

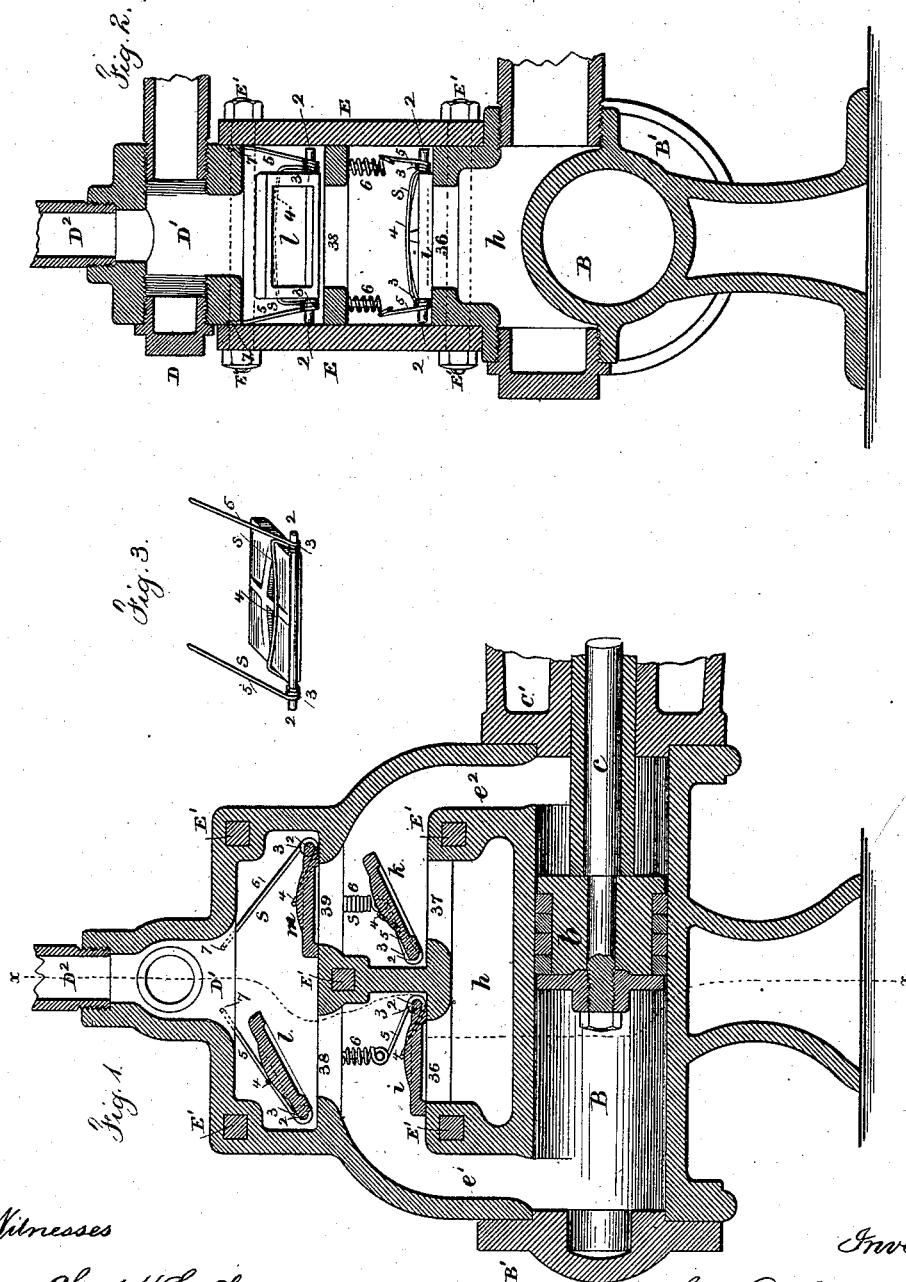
(No Model.)

L. B. CARRICABURU.

PUMP.

No. 303,702.

Patented Aug. 19, 1884.



Witnesses

Chas. H. Smith  
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Inventor

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# UNITED STATES PATENT OFFICE.

LEON B. CARRICABURU, OF NEW YORK, N. Y.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 303,702, dated August 19, 1884.

Application filed November 26, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, LEON B. CARRICABURU, of the city and State of New York, have invented an Improvement in Pumps, of which the following is a specification.

I employ spring-valves of a peculiar construction that lift from their seats as well as swing to an inclination, so as to allow the water to pass by freely. These valves do not require any hinge, and the seat is easily kept clean and free from foreign substances. The heads of the valve-chest are removable at either side to give access to the valves.

In the drawings, Figure 1 is a longitudinal section of the pump. Fig. 2 is a cross-section at the line *x x*, and Fig. 3 is a perspective view of one of the valves detached.

The cylinder B is provided with heads B' and C', and with a piston, *b*, and rod *c* of any desired construction. The inlet water-way *h* is formed below the valve-seats 36 and 37, and the ports *e'* and *e''* pass to the water-cylinder, and the seats 38 and 39 are above these ports and the inlet-valves *i* and *k*. The exit-valves *l* and *m* are upon said seats 38 and 39, and the top of the valve-chest is provided with the water-way D' to the delivery-pipe D<sup>2</sup>, which pipe may be connected at the top or at the side, or both. When only one delivery-pipe is used a stopper, D<sup>3</sup>, is to be inserted in the opening that is not made use of.

It is preferable that the seats and metal partitions of the respective water-ways be all cast in one with the water-cylinder; but the valve-chambers are open on both sides to allow for facing off the valve-seats and for entering or withdrawing the valves, and movable caps E, Fig. 2, are made use of, one at each side of the valve-chest, and said caps are secured by bolts E' that pass through the metal portions of the valve-chest, there being square holes for said bolts, so that they will not revolve, and the nuts are at both ends of the bolts to hold on the cap-plates E. By this construction either cap-plate that is most accessible can be taken off, and should a bolt break it can be driven out and another substituted.

It is preferable to make all the valves alike, and the peculiarity in the construction is that the valves are made to lift bodily from their seats, and also swing up at an inclination.

Valves have been made with guide-stems and also with springs to press them to place. Where the valve lifts bodily and is parallel to the seat, the water does not escape freely to the side where the greatest quantity passes to the port, and there is unnecessary detention to the water. Where the valve is hinged at one side it does not lift free from the seat, and any solid substance in the water is liable to be thrown upon the seat near the hinge, because there is not sufficient rush of water to prevent the same lodging. By my improvement the valve lifts entirely from the seat and assumes an inclined position, so that the water is not obstructed in its discharge all around the valve; but the greatest opening is in the direction of the greatest flow of water. To accomplish these objects I make use of trunnions 2 2 on the valve nearly in line with one edge, and I introduce spring valve-carriers S, having helices 3 that surround the trunnions 2, a bow, 4, passing across the back of the valve, and arms 5 that press against the valve-chest above the valve. These arms 5 may either terminate as helices or coils, as at 6, surrounding studs that depend from the under surfaces of the valve-chest, or else the ends may be bent at right angles and pressed into recesses in the edges of the partition in the valve-chest, as at 7 7. In either instance the end portions of the spring valve-carriers are held in place, and the spring of the carrier tends to press the valve to its seat; but when the water acts beneath the valve to open the same, the valve is raised bodily from its seat and assumes an inclined position, because the arms 5 yield to the pressure and the helices form axes for the trunnions to partially revolve in. When the pressure on the valve ceases the spring-carrier returns the same to its seat.

I claim as my invention—

1. The pump-valve having trunnions, in combination with a spring receiving the trun-

nions, and acting to close the valve, or to allow it to rise bodily from its seat, substantially as specified.

2. In a pump, a valve having trunnions extending out at the sides, in combination with a spring having coils around the trunnions, and arms that press upon the valve and chest, respectively, whereby the valve is kept in its

place by the spring and allowed to open and close, substantially as set forth. 10

Signed by me this 22d day of November, A. D. 1883.

L. B. CARRICABURU.

Witnesses:

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