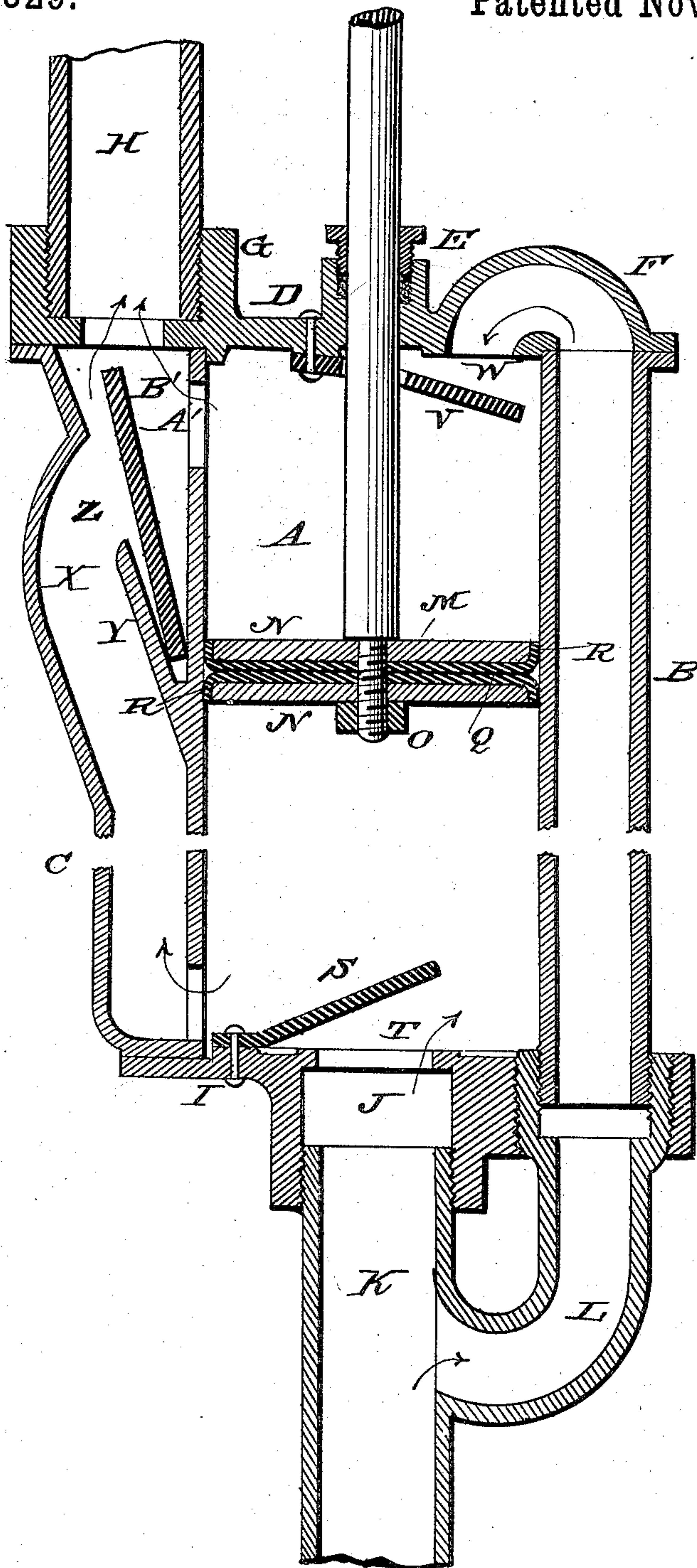


(No Model.)

A. J. HOPKINS.
DOUBLE ACTING PUMP.

No. 330,329.

Patented Nov. 10, 1885.



WITNESSES:

Fred. L. Dietrich,
 Printer.

INVENTOR.

INVENTOR.
Andrew J. Hopkins
by *Louis Ruggert & Co.*
ATTORNEYS.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ANDREW J. HOPKINS, OF ROCHESTER, NEW YORK.

DOUBLE-ACTING PUMP.

SPECIFICATION forming part of Letters Patent No. 330,329, dated November 10, 1885.

Application filed May 23, 1884. Serial No. 133,092. (No model.)

To all whom it may concern:

Be it known that I, A. J. HOPKINS, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Double-Acting Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, which forms a part of this specification, and in which the figure represents a vertical sectional view of my improved double-acting force-pump.

My invention has relation to double-acting force-pumps; and it consists in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawing, the letter A indicates the pump-cylinder proper, from the sides of which two tubes or chambers, B and C, project diametrically opposite to each other, extending from the top to the bottom of the barrel or cylinder, and preferably cast integral with the same.

D is the head of the pump-barrel, and is provided with a central stuffing-box, E, through which the piston-rod passes with a U-shaped elbow, F, opening through the head and opening into the upper end of the suction pipe or chamber B, and with a socket, G, opening into the upper end of the discharge pipe or chamber C, and adapted to receive the outlet-pipe H, which conveys the water or other fluid to its destination.

I is the bottom of the pump-barrel, which forms a socket, J, for the upper end of the suction-pipe K, and a curved branch pipe, L, opening into the socket and into the lower end of the suction-chamber, connecting the latter with the suction-pipe.

M is the piston, which consists of two plates or disks, N N, secured together by a nut, O, fitting upon the lower end of the piston-rod P, which passes through the centers of the disks, and two disks, Q, of leather, rubber, or similar material, having their edges projecting beyond the edges of the metallic disks, are clamped between the said disks and have their edges

folded over the edges of the metallic disks, forming packing-flanges R, which will be forced by the fluid in the pump to bear against the sides of the barrel, forming a perfectly tight packing. The piston-rod is preferably solid, and its upper end is screwed into the lower end of the upper tubular portion of the rod, which extends to the pump handle or lever or other means for operating the pump. The lower suction-valve, S, is secured to the bottom of the barrel, playing upon a seat, T, around the opening of the socket in the bottom, and the upper suction-valve, V, is secured to the head of the pump-barrel, has a perforation, U, through which the piston-rod plays, and plays with its outer free portion upon the upper valve-seat, W, which is formed upon the inner side of the head at the end of the U-shaped elbow in the same. As the valve V is attached to the under side of the cylinder-head on one side of the aperture through which the piston-rod plays, with its free end projecting under the seat W on the opposite side of its point of attachment, it follows that the piston-rod will, as it works up and down, in a measure operate by friction to actuate valve V, and thus aid in securing its prompt and efficient operation.

The discharge-chamber C opens into the side of the barrel at the top and at the bottom, and forms at its middle, nearer to the upper end, an enlargement, X, which has a steep inclined partition, Y, projecting from and cast in one piece with the pump barrel or cylinder. At the upper end of this projection the chamber C is provided with an aperture, Z, and forms a valve-seat upon which, and a seat, A', formed upon the outer side of the upper discharge-opening in the barrel, the discharge-valve B' plays, the said valve being secured by its lower end at the lower end of the partition.

It will be seen that the two currents of fluid passing alternately through the discharge-apertures and alternately upon both sides of the discharge-valve will close the valve upon the aperture to be closed, forcing the valve against it; and it will also be seen that the packing-flanges upon the piston will be alternately forced against the sides of the barrel, forming a perfectly tight packing.

Having thus described my invention, I claim

and desire to secure by Letters Patent of the United States—

In a double-acting pump, the pump-barrel having an integral projection, Y, projecting
5 into the discharge-chamber on one side of the pump-barrel and dividing the same into an upper and a lower compartment connected by an opening, Z, at the end of the partition, said partition forming also a means of attachment
10 for the valve which plays in the discharge-

chamber, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

ANDREW J. HOPKINS.

Witnesses:

JOS. ANGSTADT,
J. B. BRANDT.