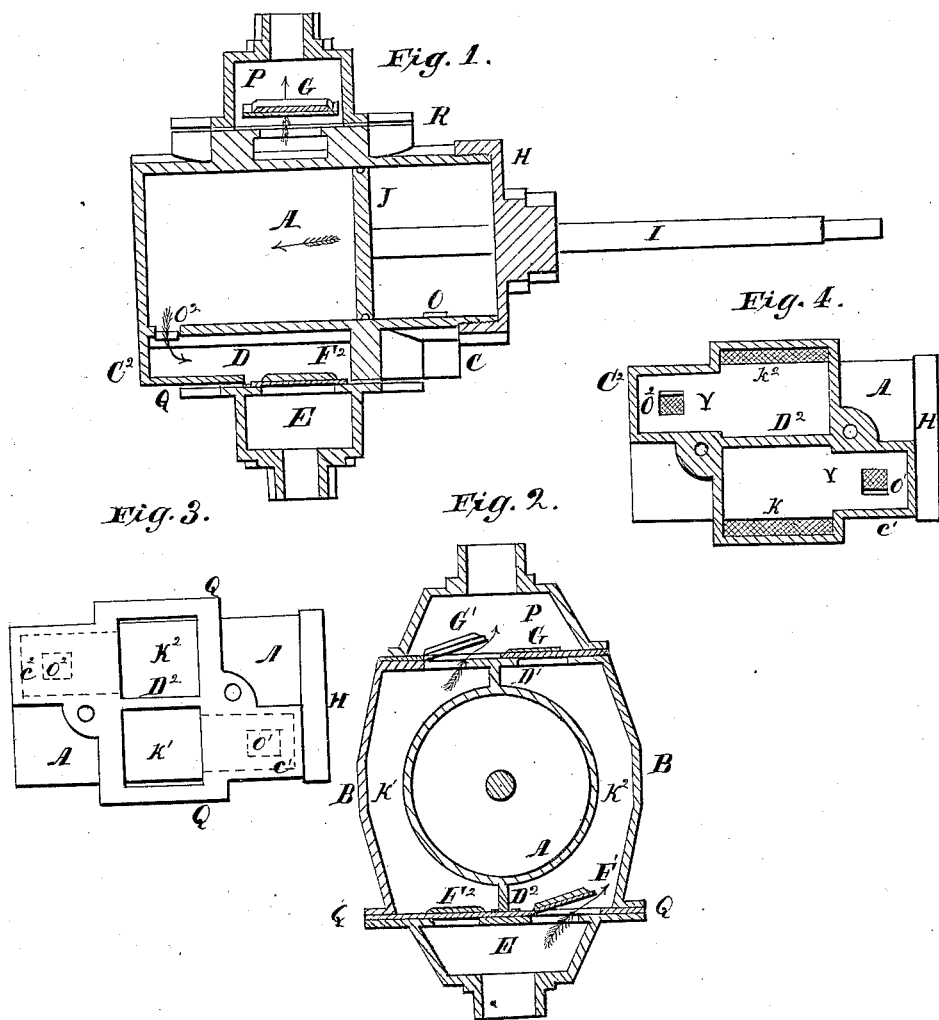


J. Farnam,
Force Pump.
N^o 2,370. Patented Nov. 16, 1841.



UNITED STATES PATENT OFFICE.

JOEL FARNAM, OF STILLWATER, NEW YORK.

MODE OF CONSTRUCTING PUMPS.

Specification of Letters Patent No. 2,370, dated November 16, 1841.

To all whom it may concern:

Be it known that I, JOEL FARNAM, of Stillwater, in the county of Saratoga and State of New York, have invented a new and useful Improvement in Double-Acting Horizontal Pumps for Raising and Forcing Water, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a vertical longitudinal section. Fig. 2 is a vertical transverse section. Fig. 3 view of the under-side of the pump turned up—the cup being removed in order to show the apertures in the bottom plate. Fig. 4 horizontal section of ditto.

Similar letters refer to corresponding parts.

This improved pump consists of a horizontal cylinder A cast solid at one end and closed at the other end by a circular head H screwed or bolted to the cylinder, through the center of which the piston rod I passes—the piston J working in said cylinder having two chambers K¹ K² formed around its outer surface divided or separated from each other at the center above and below the cylinder by partitions D¹ D² into which chambers the water is alternately raised by the alternate movement of the piston said chambers K¹ K² having a communication with the cylinder by means of two tubes or trunks Y made in castings C¹ C² cast on the bottom of the cylinder—and two small openings O¹ O² made in the bottom of the cylinder, one of said opening O² being near the solid end of said cylinder, and the other O¹ near the end of the cylinder closed by a screw cap. The bottom plate Q of said chambers having two rectangular openings for two valves F¹ F² fastened to the lower cup E opening upward into the chambers one on each side of the lower partition D² for the admission of the water passing through the cup E bolted to the underside of plate Q to the top plate of which cup the aforesaid valves F¹ F² are attached and to which the conducting tube is fastened; said valves shutting off the return of the water at the return stroke of the piston by dropping down on said top plate of the cup. And the upper plate R of said chambers having two valves G¹ G² opening upward into an upper or discharging cup P into which the

water is forced said valves shutting down upon top plate R and preventing the return of the water at the reverse movement of the piston; to which cup the discharging tube is affixed. The aforesaid communicating tubes or trunks Y leading from the outside chambers K¹ K² to the interior of the cylinder A being formed in two projections or castings C¹ C² as before stated cast on the under side of the cylinder diagonally opposite each other one on the right of the lower partition D² next the solid end of the cylinder and the other on the left of said partition D¹ next the end of the cylinder closed by the cap H.

As the piston moves toward the solid end of the cylinder the water is forced to follow it by the atmospheric pressure, passing through valve F¹ Fig. 2 (not seen in Fig. 1 being in the chambers on the opposite side of cylinder) and through the tube or trunk Y into the cylinder through the aperture O¹ while the piston forces the water in the cylinder next the solid end through the opening O² back into the chamber K¹ and up through the valve G¹ into the discharging cup P; at the same time closing the valve F² over the receiving cup E on one side of the lower partition D² and opening the valve F¹ in chamber K² and closing valve G² of the cup P, which, on the return of the piston is opened to allow the water to escape from the end of the cylinder next the screw cap H while the corresponding valve F¹ over the receiving cup is closed to prevent the return of the water through said cup and its escape at any other place except through said valve C² and in this manner a double action is kept up as the piston moves back and forth—the aforesaid pump being cast in one piece except the screw cap, piston, valves, and cups.

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

Combining the receiving and discharging cups E and P with each other and with the cylinder A by means of a double chamber connected by trunks with the cylinder as set forth—that is to say, constructing the pump with a chamber K around the outside of the cylinder, divided by partitions D said chamber communicating with the cup E and P and also with the cylinder A at either end by two tubes or trunks Y formed in arms or projections C cast on the under

side of the cylinder, one next the solid end
of the cylinder on the right of the lower
partition, and the other next the end of the
cylinder closed by the screw cap, on the left
5 of the said partition—both being for the
purpose of conducting the water to and
from the cylinder through the chambers

K¹ K² at the alternate backward and forward stroke of the piston J as described.

JOEL FARNAM.

Witnesses:

WM. P. ELLIOT,
EDW. MAHER.