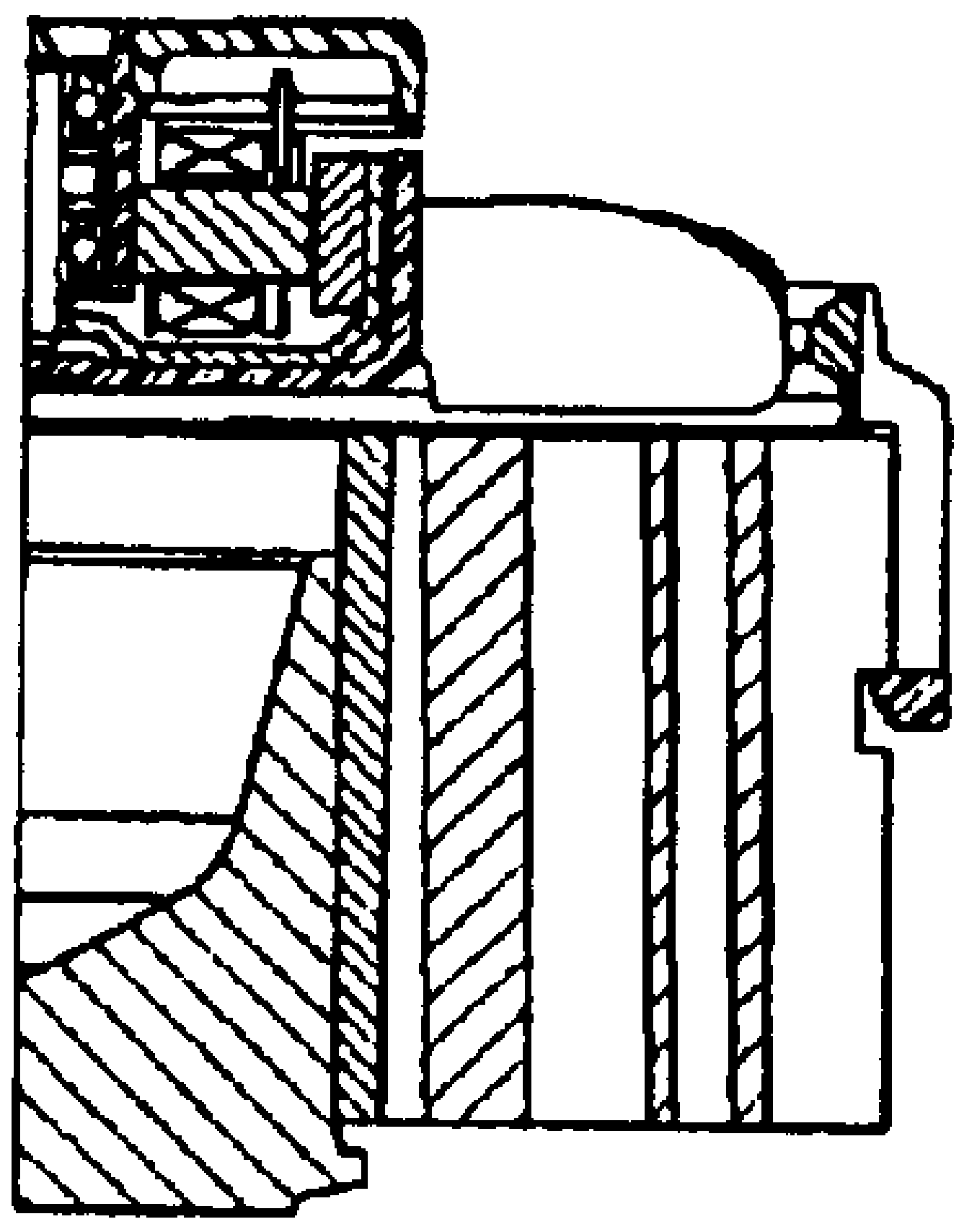


Fig. 9

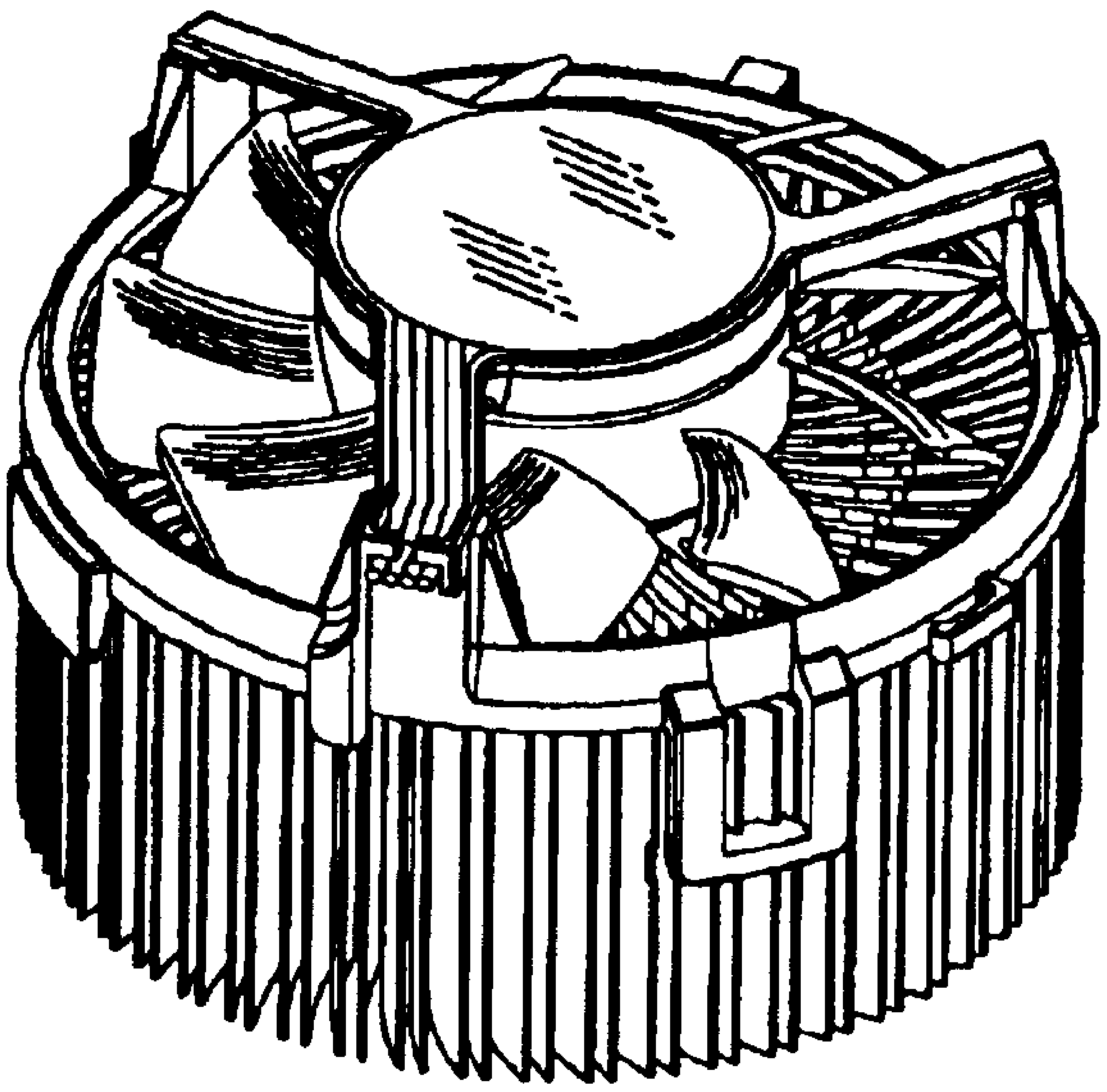


Fig. 10

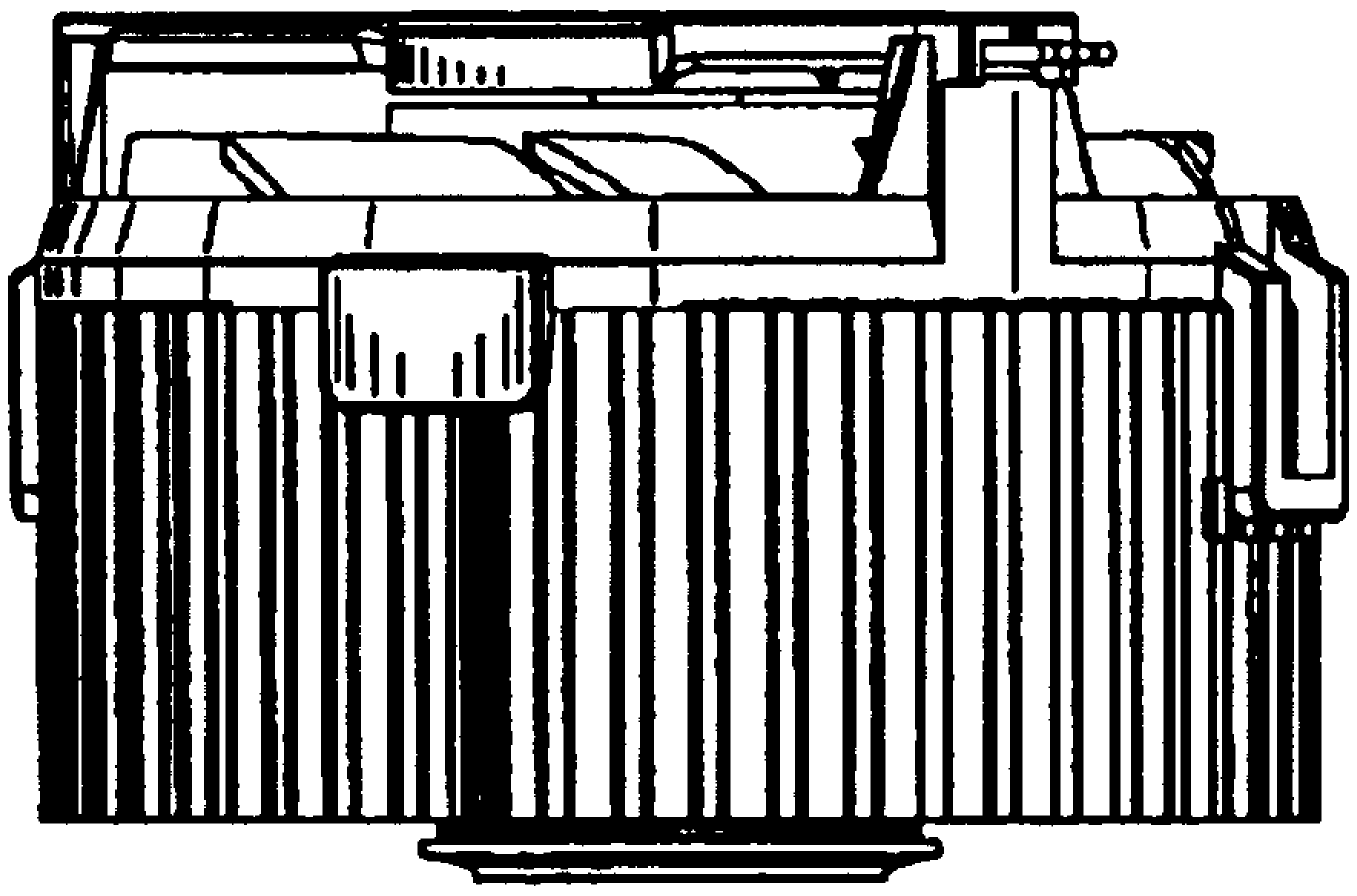


Fig. 11

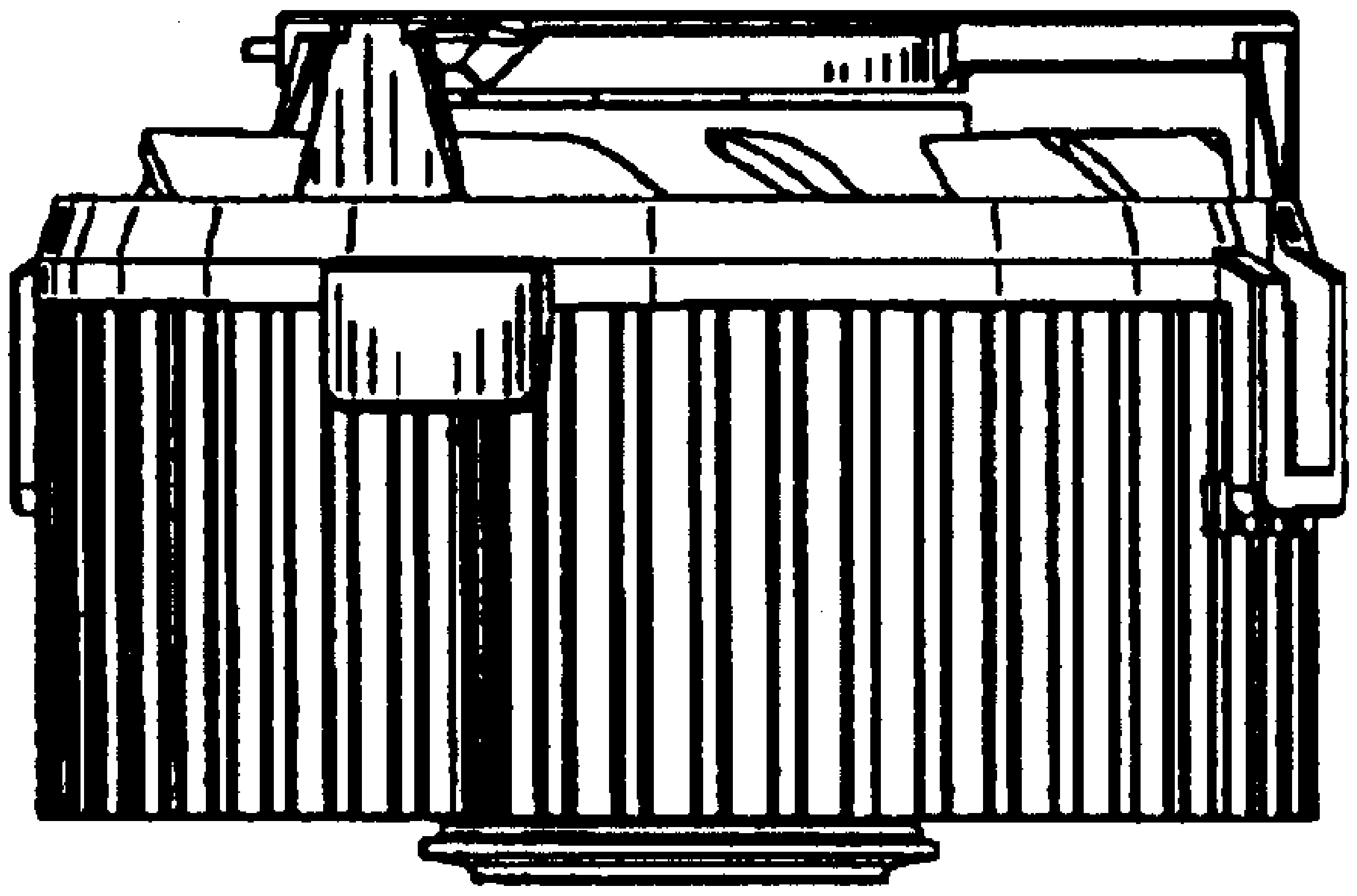


Fig. 12

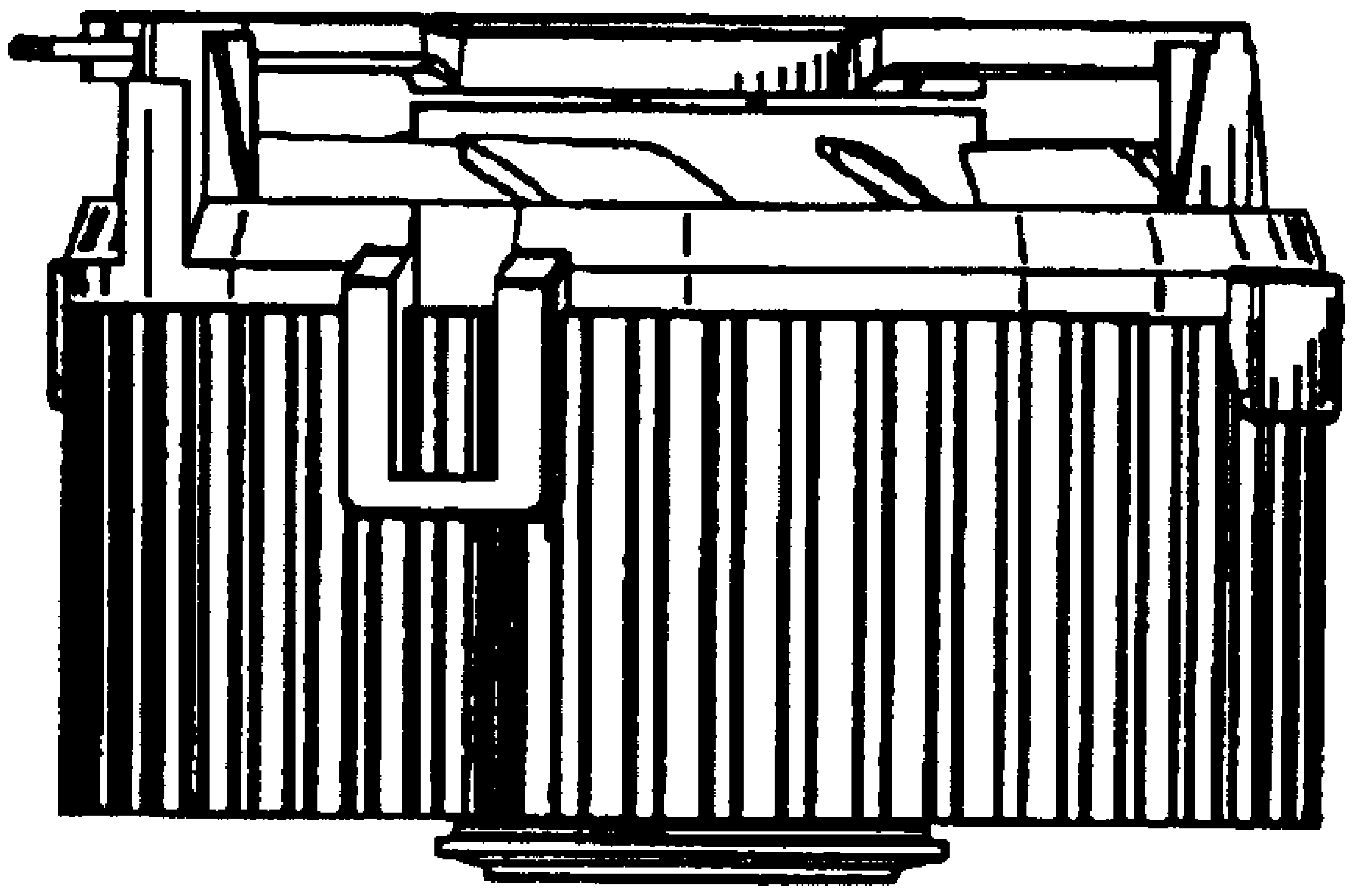


Fig. 13

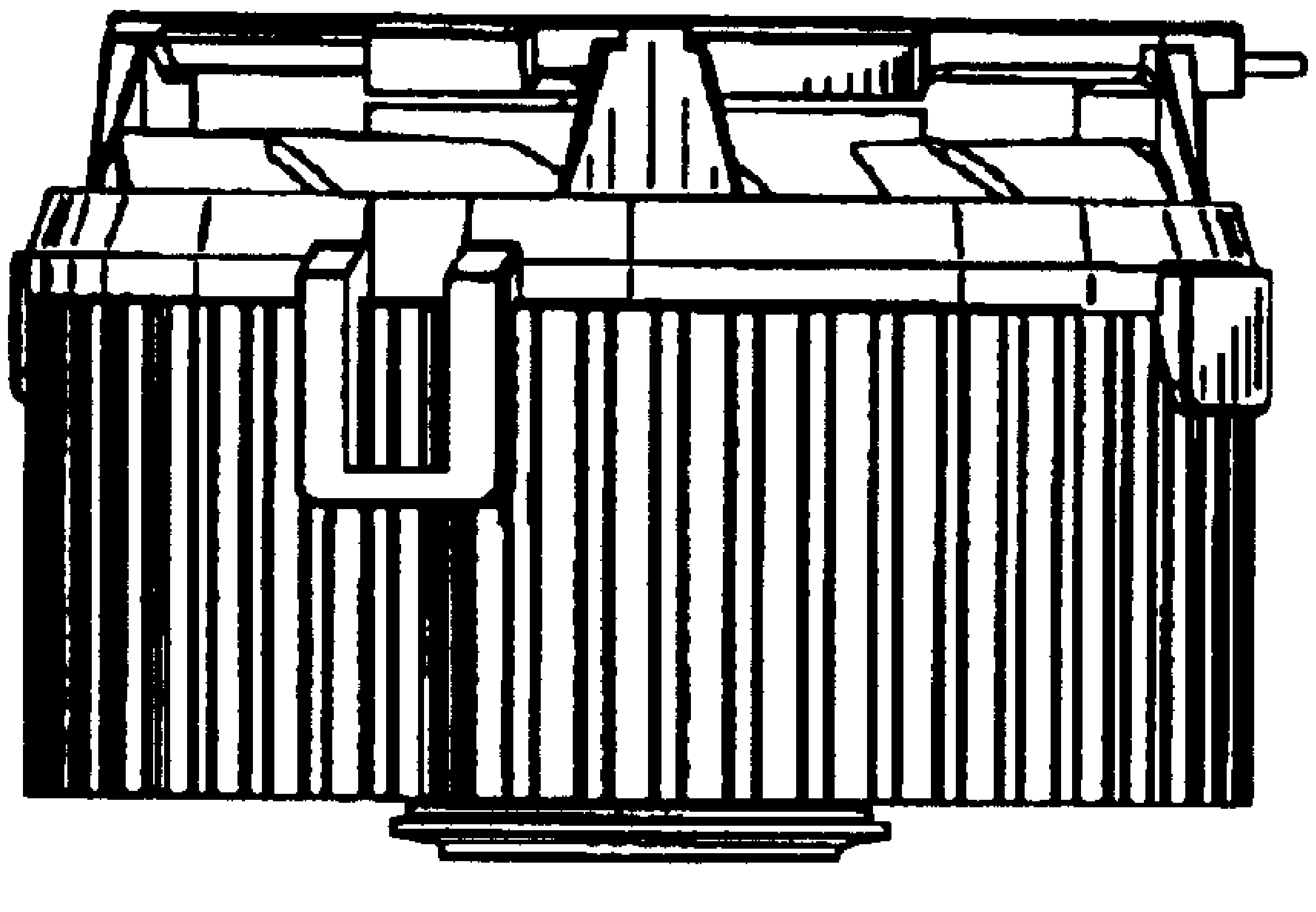


Fig. 14

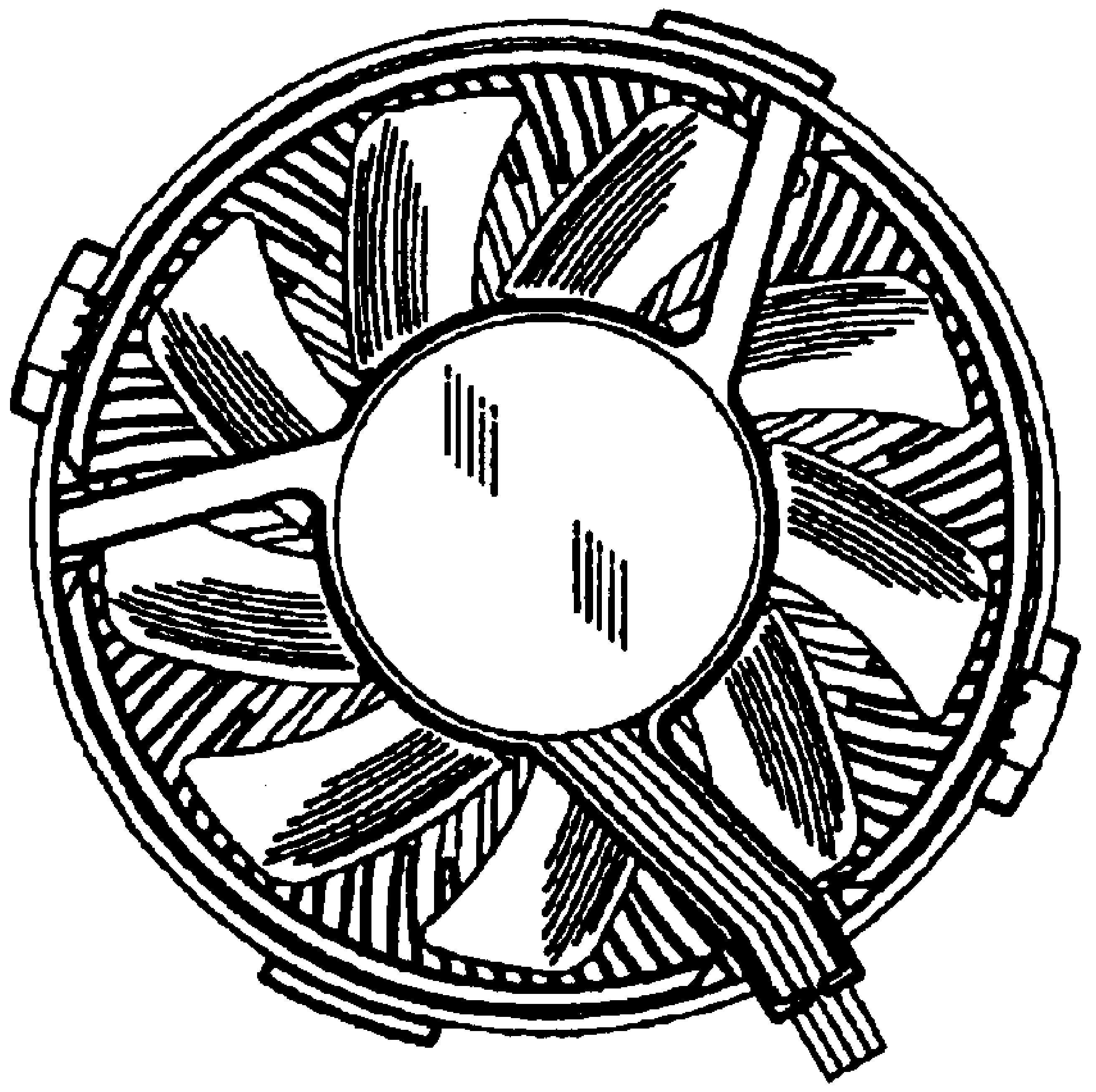


Fig. 15

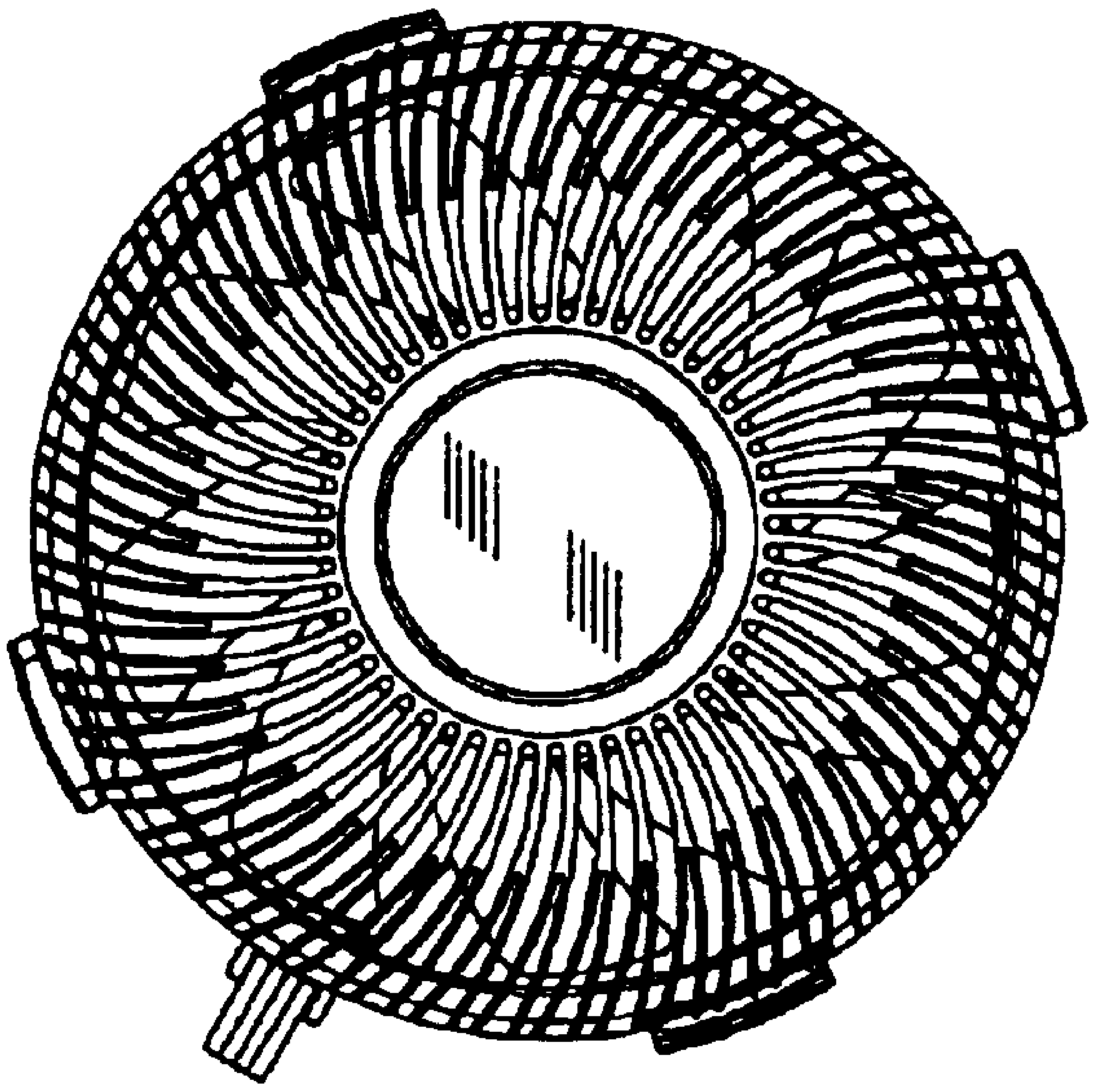


Fig. 16

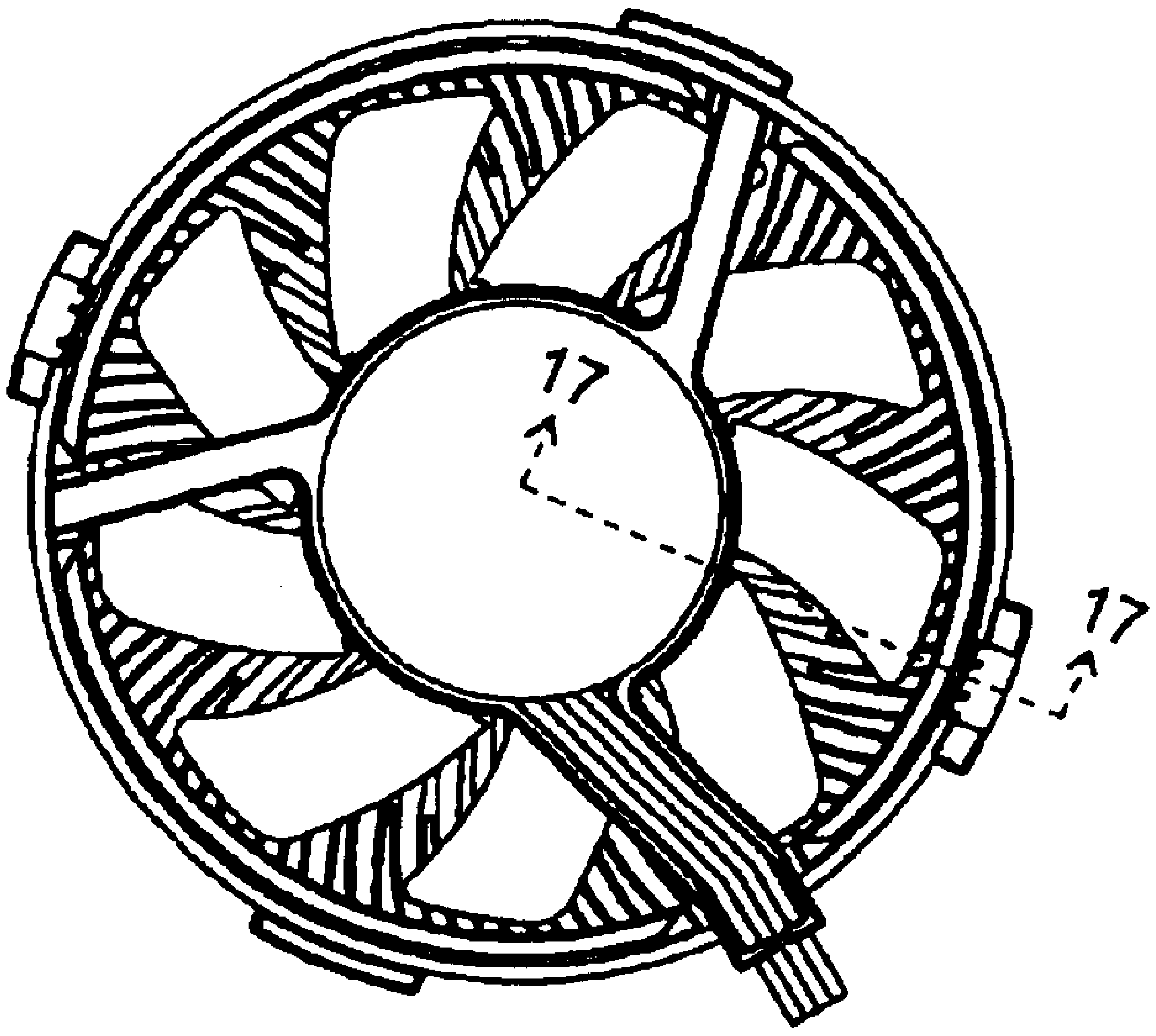


Fig. 17

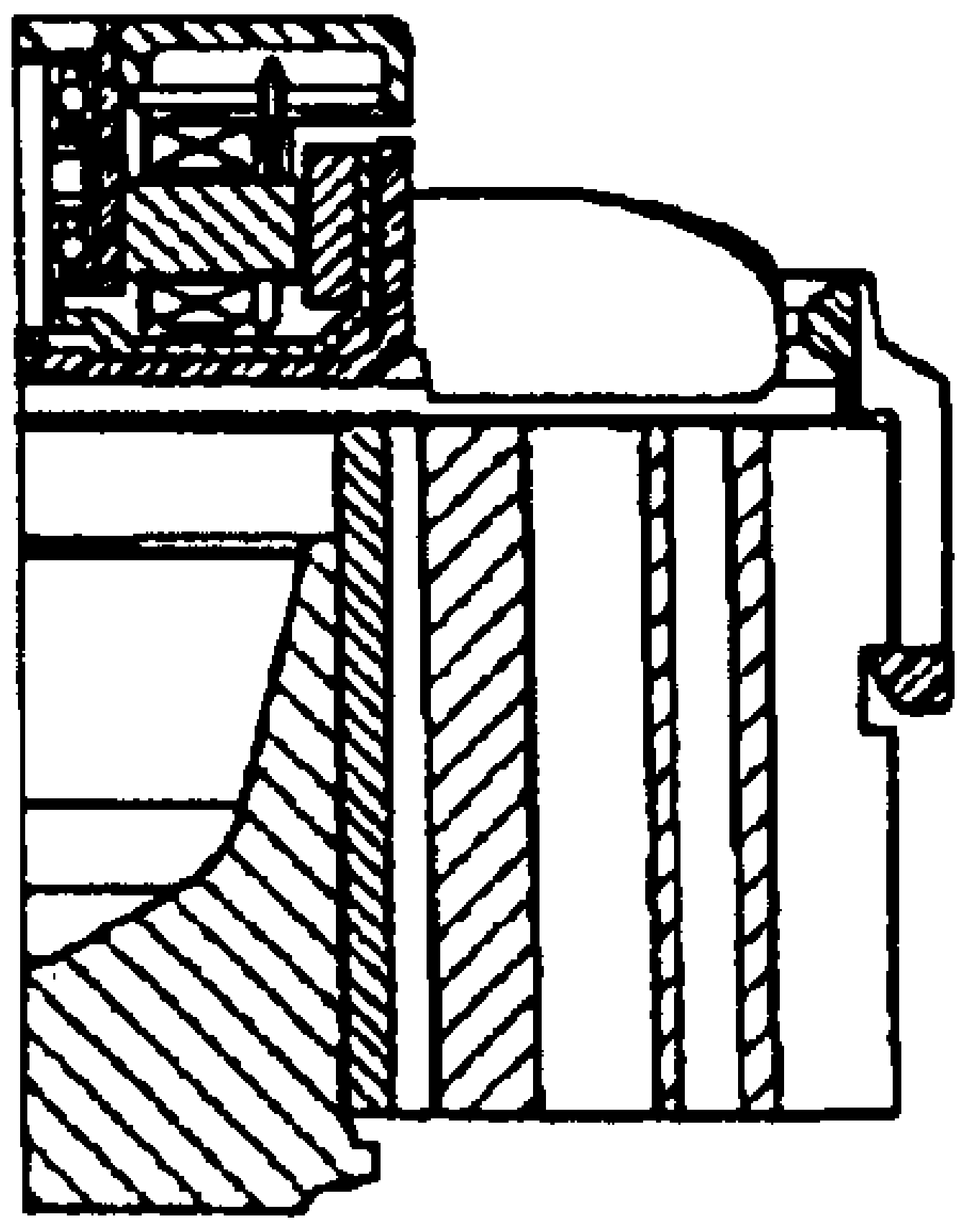


Fig. 18