(No Model.)

F. AHRENS.

PUMP.

No. 263,452. Patented Aug. 29, 1882.

Fig. 1.

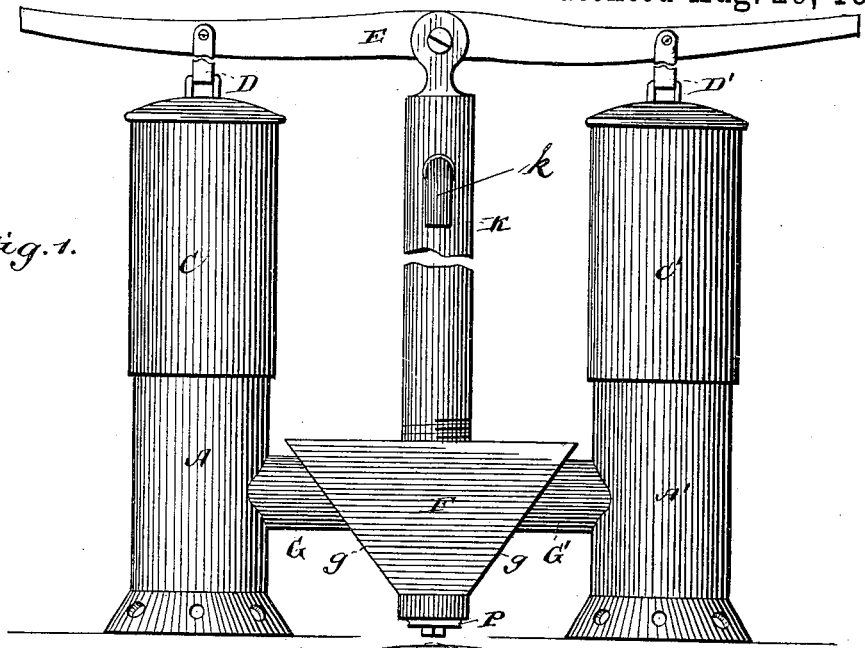


Fig. 2.

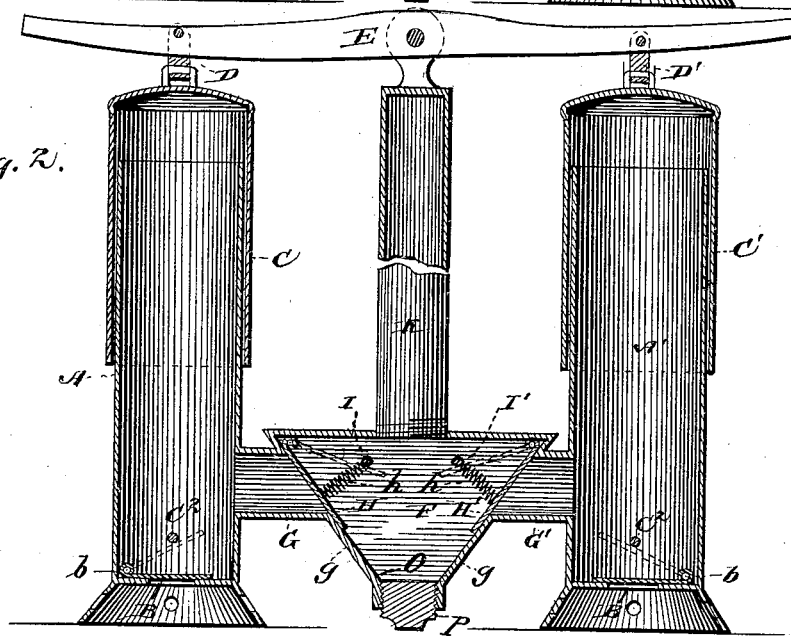
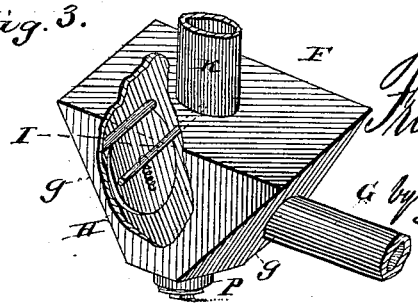


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FREDERICK AHRENS, OF BIG RAPIDS, MICHIGAN.

PUMP.

SPECIFICATION forming part of Letters Patent No. 263,452, dated August 29, 1882.

Application filed May 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK AHRENS, of Big Rapids, in the county of Mecosta and State of Michigan, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of my improved pump. Fig. 2 is a longitudinal vertical section of the same, and Fig. 3 is a detail view of the inside of the air-chamber.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to double-acting force-pumps; and the novelty consists in the improvements hereinafter more fully described, and particularly pointed out in the claim.

A and A′ are the pump barrels or cylinders, which are open at top and provided at the bottom with hinged valves B. The play of these valves is controlled by bars C^2, inserted transversely through each barrel, near its bottom, and parallel to the valve-hinge *b*.

C and C′ are the plungers, which are cylinders fitting upon the cylindrical pump-barrels and closed at the top.

D and D′ are rods which connect the plungers with the lever E for working the pump. These rods must be of such a length that the pump-barrels, with their plungers, shall be entirely submerged.

F is the air-chamber, which is located midway between the barrels, to which it is connected by pipes G G′. This air-chamber is of triangular shape, with slanting or inclined sides *g g*, upon which are hung the valves H H′. The play of the latter is controlled by rods I I′, inserted transversely through the chamber parallel with the valve-hinges.

K is the discharge-pipe, which, as in the drawings, may conveniently form the support or bearing for lever E, and is provided with a spout, *k*.

If desired, the valves H and H′ may be connected to the rods I and I′ by springs, as shown at *h*, for the purpose of causing the prompt closing of the valves. This, however, is not necessary, inasmuch as the slanting position of the valves will insure their prompt action. The air-chamber is closed at its lower open end by a plug, P, so that it may be "flushed," when desired, for the purpose of washing out the sediment collected therein, which will gravitate toward the opening O by removing the plug and working the pump. One of the objects of the peculiar shape of the air-chamber F is to give a large air-surface, so as to cause an even top-pressure on the water contained in it, and by seating the valves H and H′ upon the inclined sides *g*, within the air-chamber, the air-pressure operates to keep them closed firmly, except when opened by the greater pressure caused by the downward stroke of the plunger.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

The improved double-acting force-pump herein shown and described, composed of the cylindrical barrels A A′, having valves B B, plungers C C′, sliding upon the outside of the barrels, and provided with pump-rods D D′, pipes G G′, triangular air-chamber F, provided with the valves H H′, seated upon its inclined walls *g g*, and discharge-pipe K, all constructed and combined substantially as and for the purpose herein shown and specified.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

FREDERICK AHRENS.

Witnesses:

ED. E. SMITH,

E. J. STILLWELL.