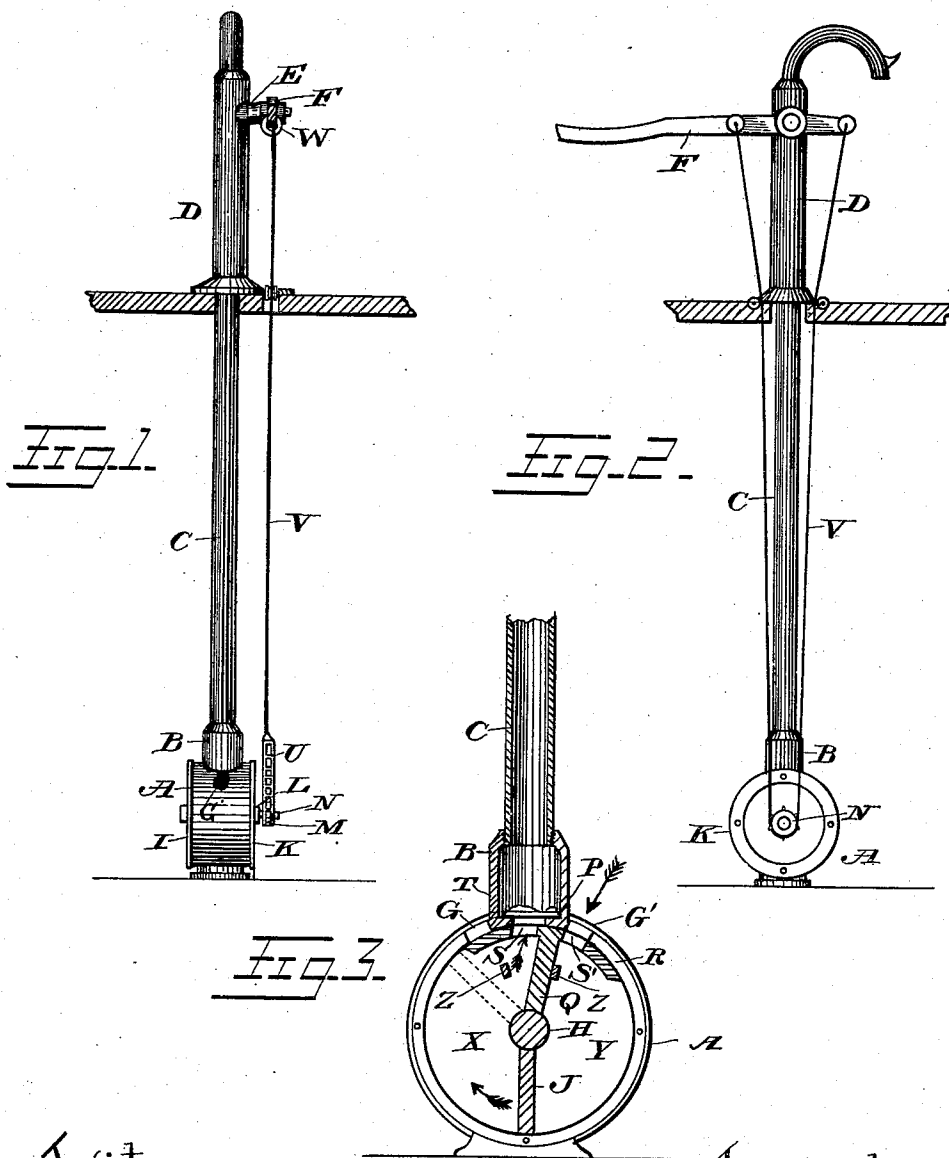


(No Model.)

H. D. B. WILLIAMS.
PUMP.

No. 572,782.

Patented Dec. 8, 1896.



Witnesses

H. P. Moore.

H. P. Moore

Inventor

Hubbard D. B. Williams

by *Thomas E. Barrow*,
Att'y

UNITED STATES PATENT OFFICE.

HUBBARD D. B. WILLIAMS, OF MANSFIELD, OHIO, ASSIGNOR OF THREE-FOURTHS TO ARNOLD KALLMERTEN AND CARL F. GRUENINGER, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 572,782, dated December 8, 1896.

Application filed May 18, 1896. Serial No. 591,897. (No model.)

To all whom it may concern:

Be it known that I, HUBBARD D. B. WILLIAMS, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in pumps of the class known as "double-acting submerged force-pumps;" and the objects of my invention are, first, to provide a pump for wells or cisterns having a rotary reciprocating movement to the forcing mechanism; second, to so construct and arrange the working parts that it will throw water at the upward as well as the downward stroke of the pump-handle; third, to make a novel, cheap, durable, and efficient means for the purpose stated.

In the accompanying drawings, Figure 1 is a rear elevation of my improved pump, showing the same in position for operation. Fig. 2 is a side elevation of same, showing more fully the connection from the handle to the pump-cylinder. Fig. 3 is a vertical sectional view of the cylinder, interior construction enlarged, showing the same more fully.

Similar letters refer to similar parts throughout the several views.

In the accompanying drawings, A indicates a cast cylinder or case provided upon its upper edge with the threaded joint or connection B. The said sleeve may be attached to or form part of the case, the upper end reduced to conform to the size of the discharge-pipe C. The length of the pipe is governed according to the depth of the cistern or well. The upper end of the discharge-pipe is secured within the threaded opening in the lower end of the pump-stock D. This may be of any design.

E indicates a stud cast to or attached to the pump-stock, and upon the same is pivoted the handle F.

The case A is provided with two inlet-ports G and G' to admit the water into the case. The said ports are formed within the rim of the case, one upon each side of the sleeve B.

H indicates a shaft, one end having a bearing in the center of the head I. The said shaft is provided with the downwardly-projecting wing or blade J. The said blade fits the inner periphery of the case, also the inside of the heads I and K. The shaft H extends through the center of the head K and is provided with a stuffing-box L to prevent leakage.

N indicates a sprocket-wheel secured rigid upon the end of the shaft H.

P indicates a valve, the vertical arm Q concave upon the lower end to conform to the diameter of the shaft, the horizontal arm R curved to conform to the inner wall of the case. The said arm is provided with ports S and S'. The ports are so placed that they conform with the inlet-port G', also the discharge-port into the discharge-pipe through the tongue-valve T.

U indicates a sprocket-chain which engages with the sprocket-wheel, the ends connected to a rod or wire cord V, the upper ends connected to the pump-handle by clevises W or any other suitable attachment at an equal distance upon each side of the pivot of the pump-handle. I do not desire, however, to strictly limit myself to the specific devices herein shown and described for oscillating the movable wing-like piston in the cylinder, as I am aware that equivalent devices for those shown and described may be supplied by a skilled mechanic without departing from my invention.

The valve is limited in its movement by the stops or abutments.

When the pump is placed in position in the cistern or well, as shown in Figs. 1 and 2, the case resting upon the bottom, the case is submerged in the water.

I have shown in the drawings the wing J and valve P in their positions at the upward stroke of the pump-handle F, the wing moving as indicated by the arrow. The port S is now in line with the inlet-port G', the inlet-port G being closed, the port S in line with

the discharge into the sleeve B. It will be readily seen by those skilled in the art that the water within the compartment X, by the forward movement of the wing J, is forced from the compartment into the pipe C. At the same time the compartment Y is filling through the port G'. A downward movement of the handle compresses the water within the compartment Y sufficiently to move the valve P, closing the port G' and opening the port G. The port S' is then in line with the discharge-port. The port S is then in line with the port G, taking water at the rear of the wing.

I have shown a tongue-valve for closing the discharge-opening; but a ball may be used for the said purpose.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pump, the combination of a circular casing provided with inlet-ports situated on opposite sides of a vertical line drawn centrally through said case, an eduction-pipe leading from said case at a point between the inlet-ports thereof and having an upwardly-opening check-valve, a shaft journaled centrally in the case and carrying a wing-like piston arranged to oscillate within said case, a regulator-valve Q, R, fitted to play loosely within the upper part of said case and consisting of the depending member Q which rests upon said shaft and the segmental member R fitted against the circular part of the

casing and provided with ports adapted to coincide alternately with the inlet-ports of the case and with the outlet-port to the eduction-pipe, and means for oscillating the central shaft, as and for the purposes described.

2. In a pump, the combination with a circular casing having spaced inlet-ports G, G', a valved eduction-pipe connected to said case at a point between said inlet-ports, and a central transverse shaft journaled in the case and carrying a wing-like piston, of a regulator-valve fitted loosely in said case and exposed to the impact of the escaping liquid to be swayed back and forth in the case as the liquid is forced from the chambers X, Y, said valve comprising the connected members Q, R, of which the member Q is fitted loosely on the central shaft, and the member R is of segmental form and fitted against the circular casing over the inlet-ports therein, said segmental member having outlet-ports S, S' each adapted to coincide alternately with an inlet-port and with the port to the eduction-pipe, and the stops Z, Z, fixed in the casing on opposite sides of the valve member Q to limit the oscillating play of the valve, as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

HUBBARD D. B. WILLIAMS.

Witnesses:

L. J. MCCROY,
PETER GRABLER.