

C. TYSON.  
Pumps.

No. 214,732.

Patented April 22, 1879.

Fig. 1.

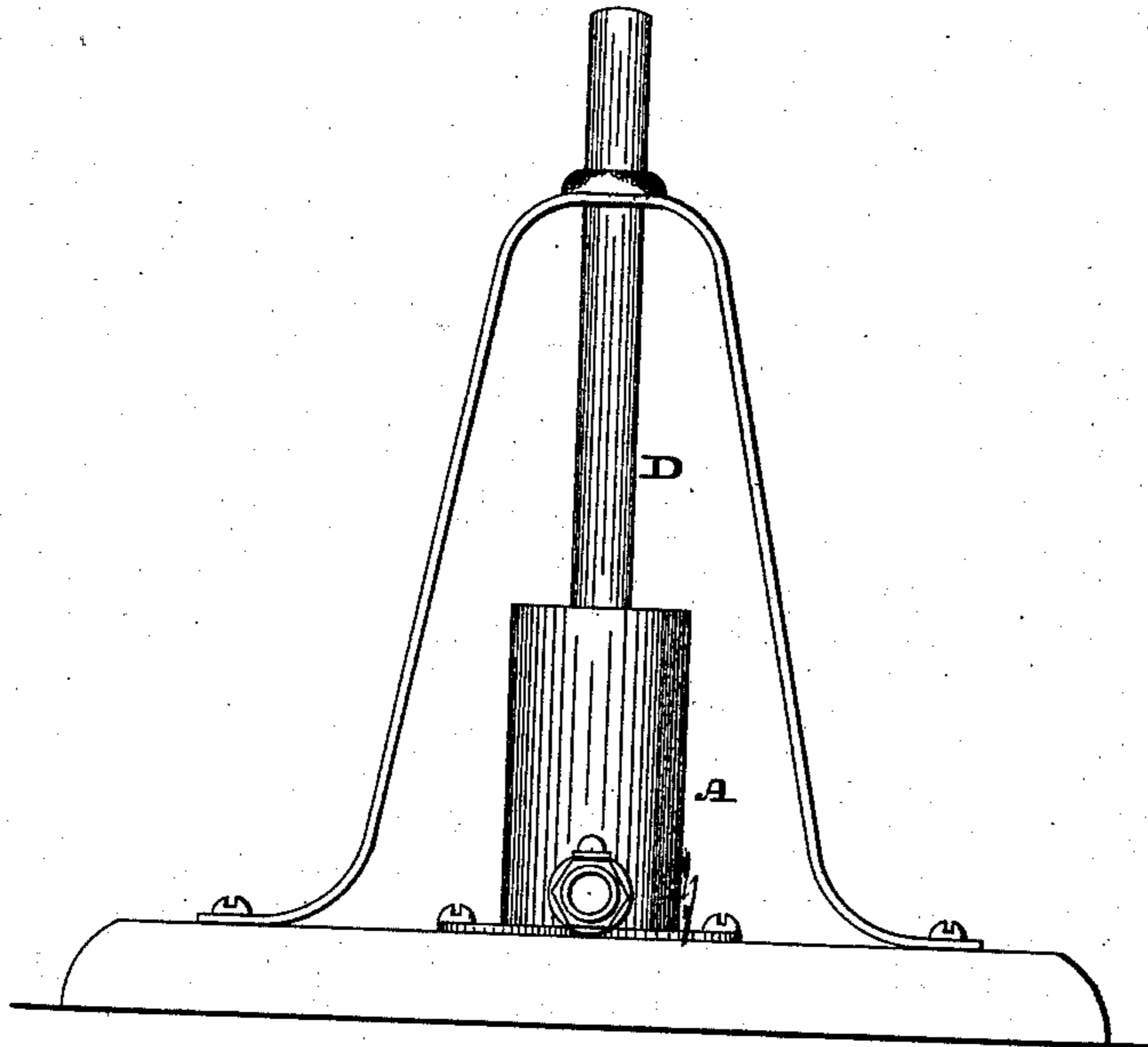


Fig. 2.

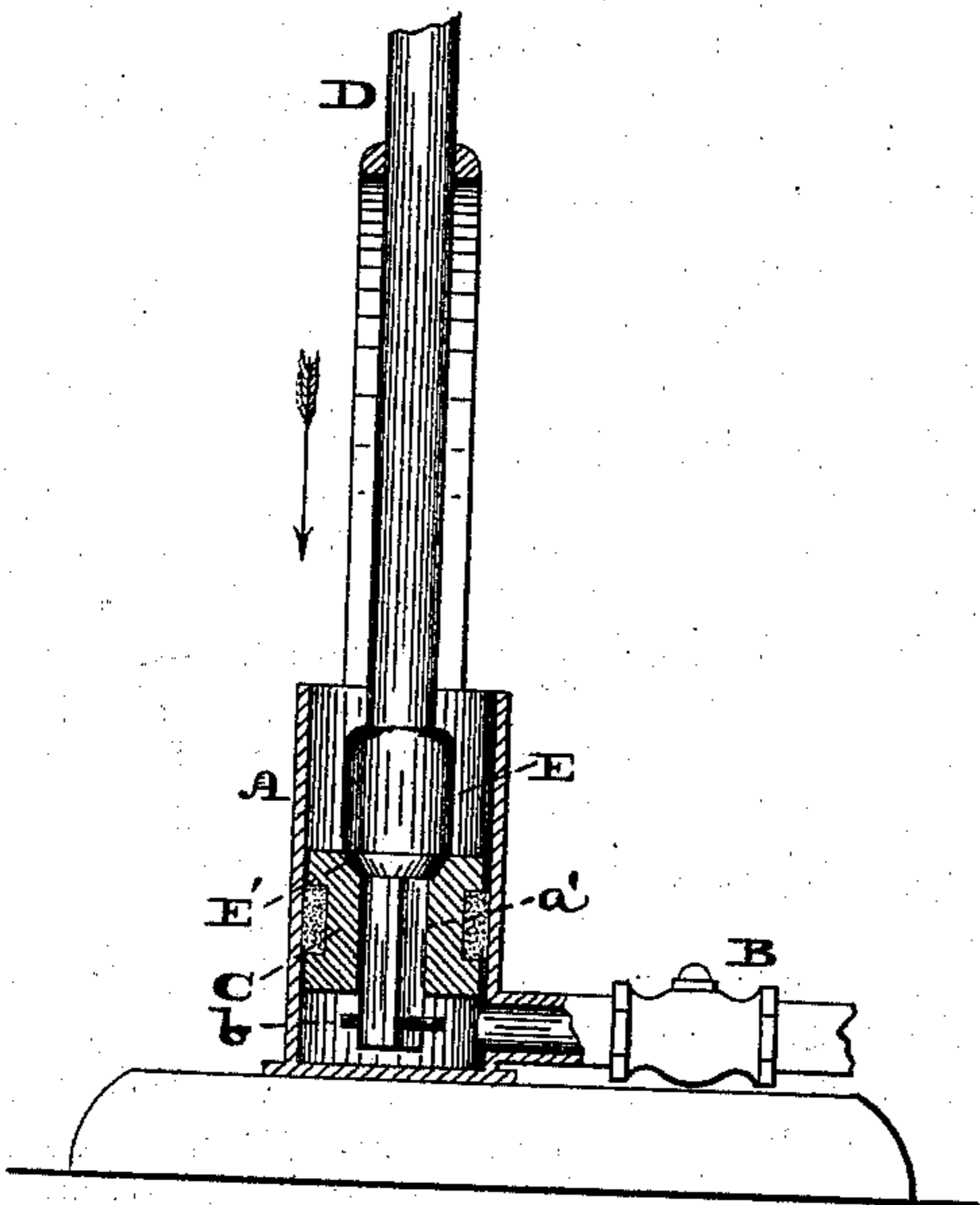


Fig. 3.

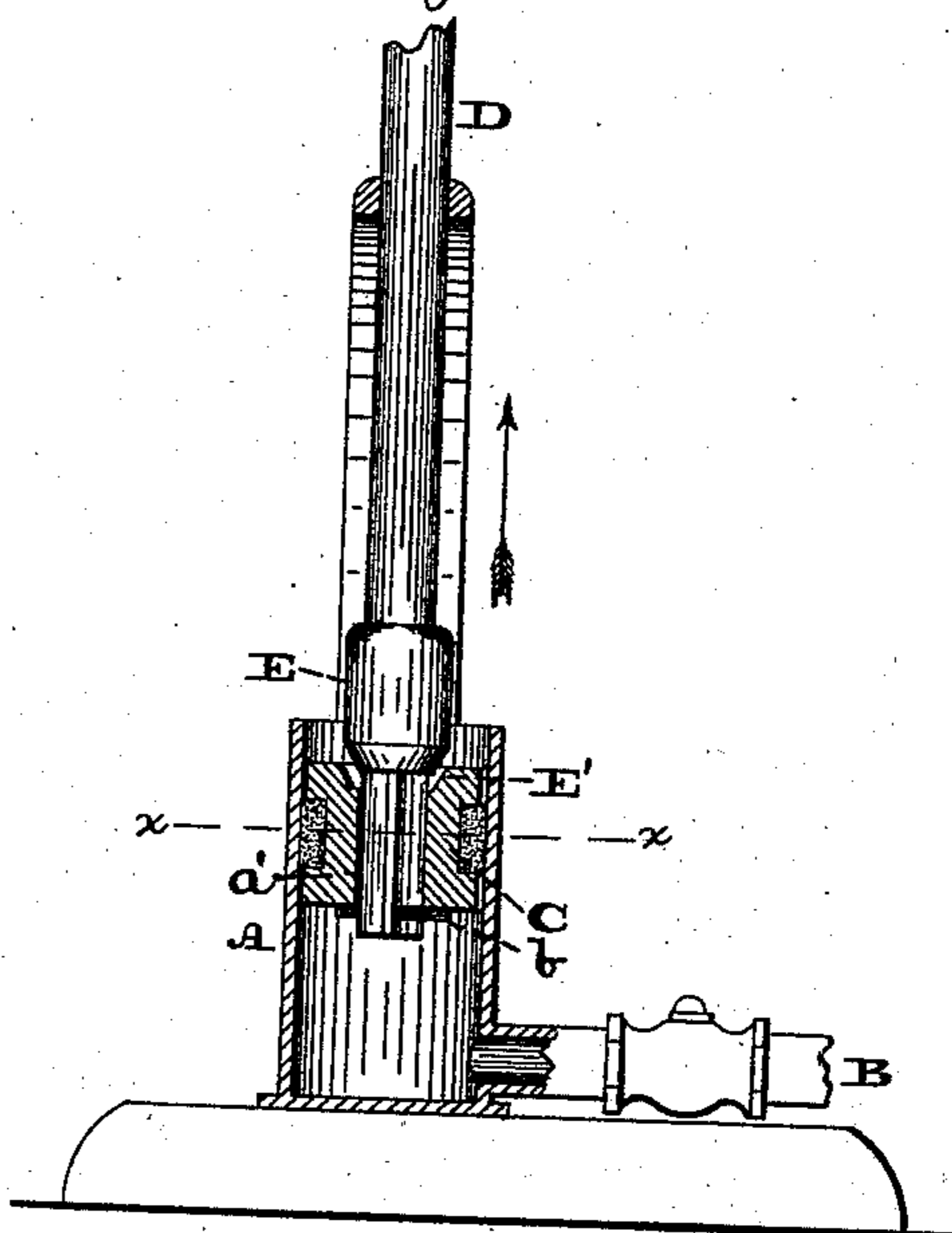
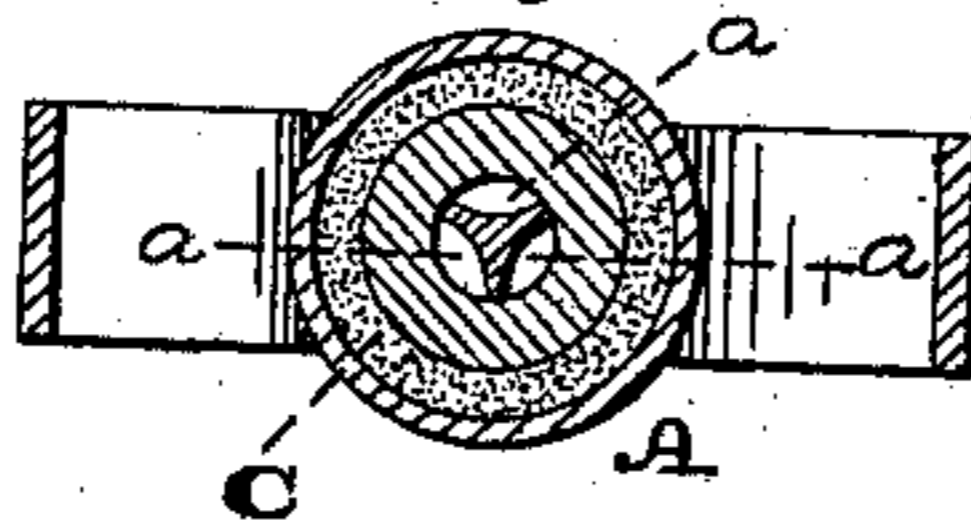


Fig. 4.



Witnesses:

A. P. Grant,  
W. J. Kitcher

Inventor:

Chas. Tyson,  
by John A. Wiedersheim  
ATTORNEY.

# UNITED STATES PATENT OFFICE.

CHARLES TYSON, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **214,732**, dated April 22, 1879; application filed August 19, 1878.

*To all whom it may concern:*

Be it known that I, CHARLES TYSON, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Pumps, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of the pump embodying my invention. Figs. 2 and 3 are central vertical sections thereof. Fig. 4 is a horizontal section in line *x x*, Fig. 3.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a force-pump having a piston formed with a valve-seat and movable on the piston-rod, which carries a single valve, whereby, by the ascent and descent of the rod, the piston is shifted so as to respectively open and close the valve, thus supplying the barrel with water and forcing it therefrom, a simple, inexpensive, and easily-operated pump being thereby produced.

Referring to the drawings, A represents the barrel, which may be submerged or provided with an inlet or induction pipe at or near its upper end; and B represents the eduction-pipe, which leads from or near the bottom of the barrel to the place of service.

Within the barrel is fitted the piston C, consisting of a suitably-packed head or plunger, fitted loosely on the piston-rod D, so as to have sliding motions thereon to a limited extent. On the rod D is a single valve, E, formed with or secured thereto, and its seat E' is on the upper side of the piston C.

The portion *a* of the rod which passes through the piston is grooved or winged, so as to leave passages *a* between said portion and the piston; or, if desired, the passages *a* may be formed around the central opening of the piston. At or near the lower end of the rod there is a pin or stop, *b*, fitted to or formed with the rod, for preventing displacement of the piston and limiting the motions of the same at said lower end.

The operation is as follows: When the piston has made its descent, the valve E rests on

its seat, and is accordingly closed, and the space in the barrel above the piston is filled with water. The piston-rod is now elevated, and the valve moves from its seat, thus opening the valve. As the rod continues its ascent, the stop *b* causes the piston to rise, the water meanwhile flowing through the passages *a* into the barrel below the piston. The piston-rod is again depressed, and the valve closes on its seat, whereby the water in the barrel below the piston is forced by the latter out of the barrel into the eduction-pipe, and thus to the required place. On the next ascent of the piston the valve is opened and a fresh supply of water admitted into the barrel below the piston, the alternate replenishing and emptying of the barrel or working of the pump continuing as required or desired.

It will be noticed that the pump is constructed of few parts, whereby it is simple, inexpensive, and easily operated, and not liable to derangement.

A proper check-valve is placed at the base of the barrel, or in the eduction-pipe, or both, to prevent return of water forced from the barrel.

I am aware that it is not new to construct a lift-pump with a valve at the lower end of the piston-rod, and to cause the piston to ascend by the action of the valve upon its lower end, and to descend by the action of a collar upon its upper end. Such pump and features I do not therefore claim.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The force-pump consisting of the barrel A, with inlet at or near its upper end, and eduction-pipe at or near its bottom, the piston C, with valve seat E' on its upper face, and the rod D, having a single valve, E, and stop *b* on opposite ends of the portion *a'*, substantially as and for the purpose set forth.

CHARLES TYSON.

Witnesses:

JOHN A. WIEDERSHEIM,  
SAML. M. GRICE.