

T. RAGAN.

Hydrants.

No. 136,545.

Patented March 4, 1873.

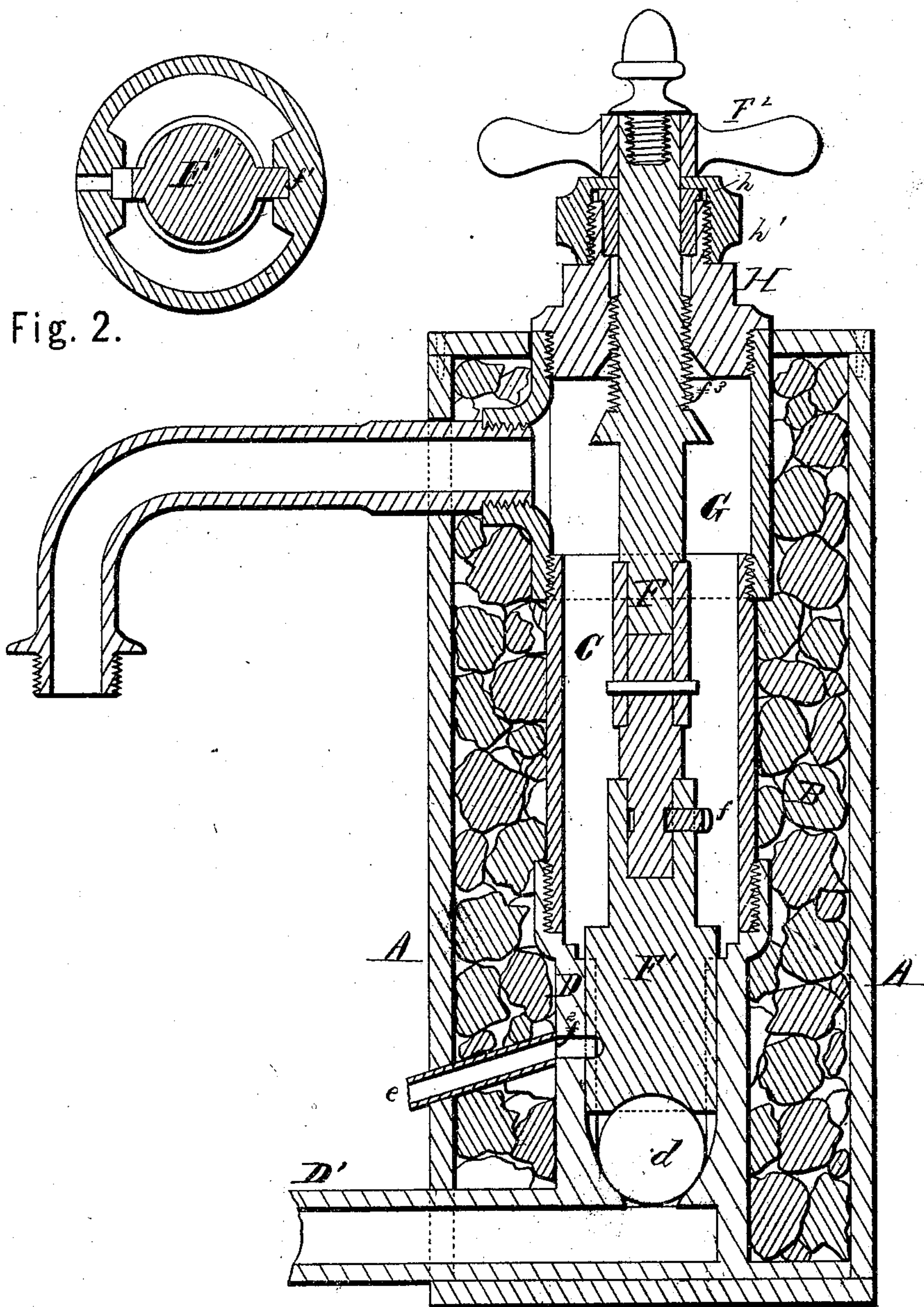


Fig. 2.

Fig. 1.

WITNESSES.

*Villette Anderson.*  
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# UNITED STATES PATENT OFFICE.

THOMAS RAGAN, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. 136,545, dated March 4, 1873.

*To all whom it may concern:*

Be it known that I, THOMAS RAGAN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and valuable Improvement in Hydrants; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical central section of my invention. Fig. 2 is a transverse section.

My invention has for its object the construction of a hydrant more effective and durable than any which has been hitherto constructed, which shall be easily made at slight cost, not liable to get out of order, but readily repaired or renewed, and which shall obviate the danger of bursting and freezing. My invention consists in the construction, combination, and arrangement of parts as hereinafter fully described.

In my improved hydrant the water comes from the main through a suitable pipe, and is admitted to the hydrant by a ball-valve. The ball rests in a seat, where it is held down by a piston, which is connected to the hydrant-rod by a screw turning in a groove. This piston moves in ways in the side of the valve-box to permit it to slide up to open the valve, or down to close it. The rod is constructed with a worm or screw turning in a corresponding box, whereby it is moved up and down, carrying the piston with it to open or close the valve. In order to permit the escape of water from the hydrant after the valve is closed so as to empty the pipe, and thereby prevent freezing, I make a notch in the flange of the piston, which communicates, when the valve is closed, with an opening in the side of the pipe, said opening being between the guides in which the piston moves. The rod is swiveled to the plunger in such manner that it turns freely thereon by means of a groove and screw working in the same. This rod is also made with a screw-thread at the point where it passes through the box, which is located at the top of the hydrant-pipe, so that when the rod is turned by means of the wheel or handle it is moved up or down, carrying the plunger

with it. This rod is also provided with a beveled flange, which, when the rod is screwed up, opening the valve and permitting the water to ascend, rests in a recess in the lower side of the box, forming a ground-joint. Above the box there is located upon the rod a shouldered sleeve, the lower part of which is sunk in the box, the shoulder resting upon the top of it, thereby forming a tight joint. To hold this sleeve in place a nut is screwed on top of the box, an opening in the center of said nut permitting the passage through of the rod. The rod is surmounted by a suitable wheel or handle for turning it, and has a screw-hole sunk in it, in which fits the screw which holds said wheel or handle on the rod. The pipe fits in the usual wooden stock, and between the stock and pipe I place a packing of charcoal to prevent freezing.

The advantages of a hydrant or wash-pave constructed in this manner are readily apparent: The valve, owing to the simplicity of its structure, is not liable to get out of repair. Should the ball become worn it may be very easily taken out by simply withdrawing the rod and piston, and then turning on the water. This will force the ball out at the top of the pipe; then the water, being shut off, will run out into the waste-pipe. A new ball may be dropped into the seat, and the rod and piston replaced. As the plunger is moved up and down by a screw the water may be shut off gradually, thereby diminishing the danger of bursting; and, as the hydrant always empties itself whenever the valve is closed, there is no possibility of its being frozen up.

In the drawing hereto annexed, A represents the ordinary wooden stock, and B the charcoal packing. C is the metal pipe, made, of course, of greater length than is shown in the drawing. D is the valve-box, communicating with the main by a pipe, D'. The ball is shown at *d*. F is the rod, which is swiveled to the piston F<sup>1</sup> at *f* by means of a screw passing through an opening in said piston, and running in an annular groove in the rod. A cross-section of this piston is shown in Fig. 2, in which *f*<sup>1</sup> are wings or flanges thereon moving in the grooved guides E attached to or forming part of the valve-box. *f*<sup>2</sup> is a notch in one of these flanges, which, when the piston is down and the valve closed, coincides



with an opening, *e*, made in the valve-box, entering the guide. When the piston is raised the notch does not correspond with the opening, and the water does not then run out through said opening. *G* is a head screwed on the pipe *C*. In this is screwed another head, *H*, through which passes, as shown, the rod *F*. The rod is formed with a suitable thread so that when it is turned by the handle *F*<sup>2</sup> it will rise or fall in the head *H*, elevating or lowering at the same time the piston *F*<sup>1</sup>, and opening or closing the valve. *f*<sup>3</sup> is a beveled flange or rigid collar on the rod, which, when the same is raised, fits in a seat in the head, forming a ground-joint. *h* is a shouldered sleeve, fitting on the rod and in the head *H*, forming a packing to prevent the escape of water or the admission of air. This sleeve is kept in place by a nut, *h'*. The handle or wheel *F*<sup>2</sup> is provided with a socket, in which the end of the rod is inserted. A screw entering the top of the rod keeps the handle in position.

To take out the ball, simply unscrew the

head *H* and withdraw the rod and piston from the valve-box and pipe. Turn on the water from the main, and the ball will be forced to the top of the pipe; then turn off the water, and what is in the pipe will run out at *e*. A new ball may then be dropped into the pipe, and the rod and piston replaced, as before.

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

The combination of the pipe *C*, valve-box *D*, valve *d*, heads *G* and *H*, and nut *h'* *L'*, constructed and arranged substantially as shown, with the screw-rod *F* and piston *F*<sup>1</sup>, the said piston having ears or flanges, which move in guides in the valve-box *D*, said flanges being notched to communicate with the waste-port *e*, as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

THOMAS RAGAN.

Witnesses:

JEROME MCTIGHE,  
M. DANL. CONNOLLY.