



US00D471917S

(12) **United States Design Patent**
Kagami et al.

(10) **Patent No.:** **US D471,917 S**

(45) **Date of Patent:** **** Mar. 18, 2003**

(54) **DIAPHRAGM-TYPE PROCESS PUMP FOR TRANSFERRING VARIOUS FLUIDS BY MOVING A DIAPHRAGM WITH COMPRESSED AIR**

(75) Inventors: **Tsuyoshi Kagami, Yawara-mura (JP); Tomoyuki Iwata, Yawara-mura (JP)**

(73) Assignee: **SMC Corporation, Tokyo (JP)**

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

(21) Appl. No.: **29/150,465**

(22) Filed: **Nov. 14, 2001**

(30) **Foreign Application Priority Data**

May 28, 2001 (JP) 2001-015252

(51) **LOC (7) Cl.** **15-02**

(52) **U.S. Cl.** **D15/7**

(58) **Field of Search** D15/7-9; 417/40, 417/410.1, 413.1, 423.3; 200/84 B

(56) **References Cited**

U.S. PATENT DOCUMENTS

- D338,018 S * 8/1993 Willinger et al. D15/8
- D374,075 S * 9/1996 Lee D24/111
- D387,067 S * 12/1997 Gaffney D15/8
- D426,553 S * 6/2000 Jack et al. D15/7

- D428,422 S * 7/2000 Wang D15/8
- D436,360 S * 1/2001 Murayama D15/7
- D436,361 S * 1/2001 Yu-Chin D15/8
- D436,968 S * 1/2001 Cook D15/7
- D439,341 S * 3/2001 Tumey et al. D24/169
- D454,885 S * 3/2002 Murayama et al. D15/7

* cited by examiner

Primary Examiner—Ralf Seifert

(74) *Attorney, Agent, or Firm*—Baker Botts L.L.P.

(57) **CLAIM**

An ornamental design for a diaphragm-type process pump for transferring various fluids by moving a diaphragm with compressed air, as shown and described.

DESCRIPTION

FIG. 1 is a front view.

FIG. 2 is a rear view.

FIG. 3 is a plan view.

FIG. 4 is a right-hand side view.

FIG. 5 is a left-hand side view.

FIG. 6 is a sectional view taken along the line 6—6, in which illustration of the internal mechanism is partly omitted; and,

FIG. 7 is a reference perspective view.

A bottom view is omitted because it is in symmetry with the plan view.

1 Claim, 3 Drawing Sheets

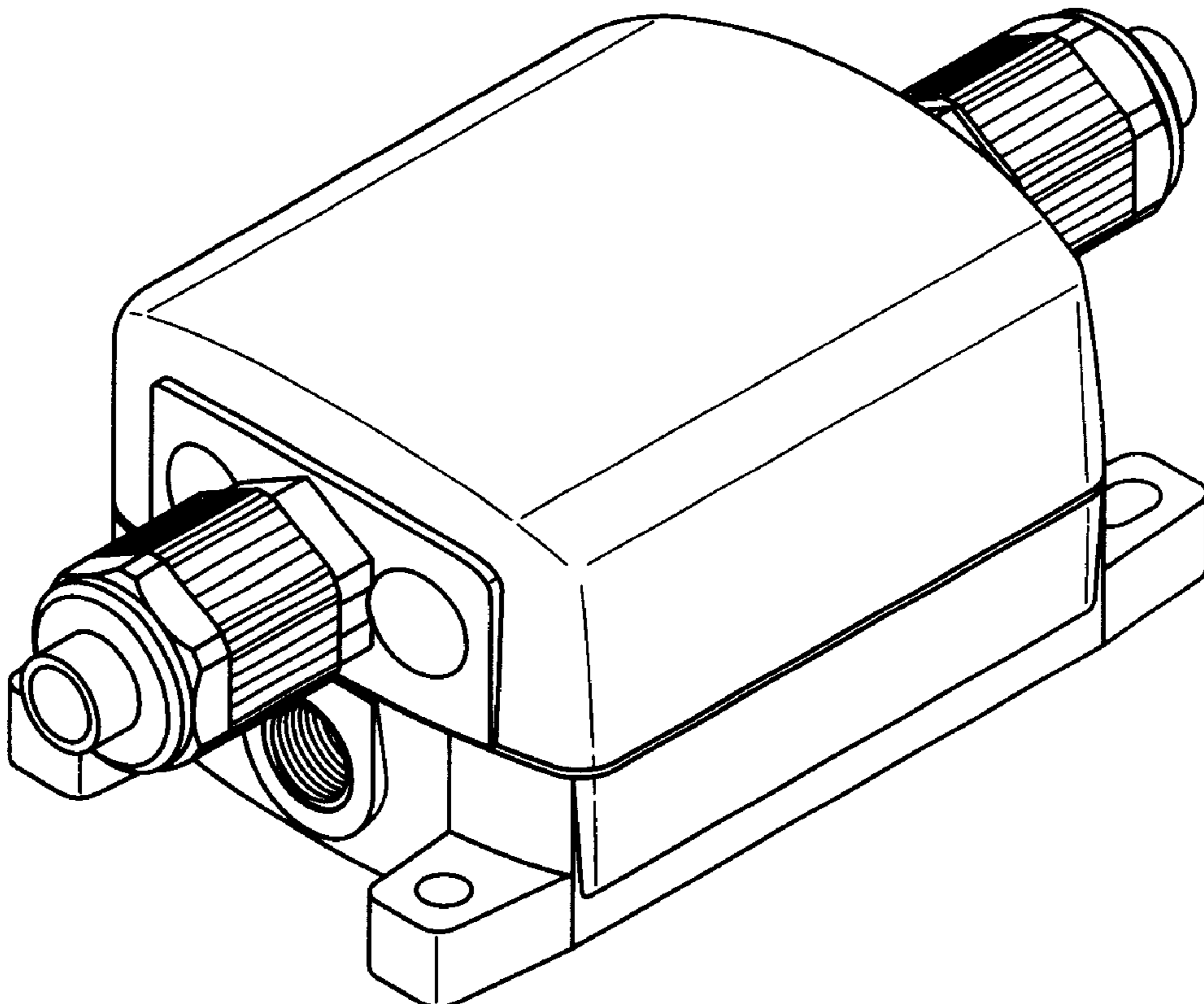


FIG.1

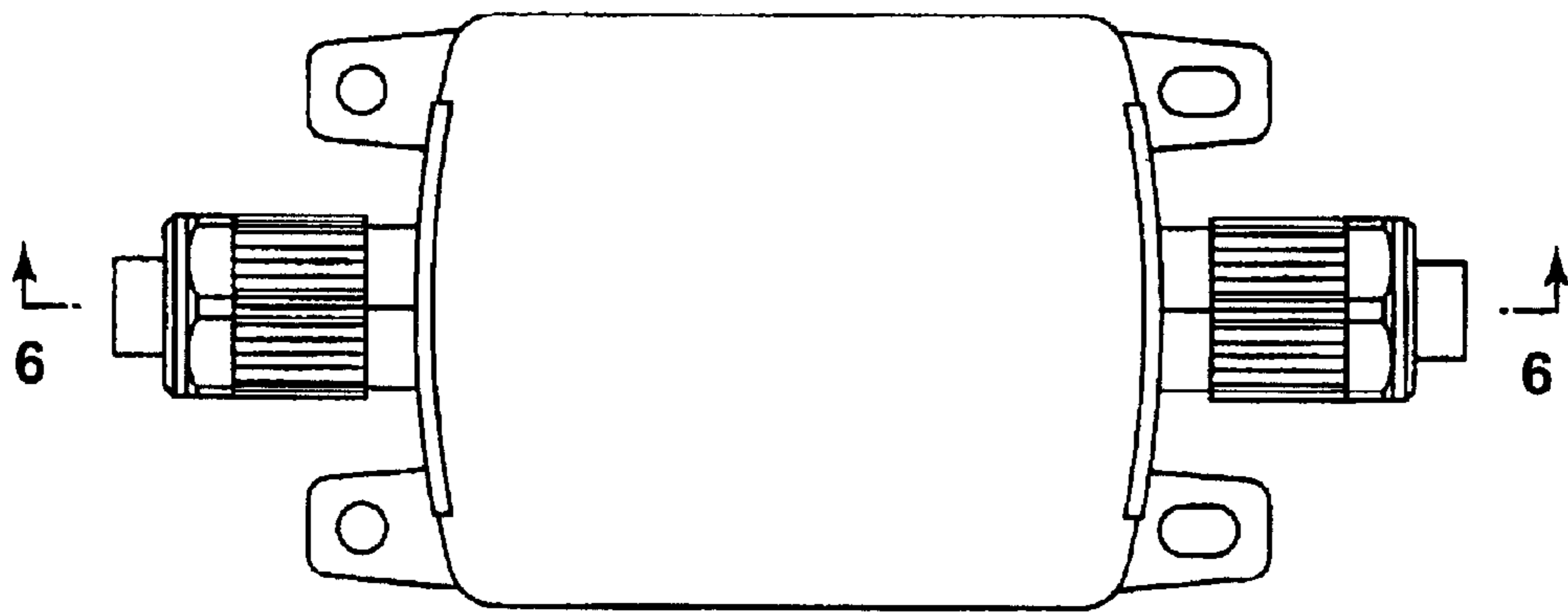


FIG.2

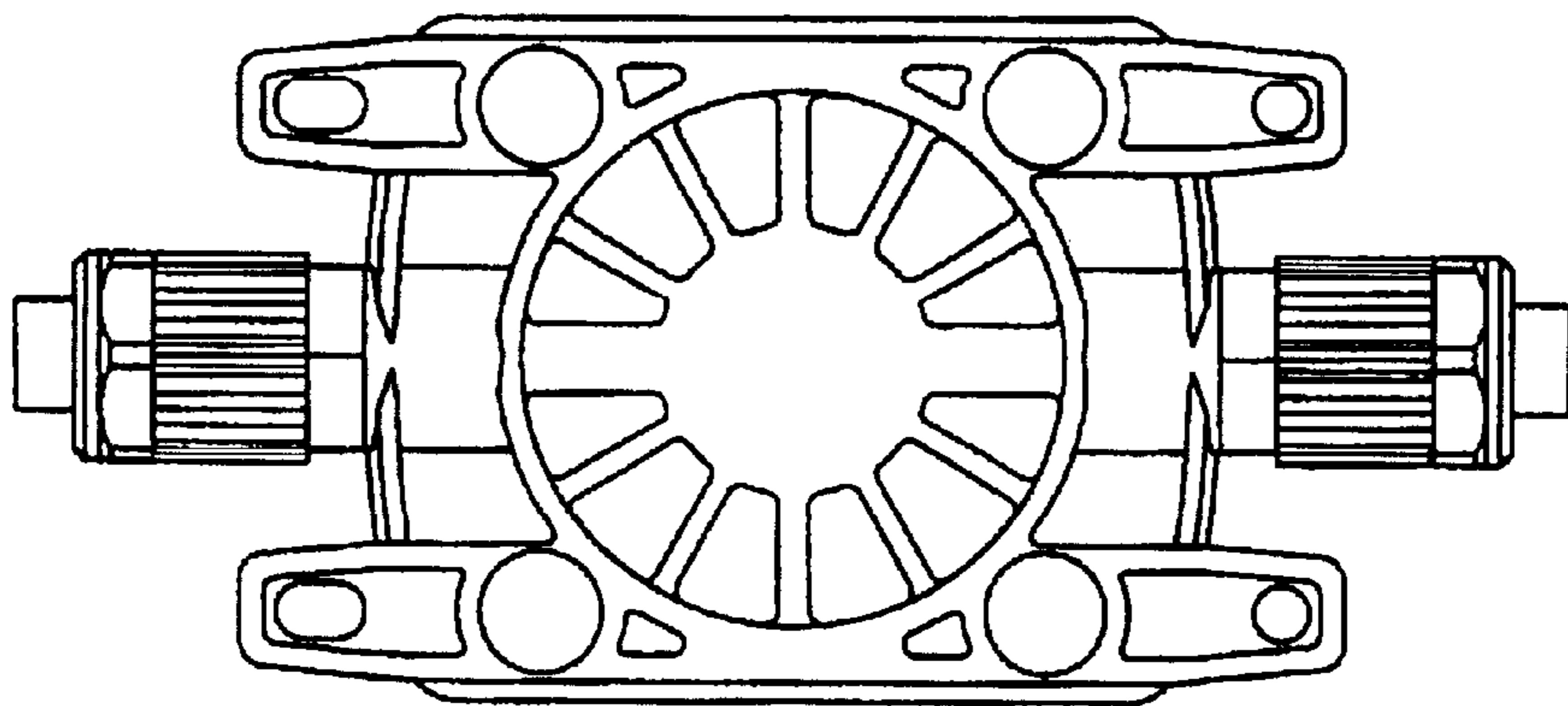


FIG.3

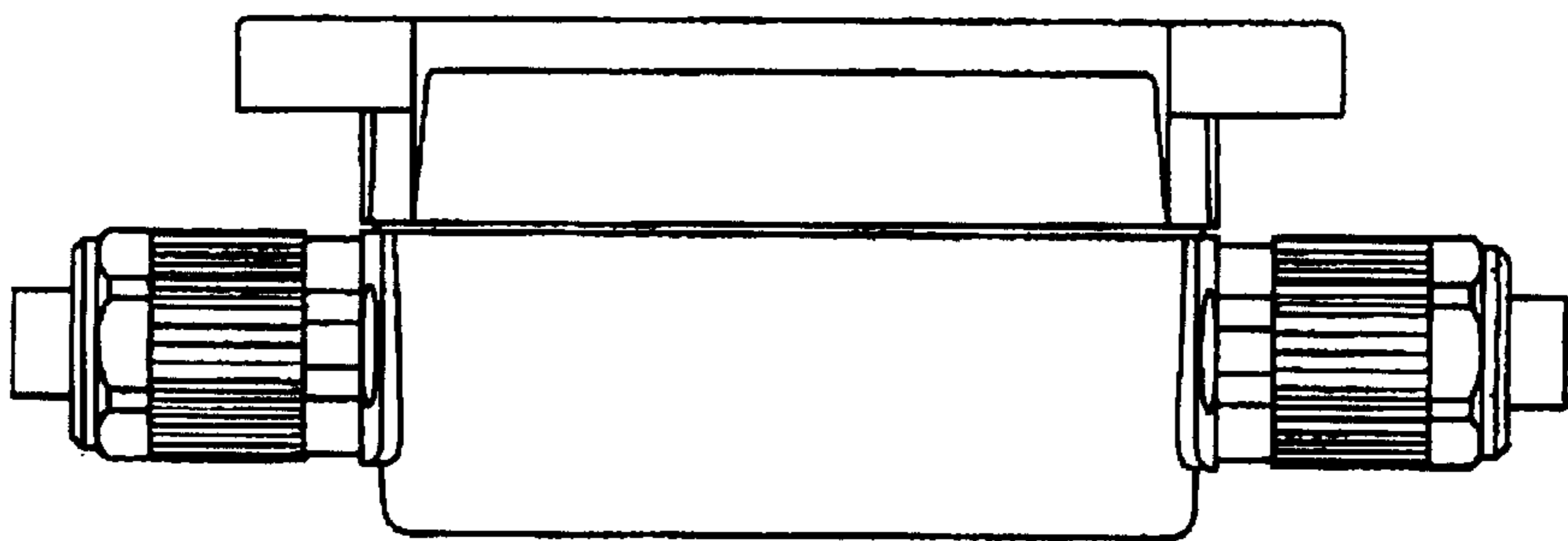


FIG.4

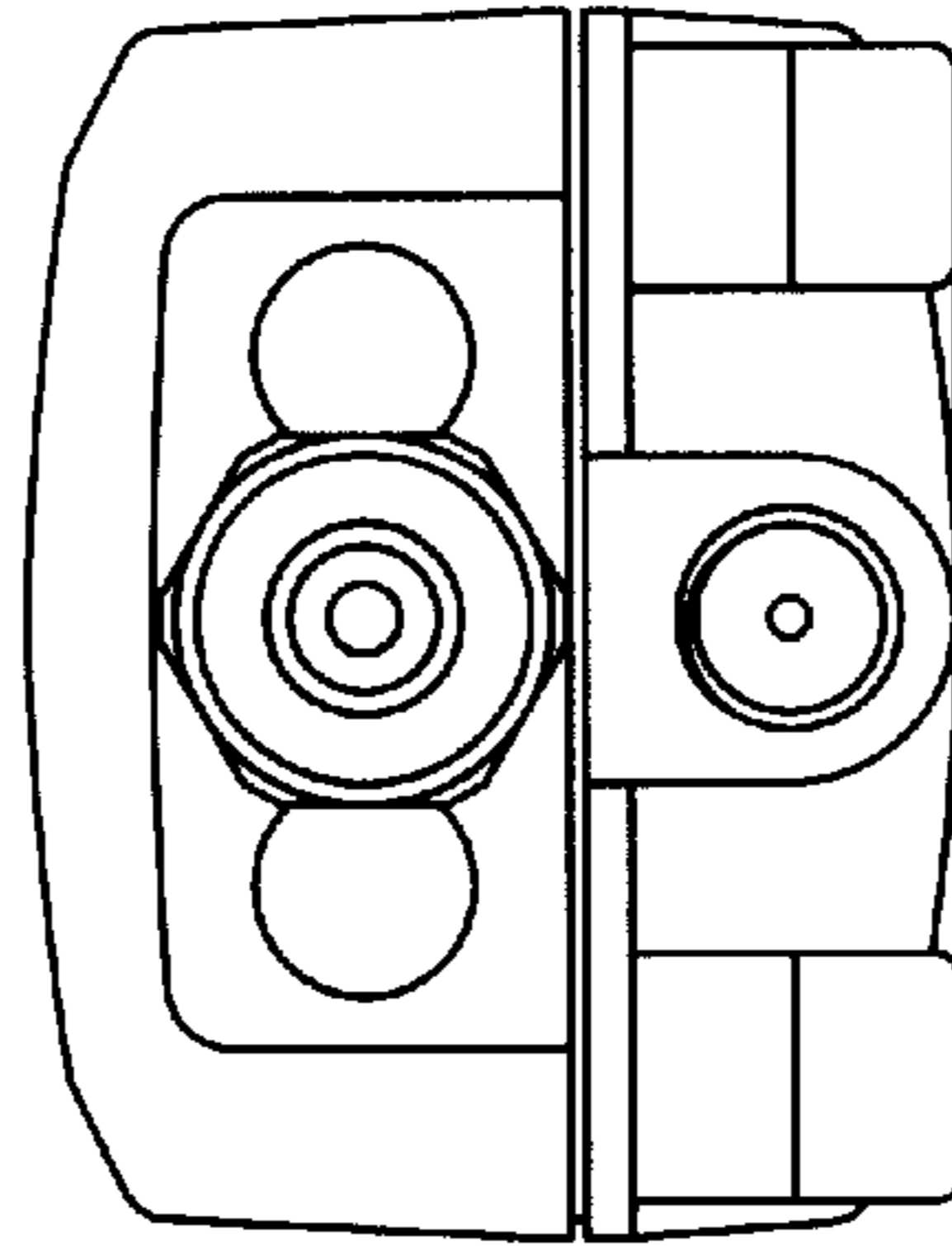


FIG.5

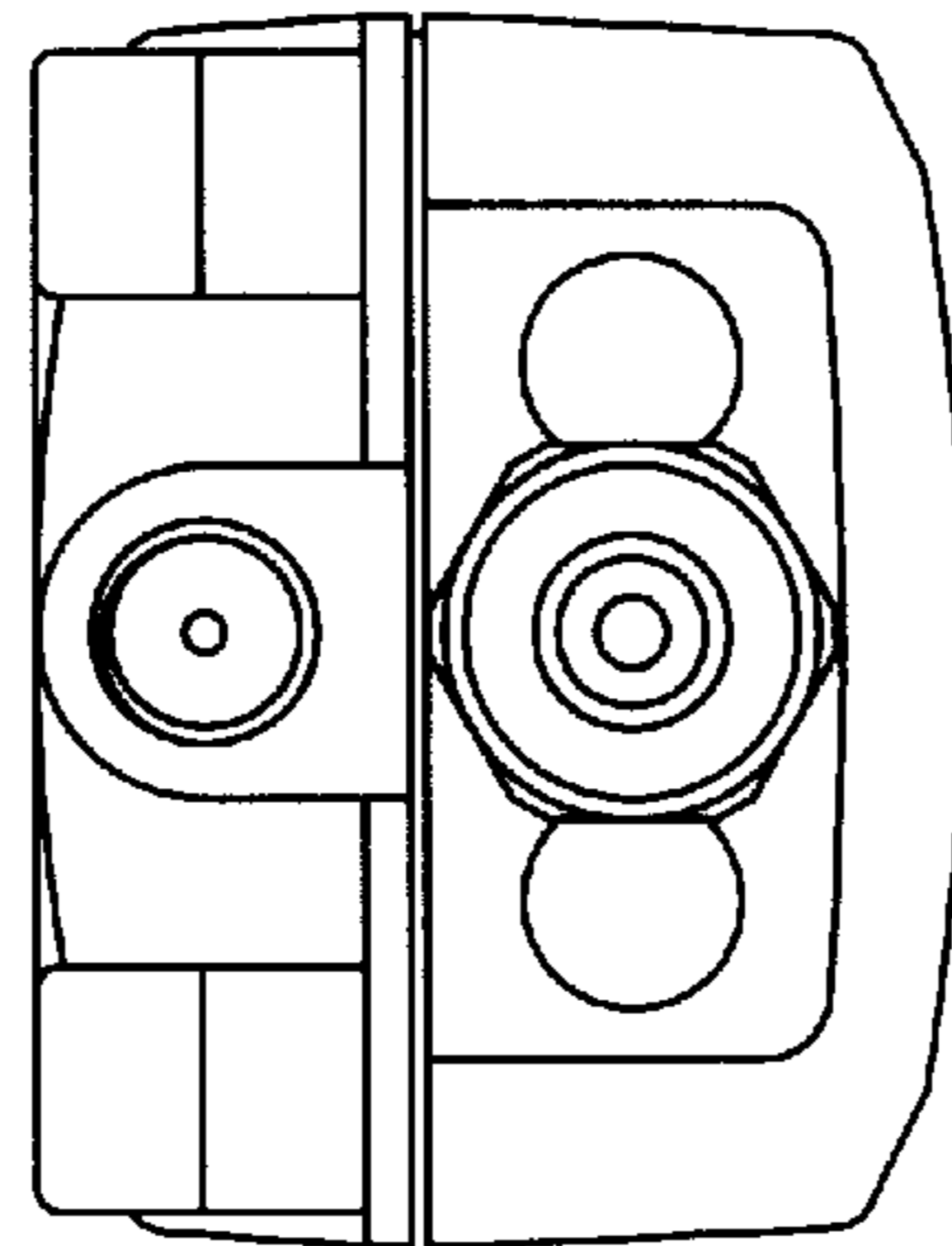


FIG.6

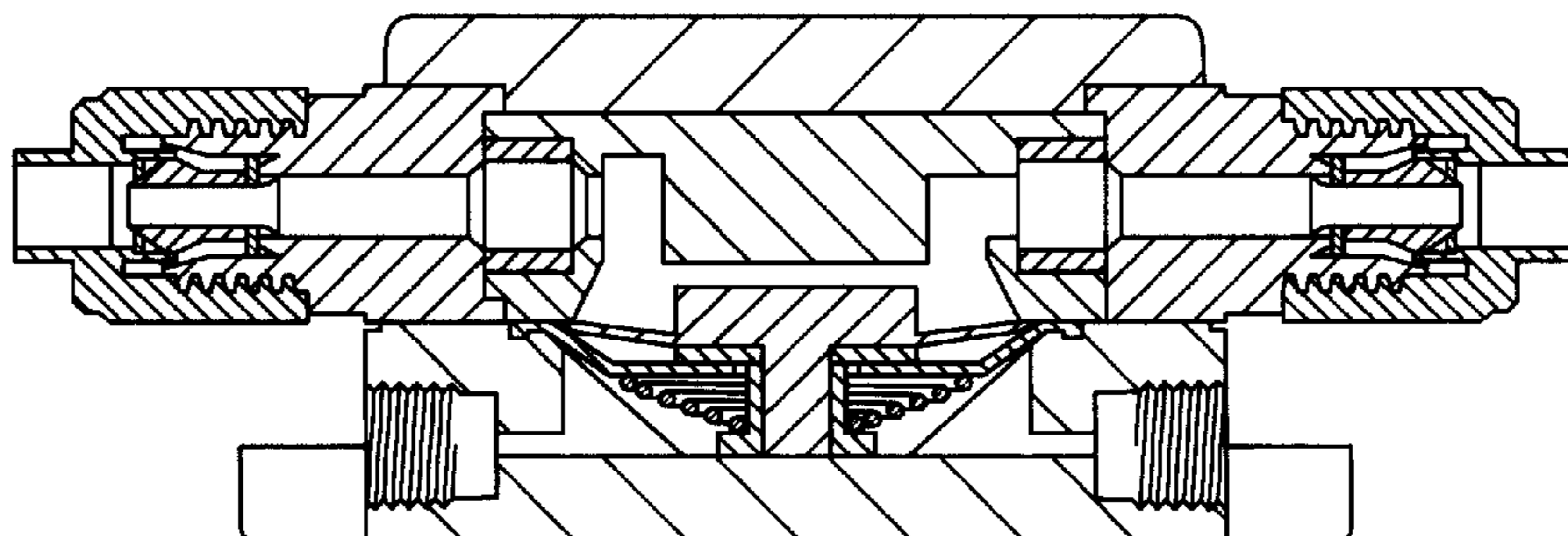


FIG. 7

