

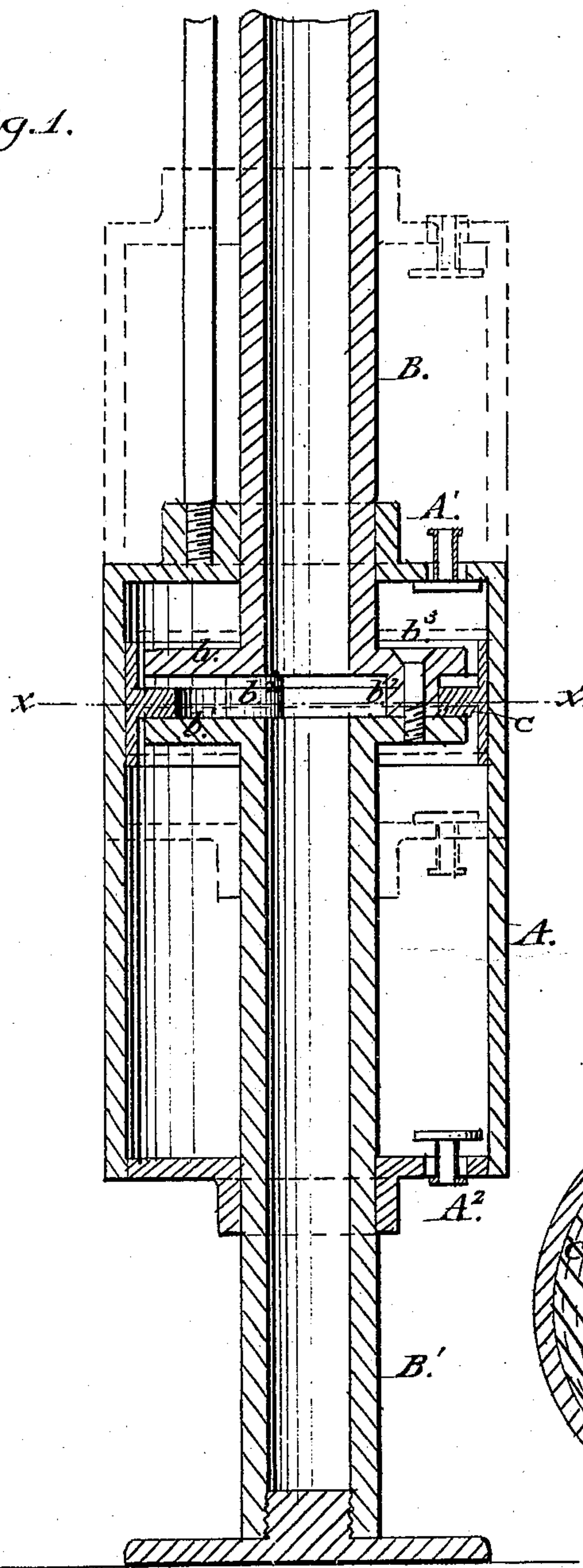
*J. N. Forrester,*

*Pump.*

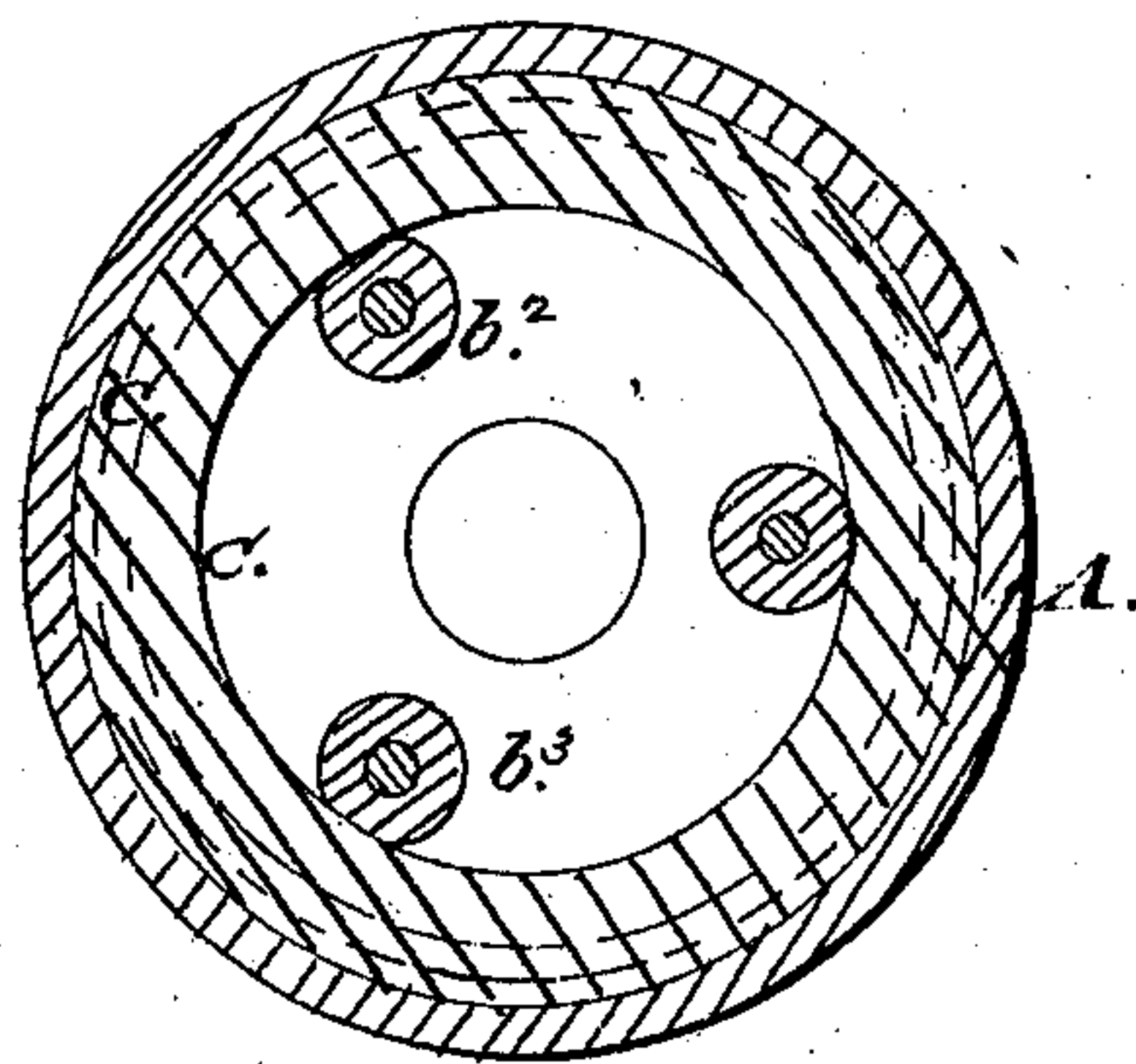
*No. 98367.*

*Patented Dec 28, 1869.*

*Fig. 1.*



*Fig. 2.*



*Witnesses:*  
*Jo. W. Peyton*  
*Baltis De Long*

*Inventor:*  
*J. N. Forrester*  
*by*  
*Wm D. Baldwin,*  
*attorney.*

# United States Patent Office.

ISAAC N. FORRESTER, OF BRIDGEPORT, CONNECTICUT.

*Letters Patent No. 98,367, dated December 28, 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, ISAAC N. FORRESTER, of Bridgeport, in the county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Pump-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a vertical central section of a pump, with my improved valve applied thereto, and

Figure 2, a horizontal section of the same at line *x x* of fig. 1.

My invention is designed to be applied to that class of pumps in which a moving cylinder is employed, and to act as a delivery-valve, in connection with a stationary tubular rod, upon which the barrel moves, and which serves as a discharge-pipe.

My improvements consist in a metallic piston, truly fitted to the bore of the pump-barrel, and having a circular flange upon its inner surface, which flange is finished true and smooth at top and bottom.

The tubular piston-rod of the pump is made in two sections, whose adjacent ends are provided with flanges or collars, turned smooth, to serve as seats for the valve, and united by bolts, being maintained a sufficient distance apart by thimbles, to allow the same to rise and fall far enough to deliver the water which passes through the receiving-valves to the tubular piston-rod, which acts as a discharge-pipe, as hereinafter more fully set forth.

In the accompanying drawings, which show a convenient arrangement of parts for carrying out the objects of my invention—

A represents the barrel or cylinder of a pump, provided with upper and lower receiving-valves *A<sup>1</sup>* *A<sup>2</sup>*, and reciprocated, by proper mechanism, upon a tubular piston-rod, composed of the upper and lower sections *B B'*, and secured to fixed supports.

Flanges or collars *b b'* are formed upon the adjacent ends of the sections *B B'*, between which is placed a piston-valve, *C*, fitted truly to the bore of the barrel, and having a circular flange, *c*, upon its inner surface.

The upper and lower surfaces of the flange *c*, and the adjacent faces of the flanges *b b'*, are finished so as to make a water-tight joint when brought in contact.

The sections *B B'* are united by bolts *b<sup>3</sup>*, which pass through thimbles *b<sup>2</sup>*, of such length as to keep the flanges *b b'* far enough apart to allow the valve *C* the requisite amount of lift, the flange *c* seating upon the flanges *b b'* when the pump is operated.

On the downward stroke of the pump, the water will enter the lower valve *A*, and fill the space below the valve *C*, and on its upward stroke, this water will raise the valve *C*, and be discharged through the upper section *B* of the tubular piston-rod, and the water will enter the valve *A'*, and fill the space above the valve *C*.

This water will be expelled on the succeeding downward stroke, and so on during the operation of the pump.

I disclaim the combination of a piston-valve with a piston, reciprocating in a fixed cylinder.

I claim as my invention, and desire to secure by Letters Patent—

The combination of the stationary tubular sectional piston-rod and its flanges with the flanged piston-valve and the reciprocating cylinder, all these parts being constructed to operate as set forth.

In testimony whereof, I have hereunto subscribed my name.

ISAAC N. FORRESTER.

Witnesses:

GEO. S. PRATT,  
SAM. B. SUMNER.