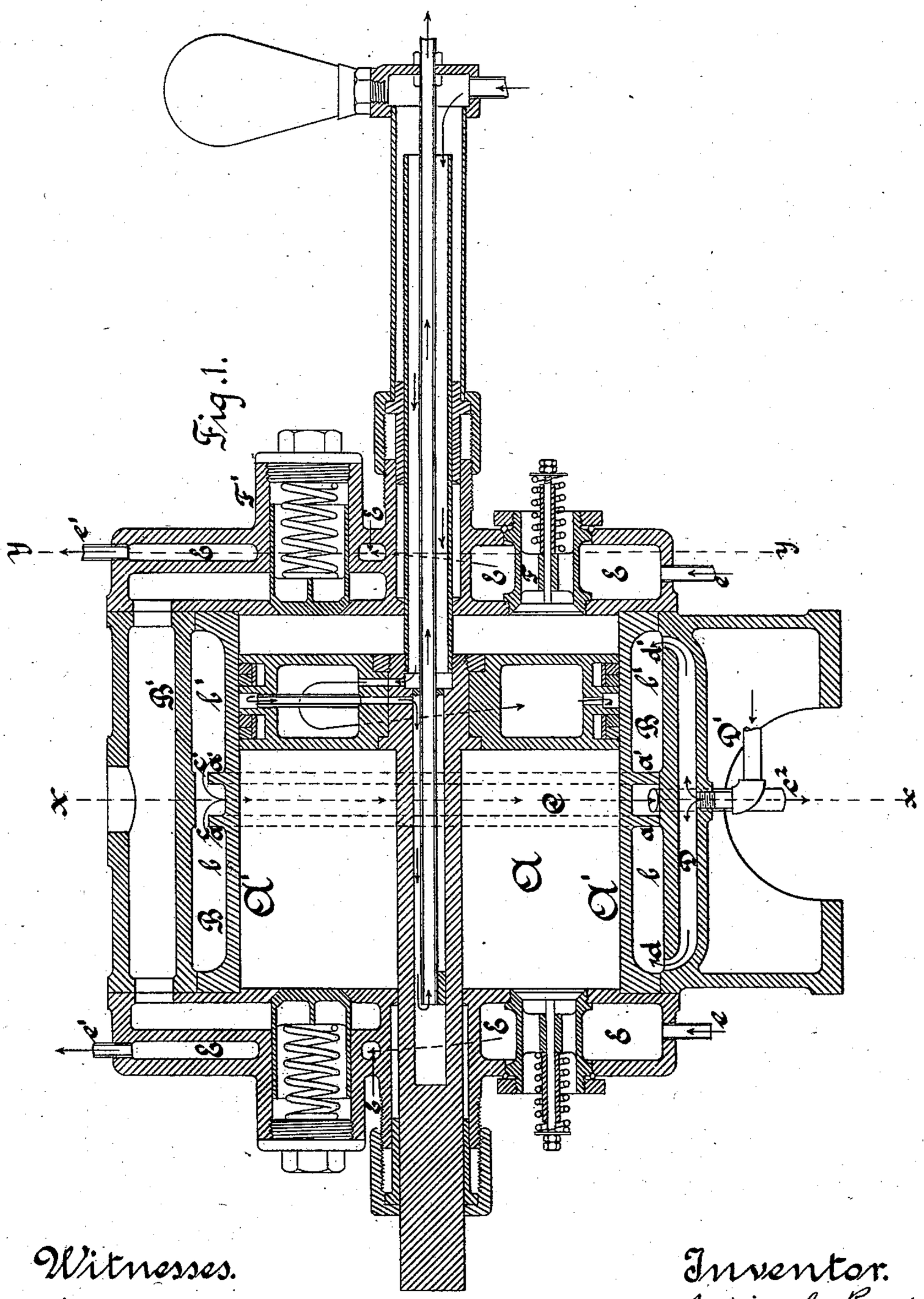
(No Model.) 2 Sheets—Sheet 1.

A. C. RAND.

AIR COMPRESSOR.

No. 255,116. Patented Mar. 21, 1882.



Witnesses.
M. L. Adams.
Asa Farr.

Inventor.
Addison C. Rand,
per Edw. E. Lunsby,
Atty.

(No Model.) 2 Sheets—Sheet 2.

A. C. RAND.

AIR COMPRESSOR.

No. 255,116. Patented Mar. 21, 1882.

Fig. 3.

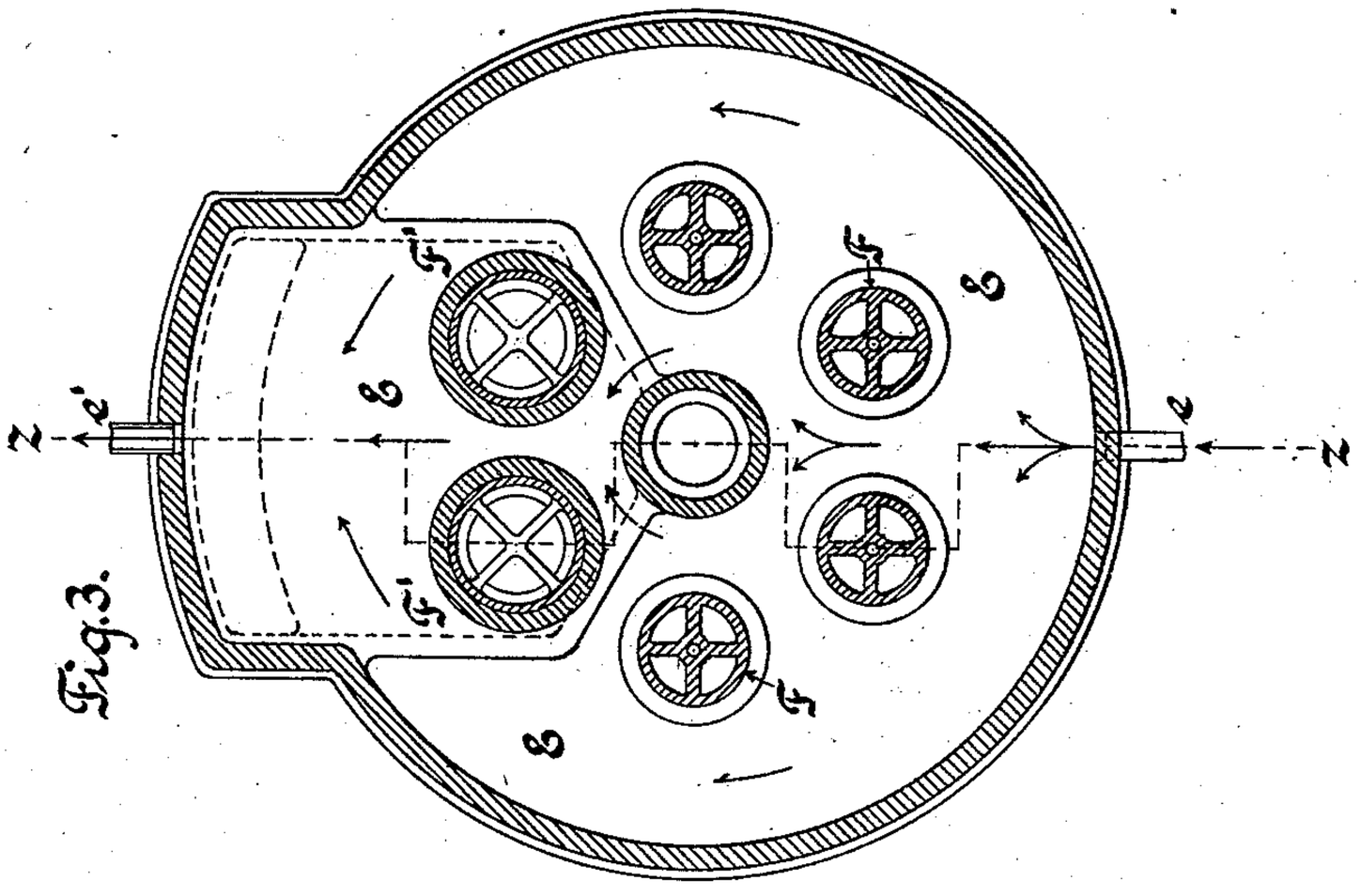
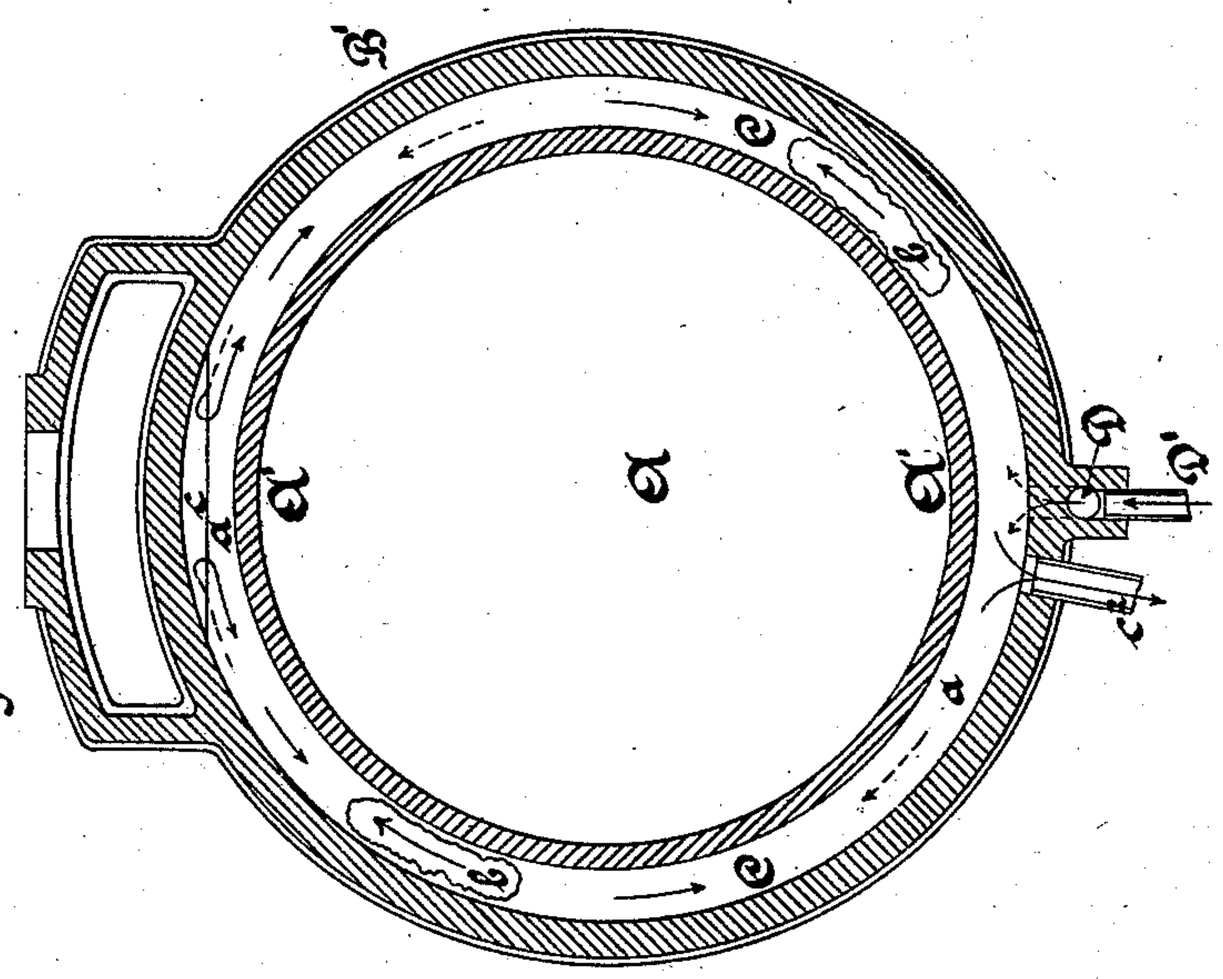


Fig. 2.



Witnesses.
M. L. Adams
Asa Farr

Inventor.
Addison C. Rand
Per Edw. E. Lumby
Atty.

UNITED STATES PATENT OFFICE.

ADDISON C. RAND, OF NEW YORK, N. Y.

AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 255,116, dated March 21, 1882.

Application filed November 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, ADDISON C. RAND, of the city and State of New York, have invented certain Improvements in Air-Compressors, of which the following is a specification.

My improvements, which relate to the construction of cold-water jackets for cooling the cylinders of air-compressors, are intended to insure the constant presence of cool water around all parts of the exterior of the cylinder, and also to facilitate the localization and discovery of leaks from the water-jacket. I accomplish this twofold object by arranging two independent water-chambers respectively upon the opposite ends of the cylinder and a third water-chamber upon the body of the cylinder. The latter chamber is divided into two principal compartments, which are each supplied with cold water at the bottom, near the ends of the cylinder, and have a common outlet through an annular passage arranged between them. Water overflowing from these two compartments is conducted downward through the annular passage and discharged at the bottom thereof. By this organization of the apparatus opportunity is afforded for the discharge of the cooling-water before it has time to become overheated by a long-continued contact with the cylinder, and the localization and discovery of leaks from any portion of the water-jacket is facilitated, because the separate water-chambers can be separately tested for leaks.

The accompanying drawings, representing a horizontally-placed air-compressor cylinder provided with my improvements, are as follows:

Figure 1 is a central longitudinal section. Fig. 2 is a transverse section through the line *x x* on Fig. 1, with portions of the partition *a* broken out to show the end compartment, *b*, of the water-chamber surrounding the body of the cylinder. Fig. 3 is a transverse section through the line *y y* on Fig. 1. For convenience in showing the valves the longitudinal section shown in Fig. 1 is taken through the offset dotted line *z z* on Fig. 3.

As air-compressors of the general character of that partly illustrated in the drawings are well known, it is not deemed necessary to herein describe particularly their details of construction and mode of operation.

The compressor-cylinder A has its body A′ surrounded by the water-chamber B, the outer wall of which is formed by the cylindrical shell B′. The chamber B is divided into two end compartments, *b* and *b′*, by the partitions or radially-projecting annular flanges *a* and *a′*, cast around the exterior of the shell A′ of the cylinder A.

The upper portions of the partitions *a* and *a′* are provided with the perforations *c* and *c′*, through which water from the end compartments, *b* and, *b′* overflows into the central passage, C, which is formed of the space between the annular partitions *a* and *a′*, and which is provided at the bottom with the outlet-pipe c^2.

The compartments *b* and *b′* respectively derive their supply of water at the bottom through the apertures *d* and *d′* at the ends of the receiving-chamber D, which extends longitudinally along the under side of the cylinder and receives cold water from the supply-pipe D′. By reason of the central passage, C, and its outlet-pipe c^2 at the bottom, the water-chamber B, surrounding the body of the cylinder, is provided with an internal discharge.

The arrows on Figs. 1 and 2 indicate the direction in which the water moves in the chamber B and the passage C.

The heads of the cylinder are each provided with a water-chamber, E, to which cold water is supplied from the inlet-pipe *e* at the bottom, and from which it is discharged through the outlet-pipe *e′* at the top.

The air-inlet-valve chambers F and air-outlet-valve chambers F′ at each end extend through the water-chamber E, and the water in circulating through the chambers E E pursues sinuous paths around and between the air-valve chambers, substantially as shown by the arrows in Fig. 3.

I do not claim broadly a water-jacket surrounding the body of an air-compressor cylinder and extending across both ends, as such a water-jacket is shown and described in Letters Patent of the United States No. 129,631, granted to J. B. Waring, dated July 16, 1872.

I claim as my invention—

In combination with the cylinder of an air-compressor, two independent water-chambers arranged respectively upon the heads of the cylinder, and a third water-chamber surrounding the body of the cylinder, each of the said chambers being provided with inlet and outlet passages for the admission and discharge of the cooling-water, substantially as and for the purposes described.

ADDISON C. RAND.

Witnesses:
FRED A. HALSEY,
H. H. BUTLER.