

Roebuck & Reece,

Double-Acting Pump,

Nº 56,101,

Patented July 3, 1866.

Fig. 2.

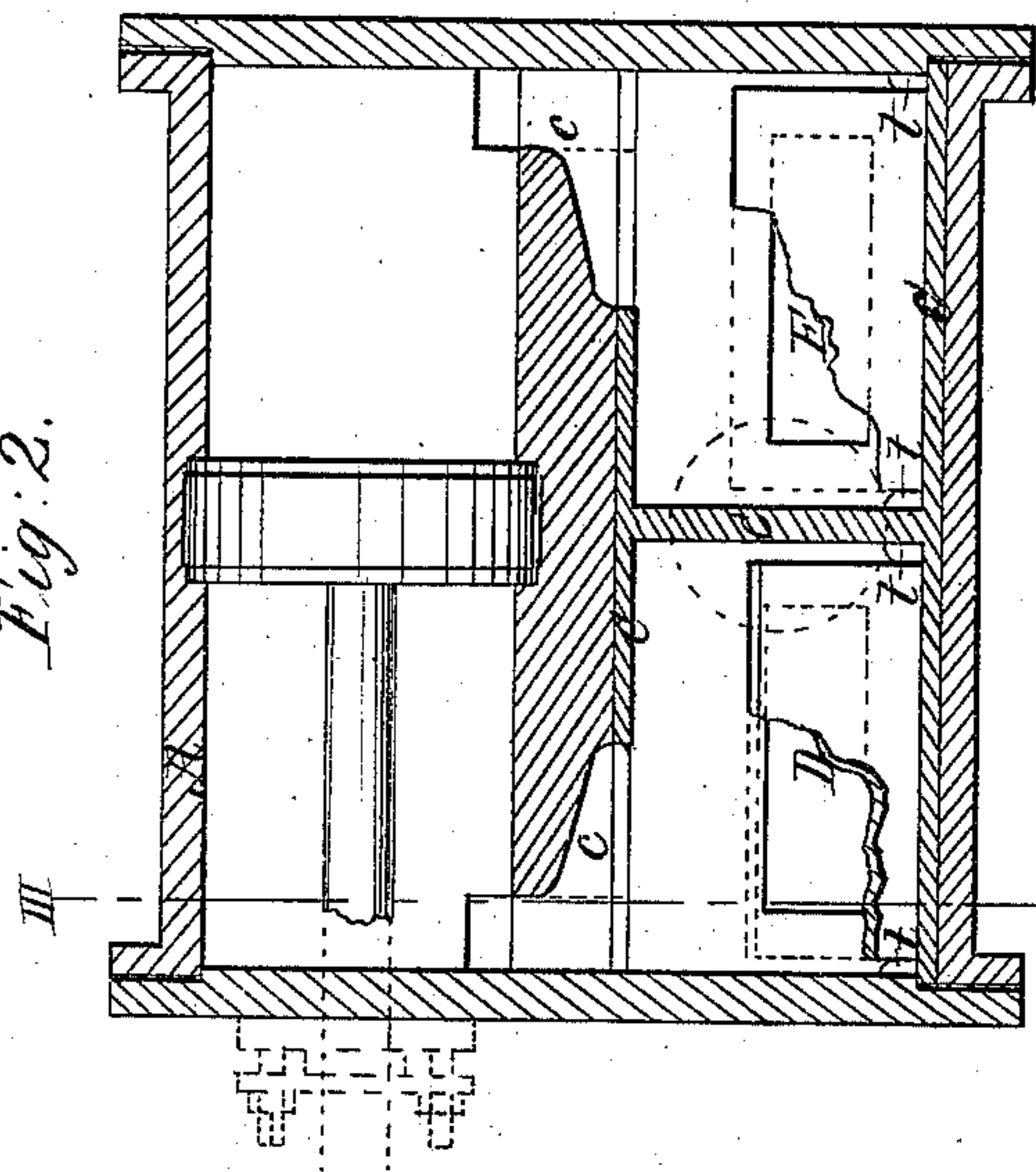


Fig. 4.

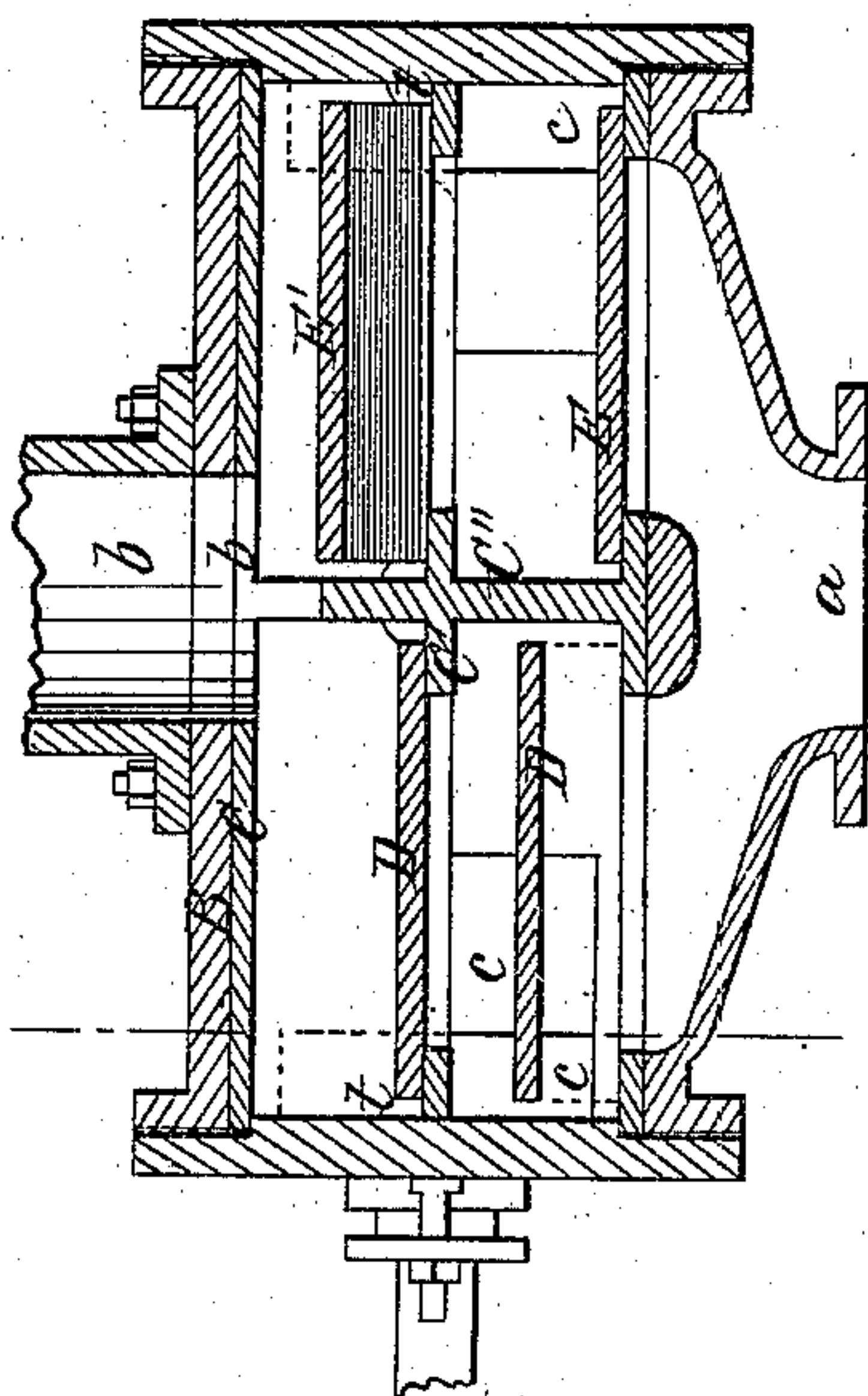


Fig. 1.

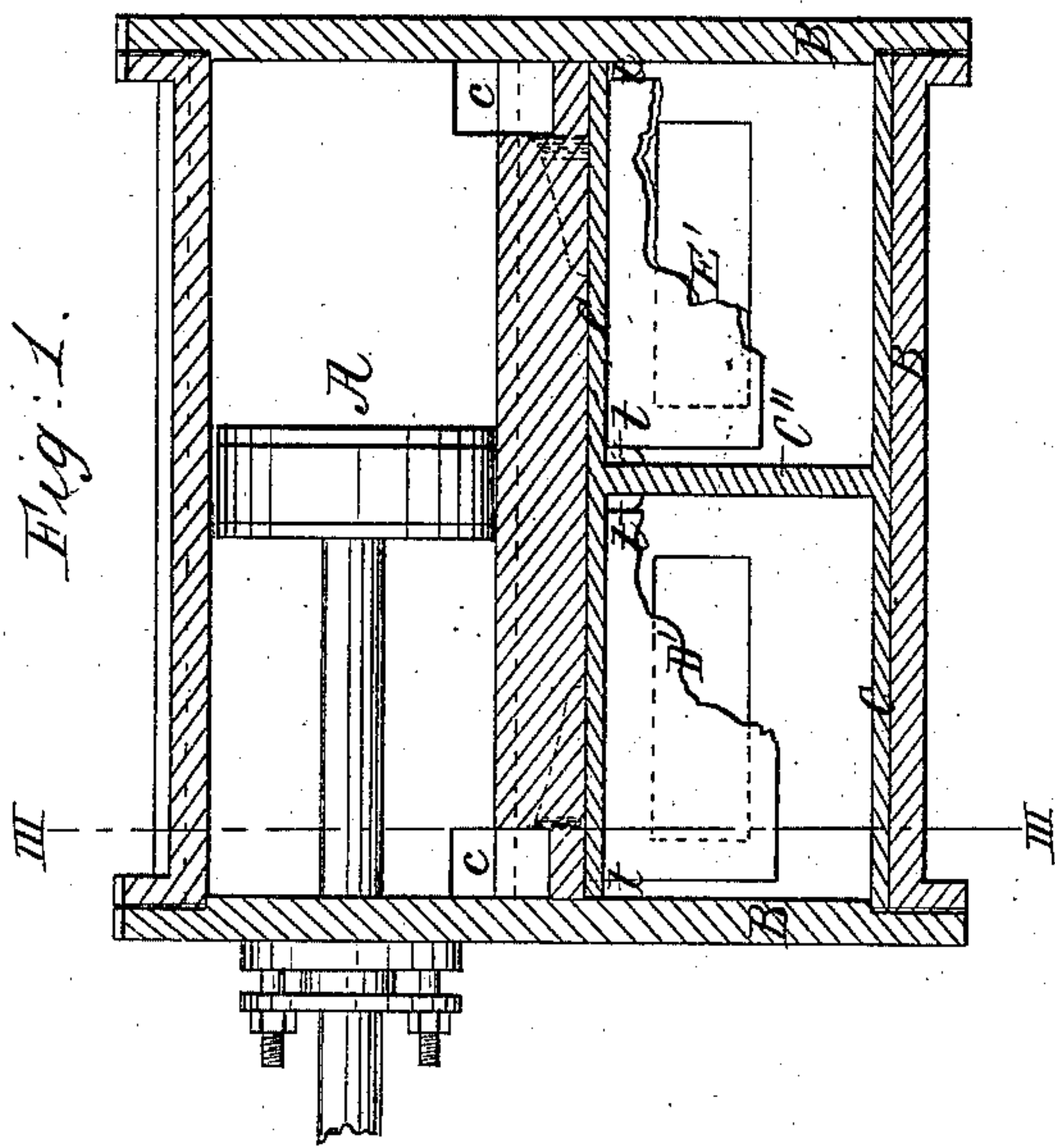
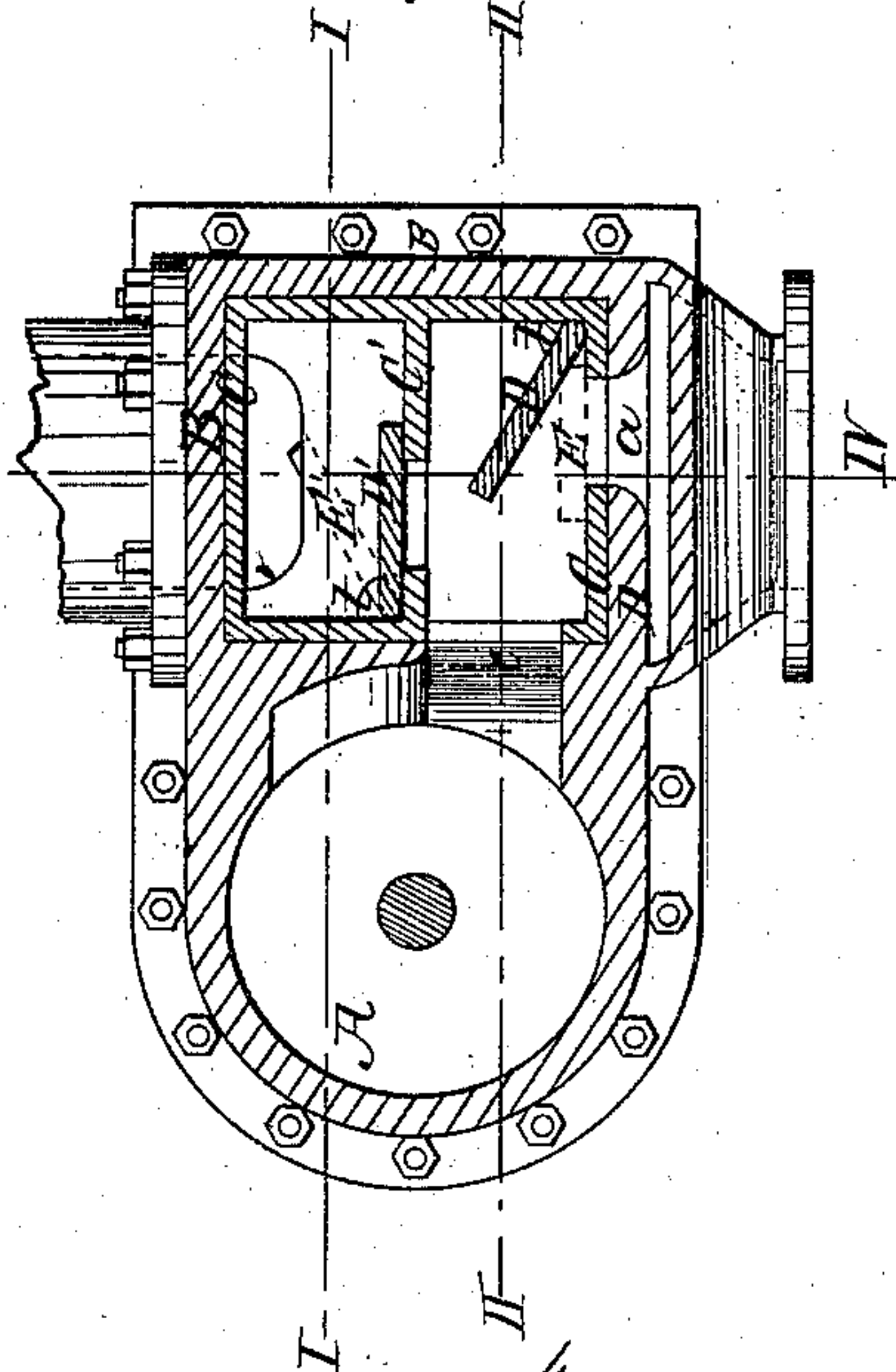


Fig. 3.



Witnesses;
Alex^r C. Klaucke
Chas A. Pitts

Inventors;
James M. Roebuck
William R. Reece
Per Munnix & Co.

UNITED STATES PATENT OFFICE.

J. M. ROEBUCK AND W. R. REECE, OF DONALDSON, PENNSYLVANIA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 56,101, dated July 3, 1866.

To all whom it may concern:

Be it known that we, JAMES M. ROEBUCK and WILLIAM R. REECE, of Donaldson, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Pumps; and we do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to construct the same, reference being had to the annexed drawings, making part of this specification, in which—

Figures 1 and 2 are horizontal sections on the lines I I and II II of Fig. 3. Fig. 3 is a vertical transverse section on the line III III of Figs. 1, 2, and 4. Fig. 4 is a vertical longitudinal section on the line IV IV, Fig. 3.

In all the figures like parts are indicated by the same letter of reference.

A A, Figs. 1, 2, and 3, is the cylinder, having a plunger packed in the ordinary manner. The cylinder is made or cast in one piece with the valve-seat chamber. This has an induction-opening, *a*, at its bottom, and an opening for discharge, *b*, on the top. The valve-chamber is connected with the interior of the cylinder by the openings *c c'* at the ends thereof.

In the valve-chamber B, and fitting it tightly, but being easily removed for repairs or other purposes, is a case, C C, open at each end, and divided into four compartments by the horizontal central partition, C', extending lengthwise, and the vertical central partition, C''. In the bottom plate of the case are openings, closed by the valves D and E, which communicate with the induction *a*. In the middle plate, C', are similar openings, also closed by valves D' E', connecting the two lower compartments of the case with the upper compartments, which in their turn have a common opening to the discharge or eduction *b*. In the side of the case C which is next the cylinder are openings to the passages *c c'* into the ends of the cylinder A.

The heads of the cylinder extend over and cover the ends of the chamber B and case C within it, and are secured by bolts and nuts in the ordinary manner.

When the plunger is moved—say toward the stuffing-box—a vacuum is formed behind it, and the water rushes in through the induction and through the valve E, which is lifted, and then into the opening *c*, so as to fill the cylinder behind the plunger. When the plunger makes a return stroke the valve E closes and the valve E' rises to make way for the water in the lower compartment of the case C and in the cylinder, so that it may flow up through the valve E' and out of the eduction *b*. At the same time water is filling the cylinder between the plunger and the stuffing-box through the valve D and the opening *c'*.

When the first return stroke is made with the pump the water that rises through the valve E' will fill that compartment which is over the valve D before it passes out of the opening *b*; but when the plunger moves again toward the stuffing-box, as much water as lies in the cylinder will be forced through the opening *b*, and this will take place at every stroke of the piston or plunger.

The valves D D' and E E' are packed upon their seats, so as to be water-tight, and vibrate upon hinges, as seen at A A in all the figures.

During the working of the pump the valves D and E' will be open during one stroke of the plunger, and will close and be kept down by the presence of water above them, when the plunger moves in the contrary direction, which time the valves D' E will be open, as shown in Fig. 3.

Having thus fully described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

In a pump, the removable case C, divided by partitions, substantially as described, and furnished with valves and openings, as set forth, for the purpose of being readily repaired or renewed without disturbing the rest of the machinery, as set forth.

JAMES M. ROEBUCK.
WILLIAM R. REECE.

Witnesses:

DAVID LOMISON,
FRANK I. FORBES.