

T. N. HENDERSON.
Double-Acting Pump.

No. 131,952.

Patented Oct. 8, 1872.

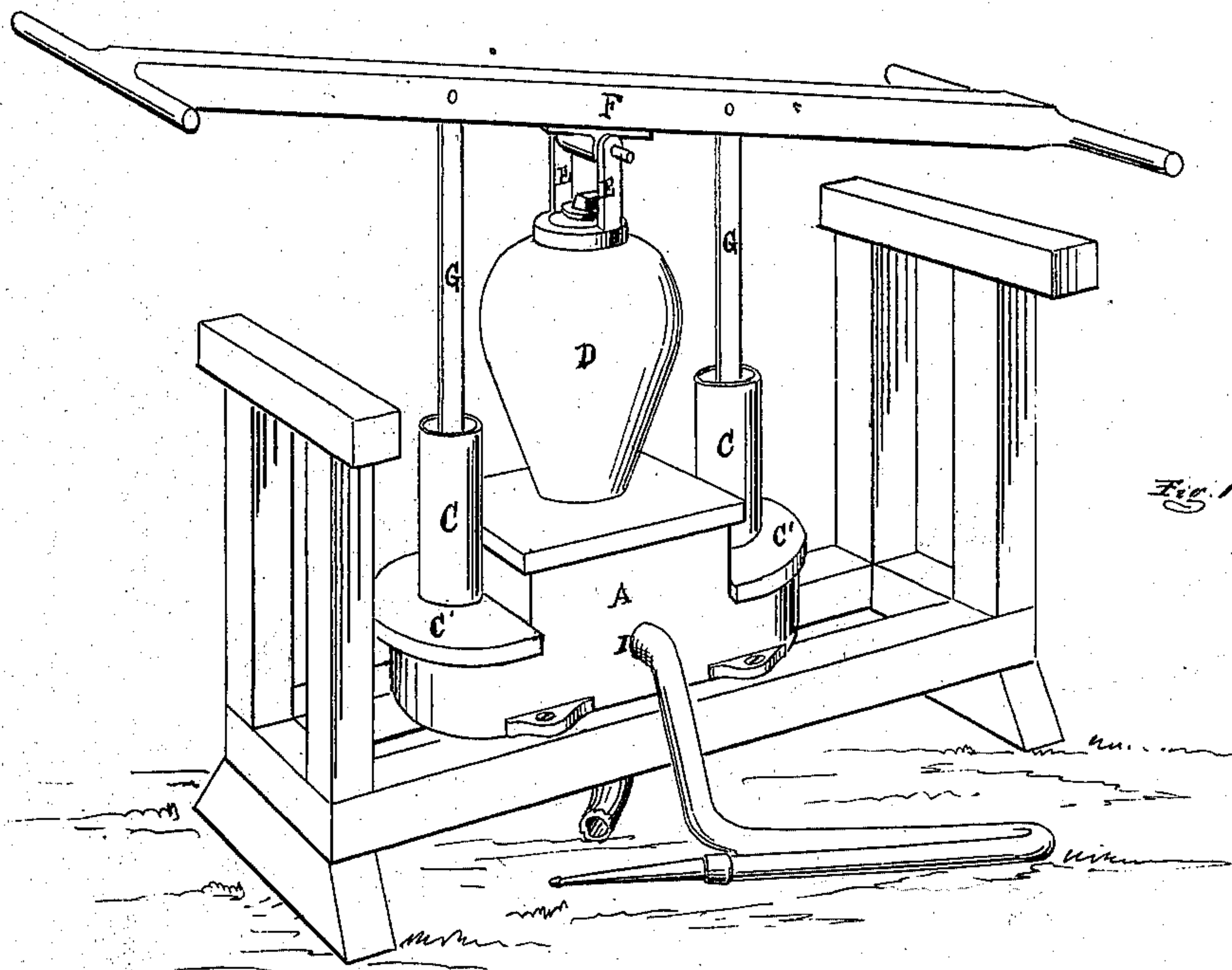


Fig. 1

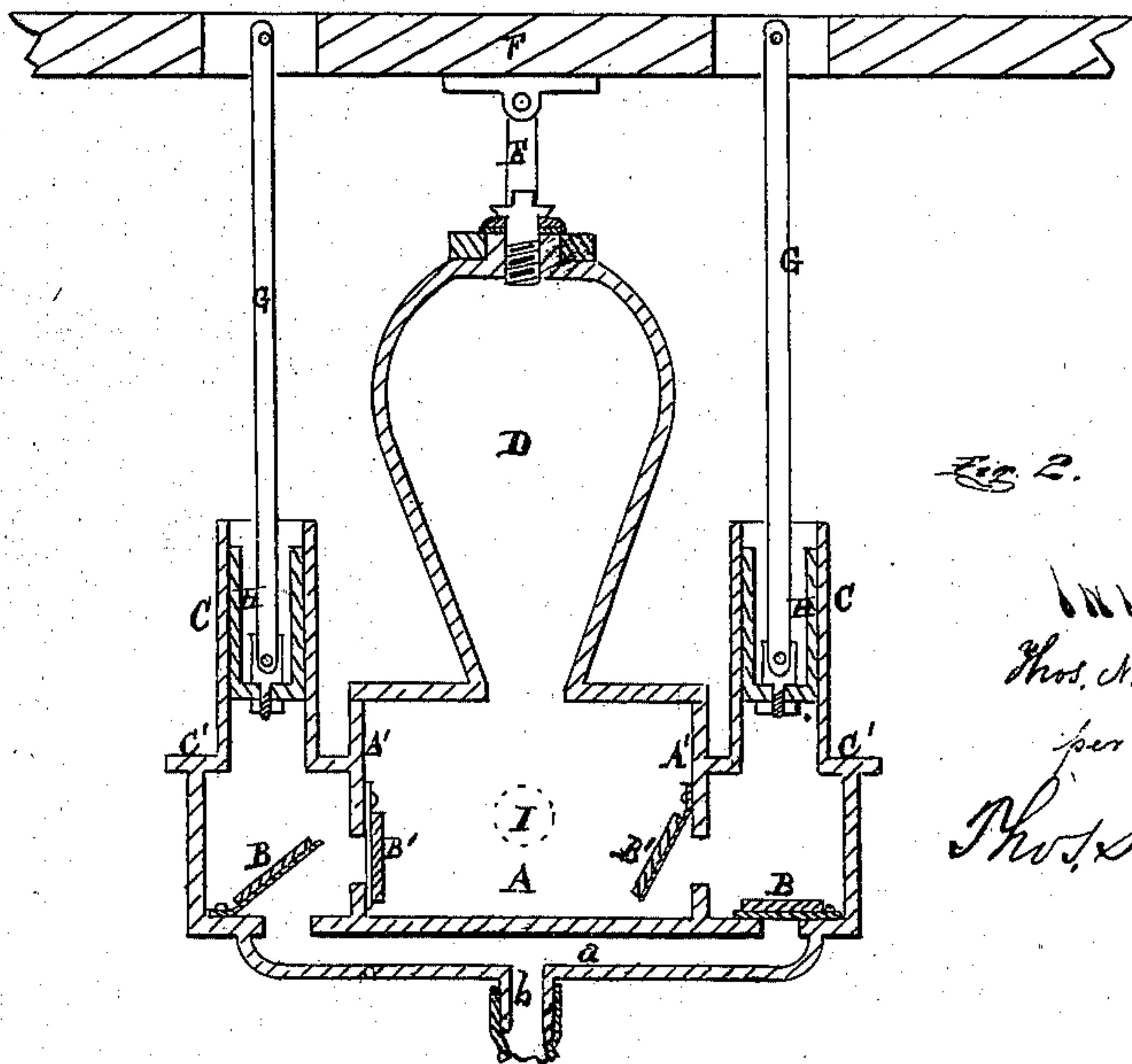


Fig. 2.

ATTEST:
H. P. Everts
J. H. Bowler

INVENTOR:
Thos. N. Henderson,
per attorney
Thos. S. Sprague

UNITED STATES PATENT OFFICE.

THOMAS N. HENDERSON, OF JACKSON, MICHIGAN.

IMPROVEMENT IN DOUBLE-ACTING PUMPS.

Specification forming part of Letters Patent No. **131,952**, dated October 8, 1872.

To all whom it may concern:

Be it known that I, THOMAS N. HENDERSON, of Jackson, in the county of Jackson and State of Michigan, have invented a new and useful Improvement in Double-Acting Pumps; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a perspective view of my improved pump; and Fig. 2 is a longitudinal vertical section through the pump-cylinders and base-chambers.

Like letters refer to like parts in each figure.

This invention relates to an improvement in the construction of that class of force-pumps in which are employed two alternately-acting plungers; and has for its object to simplify the construction and cheapen the cost of such pumps. The invention consists in the peculiar construction of the valve-chambers and passages, and the arrangement with relation thereto of the valves, as more fully hereinafter set forth.

In the drawing, A represents a chamber cast with a bottom to it, in which bottom a water-way, *a*, is cored in molding it, projecting from the under surface like a rib, and which also serves to strengthen the bed-plate or bottom. This water-way is cast with a branch or T, *b*, to which the suction is attached. It opens into the chamber at each end, and over each opening is hinged an ordinary clack-valve, B, which forms a foot-valve for its plunger. Across the chamber is cast a partition or diaphragm, A', near each end, to separate those parts which contain the foot-valves from the body of the chamber. C C are the cylinders, each of which is cast with a flange, C', at the lower end, which is bolted to and forms a cov-

er for the foot-valve chamber. D is an air-chamber cast with a flanged bottom, which is bolted to and forms a cover for the central compartment of the chamber A. A yoke-standard, E, is bolted to the top of the chamber D, to which standard is pivoted a brake, F, to which are pivoted the upper ends of the connecting-rods G, whose lower ends are pivoted in the bottoms of the hollow plungers H, reciprocated in the cylinders C by the vibrations of the brake. The diaphragms A' are perforated, and over their openings, on the inner sides, are hung the clack-valves B' B', opening inwardly. I is the discharge-outlet, in one side of the central compartment.

It will be seen that by removing the cylinders the foot-valves will be exposed, and by taking off the air-chamber the delivery-valves are exposed. In pumps of large size hand-hole-plates may be placed in the end and side walls of the chambers for that purpose. No "facing" of the valve-seats or joints is required in this pump, the covers of the chambers being put on over gaskets.

It is evident that the passages are large and free, and the foot and delivery-valves placed so close together that they will act promptly in opening and closing, while for simplicity and cheapness of construction it is believed to be unequalled.

What I claim as my invention, and desire to secure by Letters Patent, is—

The chamber A, cast with the water-way *a* projecting below the bottom to form a strengthening-rib, and perforated diaphragms A' A', and the arrangement with relation thereto of the valves B B' B' B', as shown and set forth.

THOMAS N. HENDERSON.

Witnesses:

H. F. EBERTS,
J. W. BOWLER.