

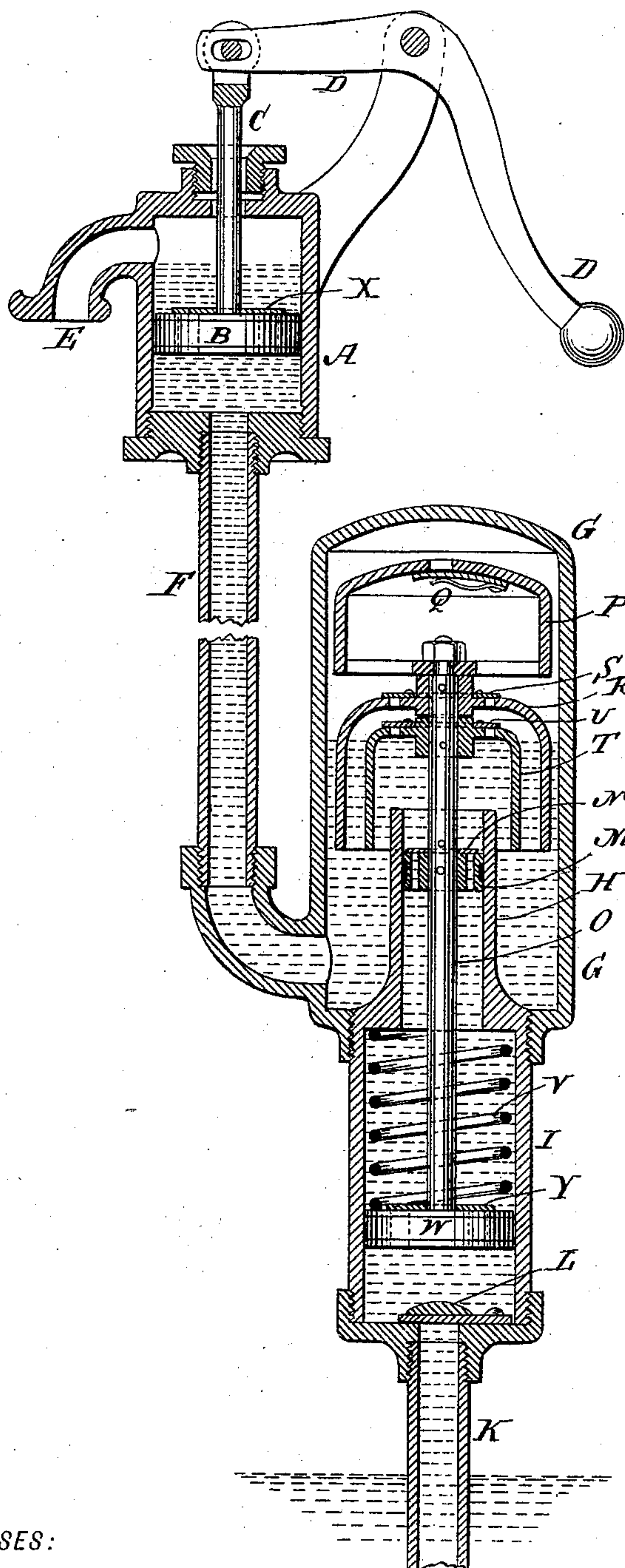
(No Model.)

W. J. HEARN.

PUMP.

No. 376,382.

Patented Jan. 10, 1888.



WITNESSES:

Eduard Wolff
William Miller

INVENTOR

William J. Hearn.

BY *Van Santvoord & Hauff*
his ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM J. HEARN, OF NEW YORK, N. Y.

PUMP.

SPECIFICATION forming part of Letters Patent No. 376,382, dated January 10, 1888.

Application filed April 21, 1887. Serial No. 235,656. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. HEARN, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to an improvement in pumps, as set forth in the following specification and claim, and illustrated in the accompanying drawing, which represents a vertical central section of a pump.

In the drawing, the letter A indicates a barrel, in which works a piston, B. The piston-rod C communicates with an actuator, such as a lever, D. The descent of the piston B allows water or liquid to pass through the upwardly-opening valve X of the piston, and the ascent of such piston closes the valve X and forces the liquid which has collected above the piston B out through the discharge-opening E. The barrel A communicates, by means of a pipe, F, with a vessel or chamber, G. In the chamber G rises a tube or pipe, H, for a certain distance, and said tube H communicates with a lower chamber, I. From the lower chamber, I, a pipe or tube, K, leads to the fluid which is to be pumped. An upwardly-opening valve, L, sits over the upper mouth of the pipe K.

In the pipe H slides a piston, M, having an upwardly-opening valve, N. The piston M is connected to a rod, O. To the rod O are secured chambers or cups T R P, which are open at their lower portions. The upper portions of the cups T R P are closed by upwardly-opening valves U S. The upper portion of the cup P is closed by a downwardly-opening valve, Q. The valve Q is made in the form of a spring-valve or equivalent device, so that the valve Q in its normal position is closed.

A piston, W, is secured to the rod O. Said piston W slides in the lower chamber, I, and is provided with an upwardly-opening valve, Y. A spring, V, secured to the piston W and to a fixed part of the device, holds said piston, with the rod O and the various parts secured to said rod, in position, while leaving said parts free to yield in one direction or another on any strain being brought to bear on any of said parts. When the piston B is raised, the water at the top of the piston B is forced out of the spout E. The rise of the piston B causes water or fluid to pass out of the chamber G into the pipe F and into

the barrel A to fill the vacuum caused in the lower part of the barrel A by the rise of the piston B. As fluid passes out of the chamber G, the vacuum caused in said chamber G will be filled by fluid passing through the pipe K and the valves L, Y, N, U, and S into the chamber G. Any water or fluid that should spout through the valve S will strike against the cup P, and will be thrown by said cup to the lower part of the chamber G. Any fluid or pressure that should exist at the upper part of the chamber G is free to pass to the lower part of said chamber through the downwardly-opening valve Q, and also past the sides of the cup P, which are some distance from the sides of the chamber G.

The advantage of the various parts W, M, T, R, and P is that the water in striking against any of said parts will cause a yielding of said parts or of the spring V, carrying said parts, so that the water in passing from the tube K will not strike any fixed part of the machine; also, the yielding of the rod O back and forth as the water or fluid presses upon the parts W, M, T, R, and P will cause an oscillating or pumping action of said parts with their valves, which pumping action assists the pumping action of the piston B.

If desired, the cup P and one of the cups T R may be omitted; but I prefer to have said cups, as said cup P prevents water which spouts through the valves U S from striking against the chamber G and as the cups T R supplement or assist one another in securing motion of the rod O.

What I claim as new, and desire to secure by Letters Patent, is--

The combination, with a suction-tube, K, a barrel, A, and piston B, and suitable valves for said parts, of an upper chamber, G, communicating with the barrel A, a lower chamber, I, a tube, H, extending from the lower chamber into the upper chamber, a valved piston, M, in said tube H, and a spring-pressed rod, O, secured to said piston M, said rod being provided with a valved piston, W, and with a cup, substantially as set forth.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

WM. J. HEARN. [L. S.]

Witnesses:

W. C. HAUFF,

E. F. KASTENHUBER.