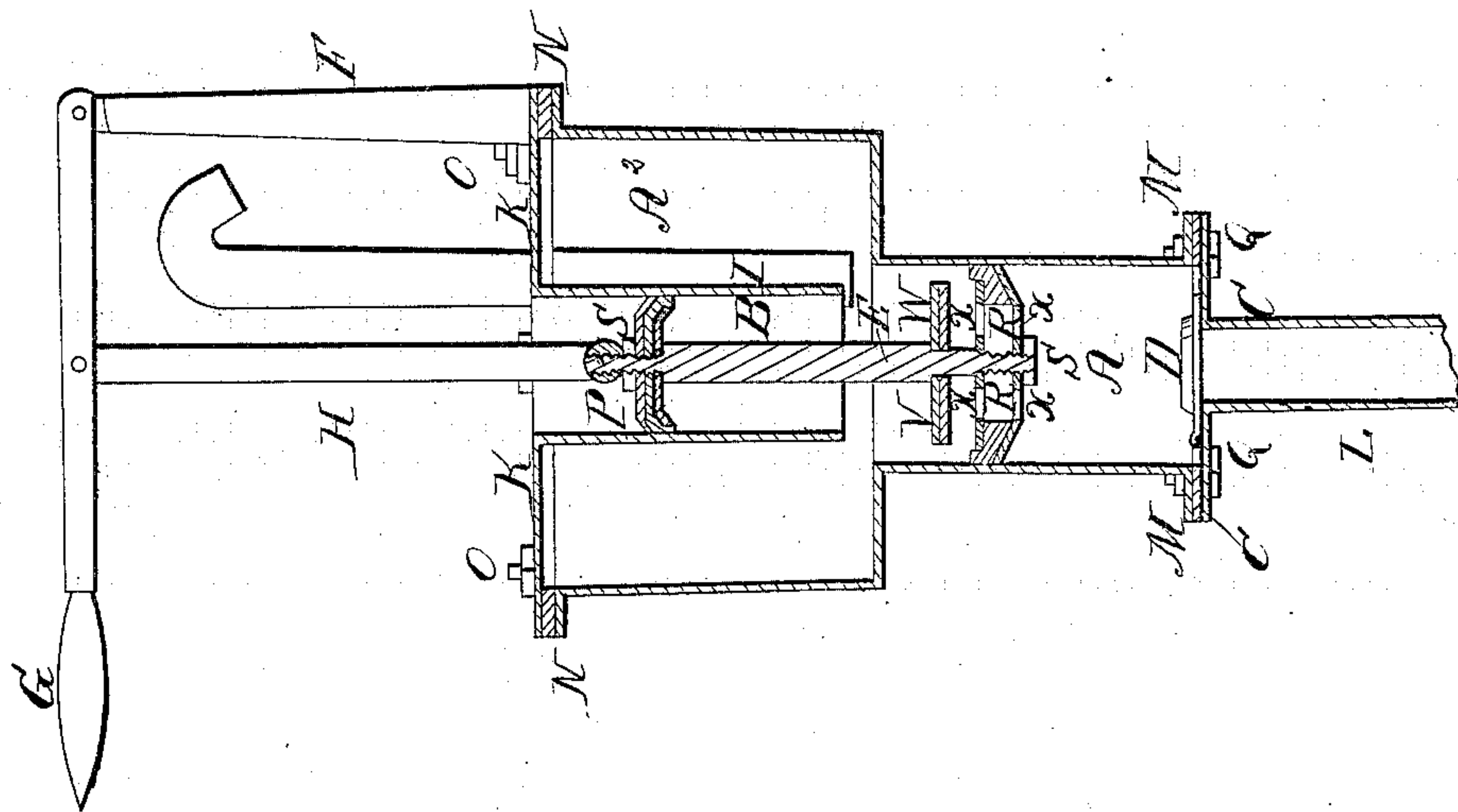
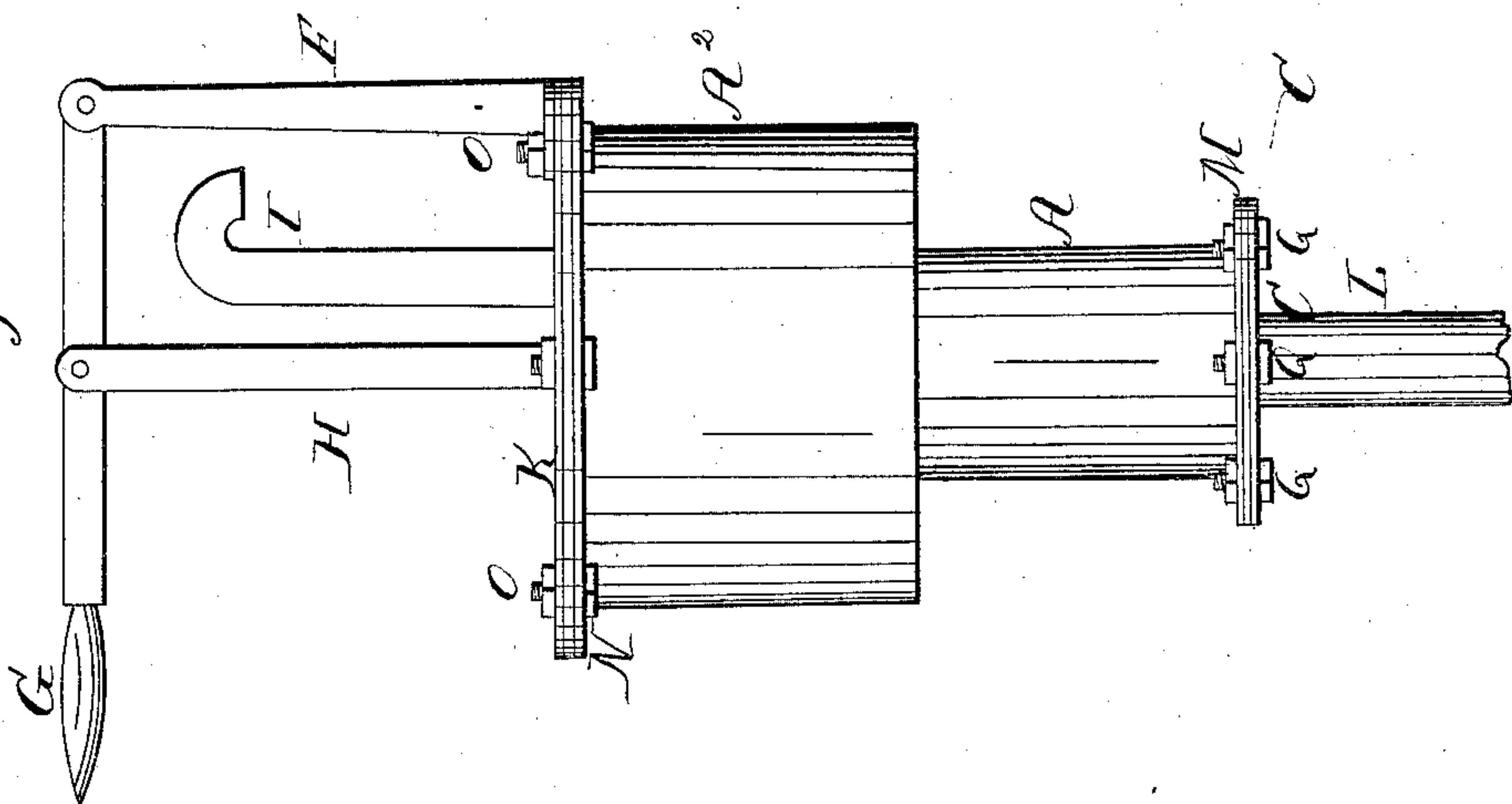


*C. Warner,*  
*Force Pump,*  
*Nº 2,350, Patented Nov. 10, 1841.*

*Fig: 2.*



*Fig: 1.*



# UNITED STATES PATENT OFFICE.

CHAPMAN WARNER, OF LEXINGTON, KENTUCKY.

## CONSTRUCTION OF PUMPS.

Specification of Letters Patent No. 2,350, dated November 10, 1841.

*To all whom it may concern:*

Be it known that I, CHAPMAN WARNER, of the city of Lexington, in the county of Fayette and State of Kentucky, have invented a new and useful Improvement in Suction, Lifting, and Forcing Pumps, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the exterior of the pump. Fig. 2 is a vertical section through the center of the same, showing the interior thereof.

Similar letters refer to corresponding parts.

The nature of this invention and improvement consists in combining two vertical cylinders of unequal diameters—the smaller one arranged above the larger one at a short distance therefrom leaving their axes coincident; with an air chamber of greater diameter than the lower cylinder formed on the upper end of said lower cylinder and surrounding the upper cylinder whose flange forms the top thereof covering the space between the outside small cylinder and the inside of the air cylinder—with a spout passing down through said flange to near the bottom of the air chamber—having two pistons on a single piston rod moved by a connecting rod and lever—one of which pistons is solid and moves in the upper or smaller cylinder for forcing and the other which works in the lower or larger cylinder is perforated for the passage of the water through the same, is for lifting the water and also for making a vacuum in the larger cylinder, into which the water rises through a lower valve placed at the bottom of said larger cylinder and also at the top of the pipe leading to the well of water.

The air chamber A<sup>2</sup> and lower cylinder A are in one piece—the diameter of the latter is less than the former—both have flanges M N to which are bolted the flanges K and C of the small cylinder B and of the pipe L. The flange K forms the top of the air chamber A<sup>2</sup> and projects outward from the upper end of the small cylinder B. The flange C forms the bottom of the lower cylinder A and projects from the upper end of

the pipe L leading to the well of water. This flange also forms the valve seat for the valve D. The flanges have suitable packing between them and are bolted together by bolts O Q. The small cylinder B is placed directly over the large cylinder A and is suspended at a short distance therefrom by the aforesaid broad flange K, and is open at both ends. A solid piston P works up and down in this cylinder.

A perforated piston R works in the large cylinder A. The water rises through the perforations X in this piston as it descends: and as it ascends these perforations X are closed by a valve V which drops over them when it lifts the water. This valve rises and falls alternately as the piston rises and falls—moving loosely over a reduced part of the piston rod E on which a shoulder W is formed to prevent said valve from rising too high. Both pistons are fastened permanently to the rod E by nuts S S. The piston rod is connected to the lever G by a connecting rod H. The fulcrum of the lever is a post F placed in any convenient position. A flap valve D is placed at the bottom of the lower or larger cylinder A which opens to admit the water on the ascent of the piston and closes to prevent its escape on the descent of the piston. A spout I through which the water is discharged extends from near the bottom of the air chamber through its top to any convenient height.

In the operation of this pump as the pistons rise a partial vacuum is formed in each cylinder into which the water instantly rises—the piston R also lifting the water above it and forcing one half the quantity admitted at a single stroke and forcing it through the spout I—the other half rising into the small cylinder B—and as the pistons descend the said half of the quantity of water in cylinder B is forced through the spout I. The valve D being at the same time closed while the piston R descends into the water in the large or lower cylinder A by the rising of the valve V which opens the perforations X in said piston and which, on the rising of said piston are again closed by said valve V when said piston R will lift the water above it as before described.



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

The manner of combining the two cylinders A and B of unequal size with an air  
5 chamber A<sup>2</sup> having a spout I so as to produce, by means of two pistons, arranged as set forth, an equal discharge of water at the

upward and downward stroke, or nearly so, substantially as above described.

CHAPMAN WARNER.

Witnesses:

BENJ. WARNER,

WILLIAM OBERHÜBMANN.