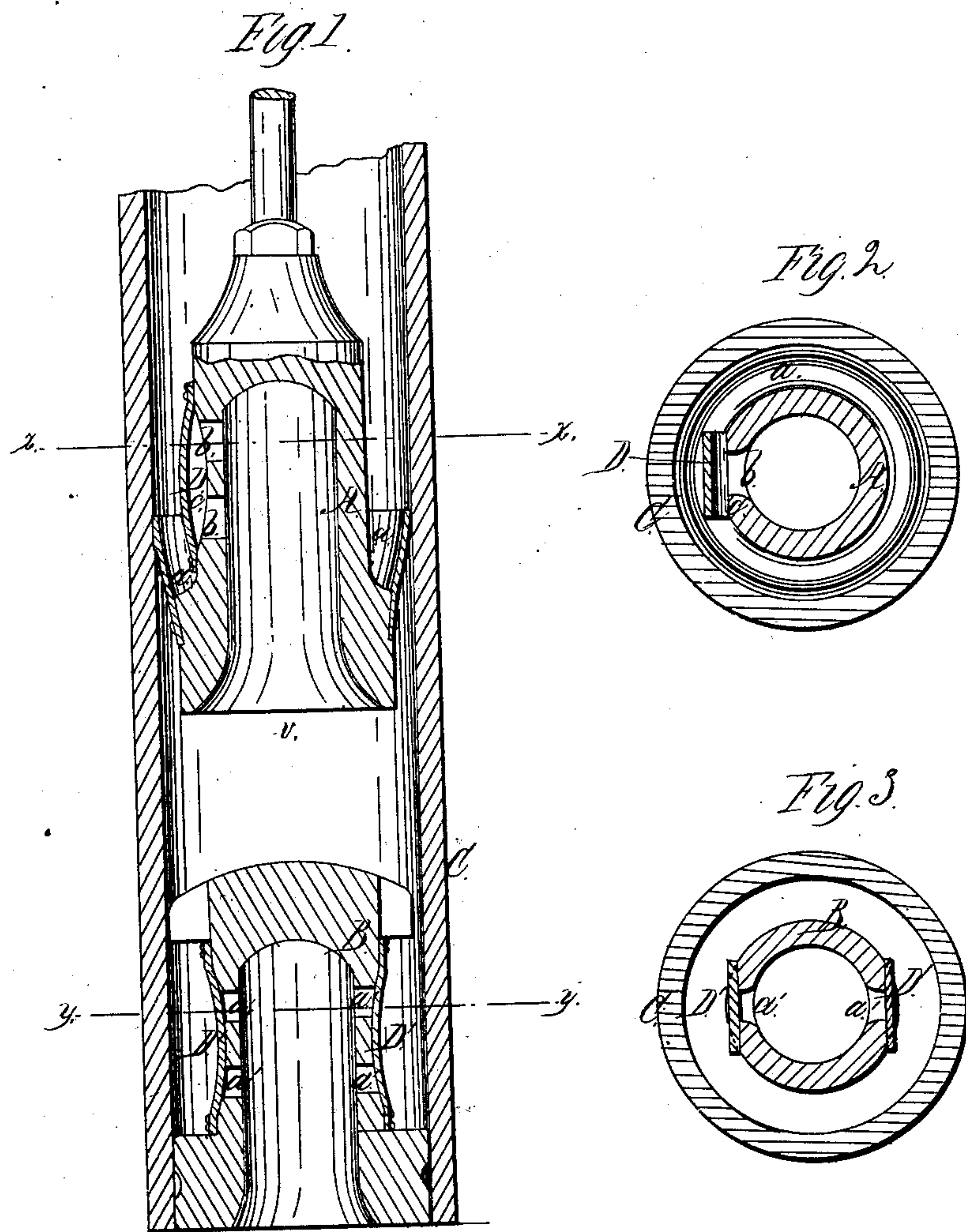


J. E. Cronk,
Pump Piston,
No 69,635, Patented Oct. 8, 1867.



Witnesses:
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Geo. G. Southern

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per
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United States Patent Office.

JAMES E. CRONK, OF POUGHKEEPSIE, NEW YORK.

Letters Patent No. 69,635, dated October 8, 1867.

IMPROVEMENT IN PUMP-VALVES.

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, J. E. CRONK, of Poughkeepsie, in the county of Dutchess, in the State of New York, have invented a new and useful Improvement in Pump-Valves; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a vertical central section of this invention.

Figure 2 is a transverse section thereof, the line *x x*, fig. 1, indicating the plane of section.

Figure 3 is a similar section, taken in the plane indicated by the line *y y*, fig. 1.

Similar letters indicate corresponding parts.

This invention consists in placing the valve or valves on the plunger of a pump in a vertical instead of in a horizontal position, in such a manner that dirt or other impurities is prevented from lodging on said valves, and the correct action of the pump is not liable to be impeded from that cause. The valves are composed of strips of leather or other flexible material, secured at both ends to a concave seat, in such a manner that by reason of the concavity of the seat said strips are permitted to bulge in and to close the water-ways, or to bulge out and to open the water-ways, and a valve is obtained which is simple, durable, and not liable to get out of order.

A represents the plunger of a pump, and B the foot-valve, both being fitted into the cylinder C, which is indicated in red outlines in the drawing. The packing of the plunger consists of a cup-shaped piece, *a*, of leather or other suitable material, which is secured to the body of the plunger, as shown in fig. 1. The body of the plunger is hollow, and it is provided with two or more water-ways, *b*, above the packing. These water-ways are opened and closed by a valve, D, which consists of a simple strip of leather or other flexible material fastened at both ends to the concave seat *c*. The seat must be concave, so as to allow the valve to bulge out when the plunger descends, and to bulge in when the plunger rises. As the plunger descends the valve is forced off its seat and the water-ways are opened, and as the plunger ascends the valve closes down upon its seat and the water-ways are closed. It is obvious that one or more such valves can be applied to the plunger. The foot-valve B consists of a cylindrical hollow body provided with water-ways *a'* and one or more valves, D', which are constructed like the valve D of the piston. It will be noticed that all my valves are placed in a vertical position, in contradistinction to ordinary pump-valves, which are placed in a horizontal, or sometimes in an inclined position. By these means a plunger is obtained, the valve of which is not liable to be obstructed by dirt or impurities lodging upon it or upon its seat, and furthermore, my valve can be easily applied, it is cheap, durable, and not liable to get out of order.

I am aware that valves have heretofore been made of simple strips or flaps of leather, India rubber, or other suitable material, closing down upon a flat seat; but such valves are liable to clog up by dirt or impurities dropping down upon them, or they are prevented from closing down tight on their seats by impurities lodging thereon. My valves being placed in a vertical position, are free from the above defects, and operate for a long time without getting out of repair. It will be further observed that my valve-seat being depressed, as shown, and the valve being hence bowed upon its seat when closed, and bowed outwardly when open, a larger space is provided for the passage of the fluid than could be obtained upon a level bearing-surface. It will be perceived, also, that such construction cannot be successfully practised upon the end of a cylinder, the bore of which does not allow sufficient space for the attachment and operation of the valve.

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

1. The valve D in excess of the length of cylinder it covers, in combination with the concave seat in the side of said cylinder, substantially as described and shown.

2. In arrangement therewith, the contraction of the cylinder to permit of the play of the valve, whether provided with the flaring cup or not, all substantially as shown and described.

JAMES E. CRONK.

Witnesses:

JACOB BENNER,

GEO. H. WILLIAMS.