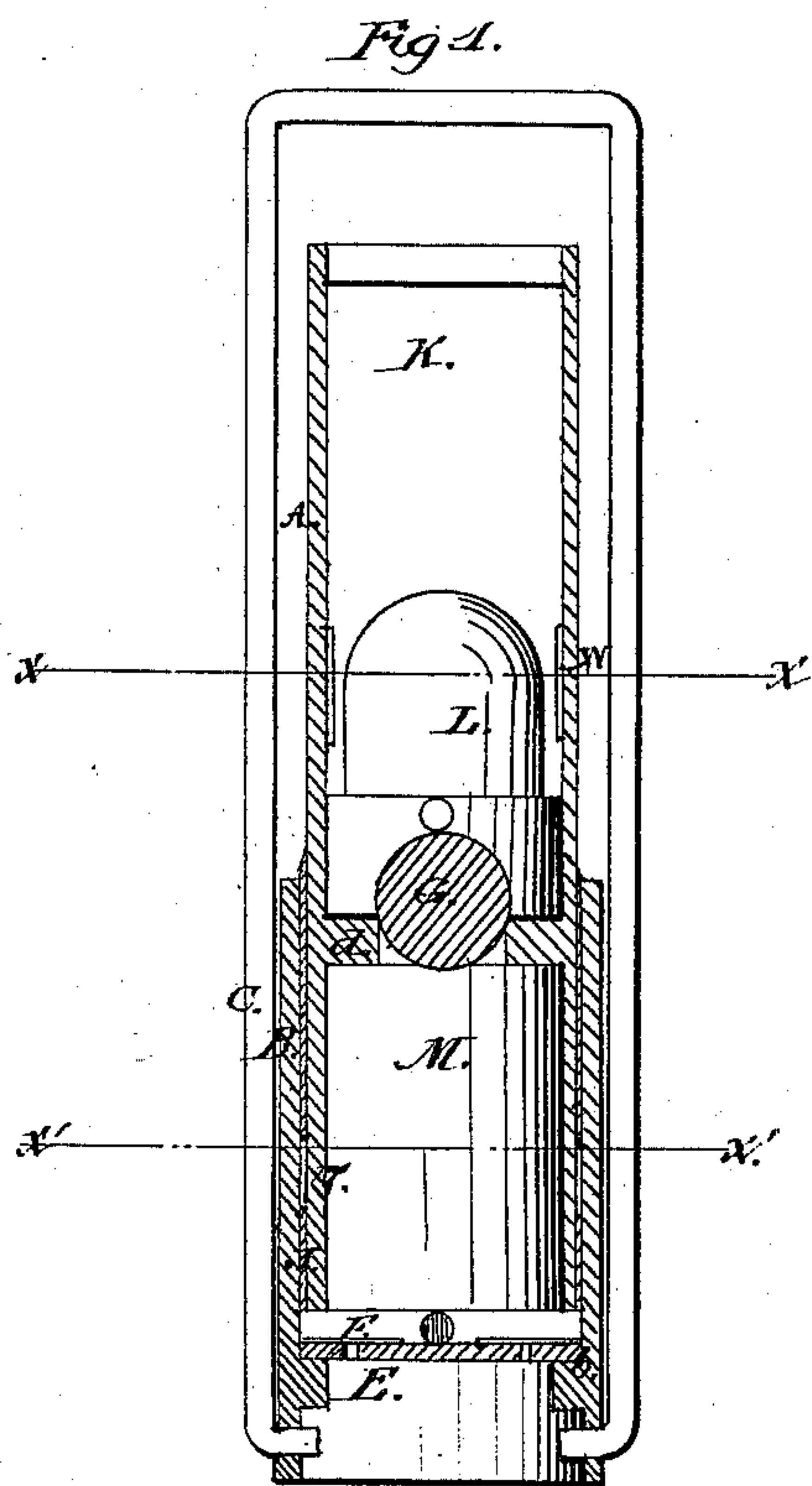
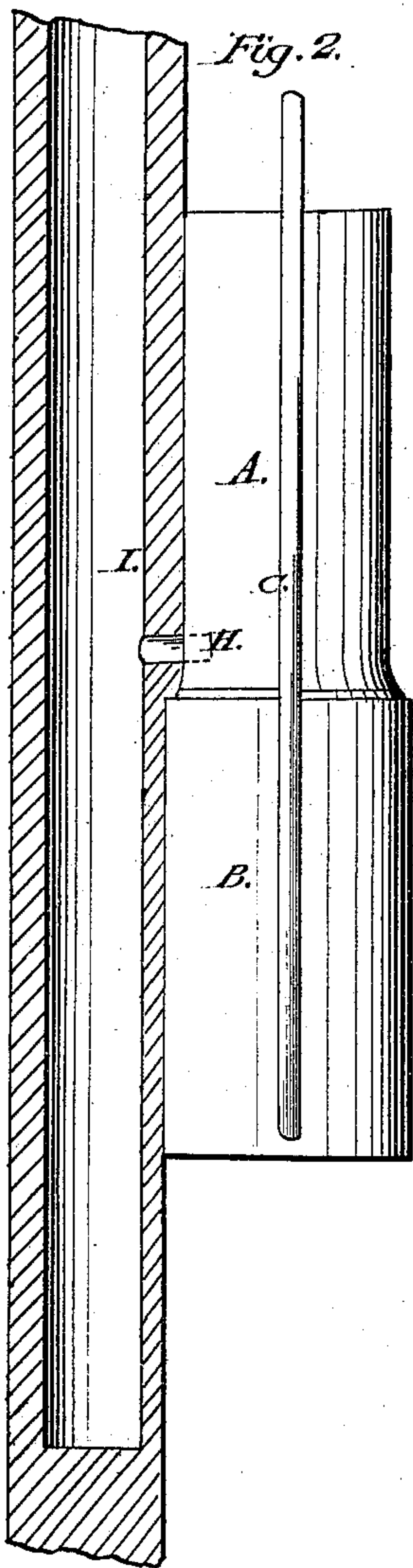
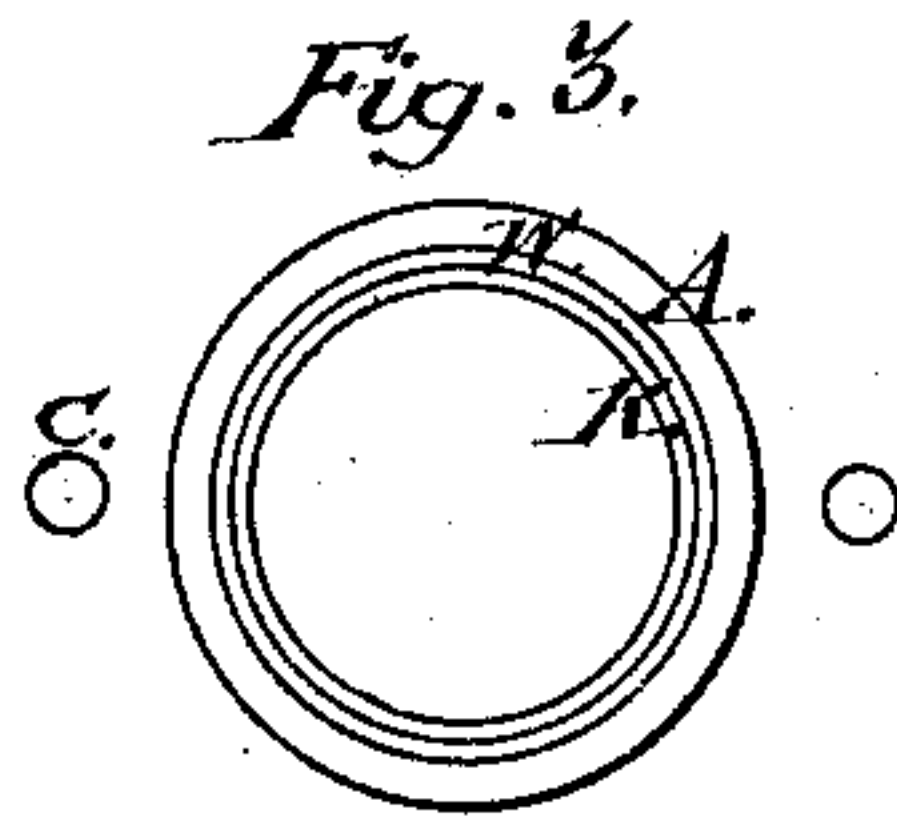
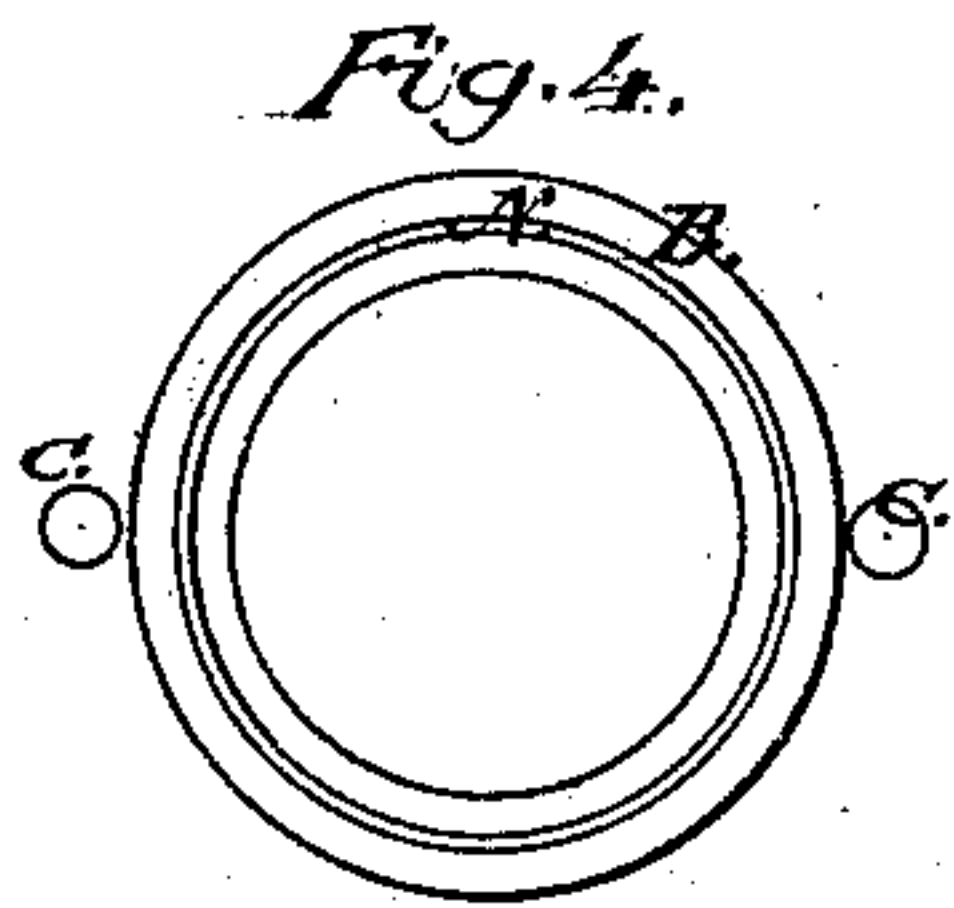


J. C. Crawford,
Pump.

No. 88552.

Patented Apr. 6. 1869.



Witnesses:
E. W. Woodruff.
E. W. Bobbe,

Inventor:
John C. Crawford,
by
Edw. Chapin
Attorney.



JOHN C. CRAWFORD, OF CLINTONVILLE, ILLINOIS.

Letters Patent No. 88,552, dated April 6, 1869.

IMPROVEMENT IN PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN C. CRAWFORD, of Clintonville, in the county of Kane, and State of Illinois, have invented an Improvement in Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, and letters marked thereon, in which—

Figure 1 is a vertical central section of the piston, detached from the pump-stock.

Figure 2 is an elevation of the piston, attached to the pump-stock.

Figure 3, a horizontal section, taken on the line xx , fig. 1.

Figure 4, a horizontal section, taken on the line $x'x'$, same figure.

The nature of the present invention consists of a three-part piston, the outer cylinder of which carries a valve, and has a reciprocating motion on an inner fixed cylinder, which has a valve, and a side opening, communicating with a pump-stock, to which it is attached. A plunger, being arranged to operate in the upper end of the fixed cylinder, rises with the influx of water, and, by its own weight, forces the water, which is in the chamber below it, into the pump-stock, when the lower valve is taking water, thus causing the pump to throw a continuous stream. Further, in the novel means employed to secure the packing to the stationary cylinder, and in other details hereinafter fully described.

B represents an iron cylinder, which may be made of any size, according to the quantity of water to be raised, and which has holes made through its lower end, for the convenience of fastening a connecting-rod, C, with which it is operated, very similarly to the operation of what is known as the ordinary bucket-valve.

A check-valve, E, fig. 1, consisting of a circular piece of leather, is strengthened with metal plates F, and is held in position, to operate on the seat b , by means of a rod, D, placed over the centre of the valve, and put through the shell of the cylinder.

Inside of cylinder B, is an inner cylinder, A, which has a seat, d , for a ball-valve, G, to rest on, and a pipe, or opening, H, figs. 1 and 2, communicating with a pump-stock, I, for discharging water; and around its periph-

ery, at N, is placed an ordinary ring-packing, which is held in place by a metal band, J, fig. 1, placed below the packing, and fastened to the shell A.

The cylinder, however, may be cast thick enough to make an annular groove for the packing, but, in this case, the packing would not be so likely to stay in place, as a continuous ring could not then be used, as it can when a removable band, J, is employed.

Inside of the cylinder A, and above the hole H, is a plunger, K, which rises with the influx of water, and, by its own weight, forces the water, which is above the valve G, through the opening H, while the valve E is taking water, thus causing the pump-stock to discharge a continuous stream.

Around the outside of this plunger is a suitable packing, W, to prevent water from escaping upward; and in its lower end is formed a water-chamber, L, of such size as will hold what water will pass through the opening H, while the lower chamber M is being filled.

By means of the shell around the chamber L, the packing W is placed so low down on the plunger, as to bring the bearing directly around the body to be moved.

This construction very materially lessens the amount of friction, and brings all of the wear on the packing, instead of the plunger.

The operation is very simple, requiring only that the cylinder A be clamped to a pump-stock, I, and the rod C given a vertical reciprocating motion, by means of an ordinary pump-handle, or lever, in the usual manner.

A reciprocating bucket-valve, B F, is not considered of itself new, but when it is used in combination with the other parts herein described, it is assumed there is both novelty and utility.

Having thus fully described my invention,

What I claim, and desire to secure by Letters Patent of the United States, is—

The plunger K, having a water-chamber, L, in its lower end, in combination with the cylinders A B, the cylinder A being provided with a side opening, H, for conveying water into a pump-stock, I, and having a packing, N J, as and for the purpose herein set forth.

JOHN C. CRAWFORD.

Witnesses:

C. H. WOODRUFF,
E. W. BOLLES.