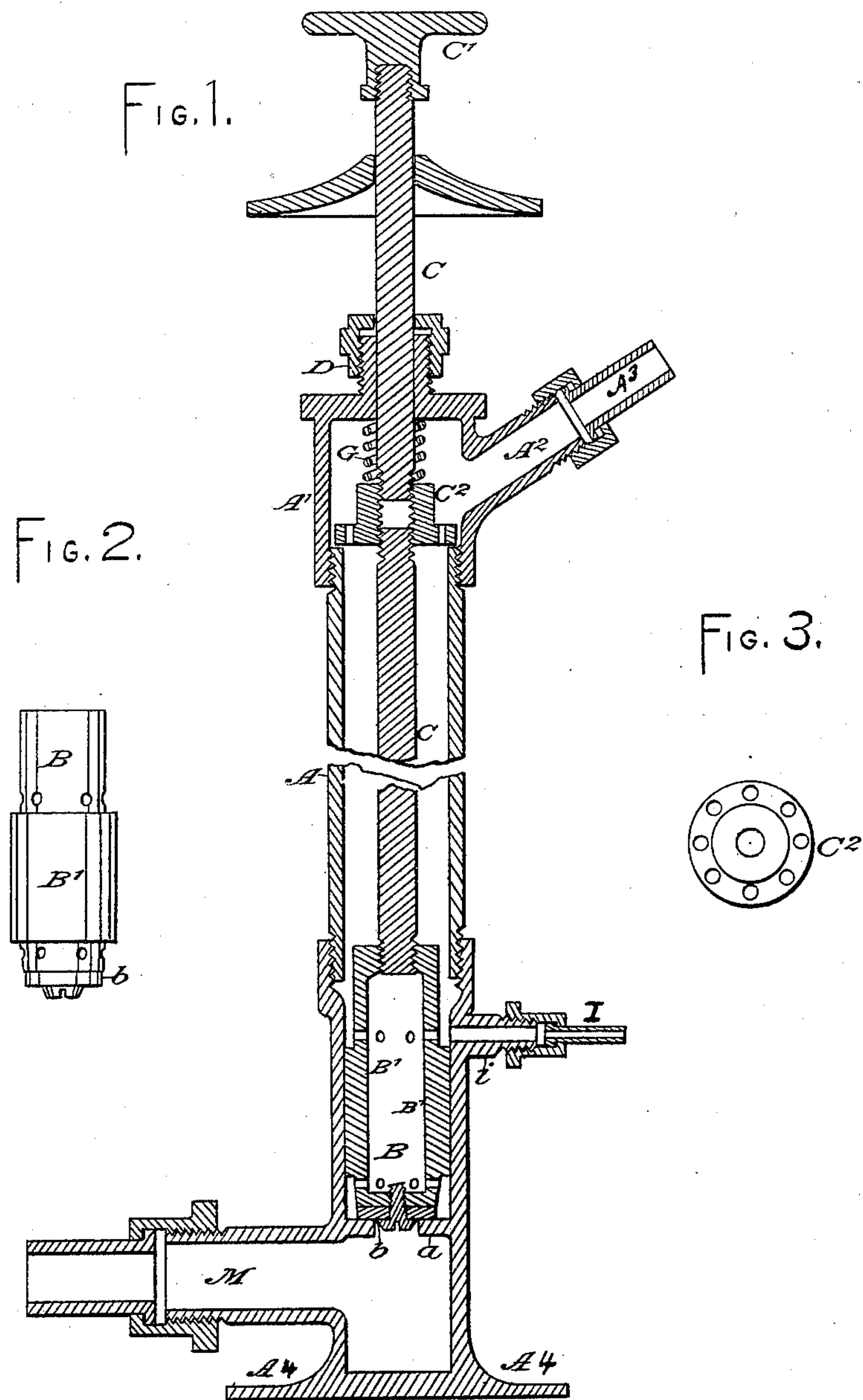


P. CONNOLLY.  
Hydrant.

No. 223,278.

Patented Jan. 6, 1880.



— WITNESSES: —

Charles C. Stetson  
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— INVENTOR: —

Patrick Connolly,  
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Thomas D. Stetson,

# UNITED STATES PATENT OFFICE.

PATRICK CONNOLLY, OF BROOKLYN, NEW YORK.

## HYDRANT.

SPECIFICATION forming part of Letters Patent No. 223,278, dated January 6, 1880.

Application filed April 16, 1879.

*To all whom it may concern:*

Be it known that I, PATRICK CONNOLLY, of Brooklyn, county of Kings, in the State of New York, have invented certain new and useful Improvements relating to Hydrants and Analogous Apparatus for Controlling Water, of which the following is a specification.

I use the term "hydrant" to imply a valve at a low level and the delivery of water at a point considerably above, whether the apparatus be large or small.

My improvements relate to that class of devices in which the water flows upward in a tube surrounding the operating-rod, so that the tube performs the double function of inclosing and protecting the rod and of forming a conduit for the water.

The invention is particularly useful in connection with water-closets which are on the ground-floor or in the yard, and the water-pipe is carried at a considerable depth below to avoid frost in winter. In such case, where only a small stream of water is supplied, the valve may be operated by the direct force of the hand. In street-hydrants, where a large stream is controlled, a lever or other means of applying a greater force is necessitated.

I will describe the apparatus as operated directly.

I provide reliable means for insuring a tight closing, and also for easily obtaining access to the parts in case adjustment or repair is required. I provide a spring, with convenient means for adjusting its tension, to close the valve against the pressure of the water. I make a peculiar provision for waste, to guard against possibility of freezing.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a central vertical section of my entire device. Figs. 2 and 3 represent details detached, Fig. 2 being a side view of the valve, and Fig. 3 a plan view of the separate piece upon which the spring bears at its lower end.

Similar letters of reference indicate like parts in all the figures.

A is an upright pipe, with the interior smoothly bored, at least in the lower part. A

contraction, *a*, near the lower portion, is smooth-surfaced on its upper face, and adapted to form a tight seat for a valve, B. The face of the valve B is formed with a soft washer, of leather or other suitable material, firmly secured to the main body of the valve, which latter is, near the face, of considerably less diameter than the interior of the pipe A, but a little above is enlarged so as to fill the interior with tolerable tightness. This enlarged portion of the body B, I will designate B'. It performs two important functions—one to guide the valve as it rises and sinks, another to close the waste as soon as it is lifted enough to fairly open the valve.

The interior of the body B is hollowed, and apertures are provided to allow the water to flow into the hollow interior at the bottom and to flow out at the top. A rod, C, is tapped into the body B, and, projecting out through the upper end of the tube past a stuffing-box, D, is equipped with a handle, C', by which the rod can be drawn up and the valve opened.

The upper end of the tube A is formed by a removable piece, A', and incloses a spiral spring, G, which is coiled around the rod C, and abuts at its lower end against an open-work collar, C<sup>2</sup>. The spring G urges down the rod C and its attachments with sufficient force to tightly close the valve-face *b* upon the seat *a*; but its force should not be so great as to forbid the lifting of the rod C by a person of moderate strength. To attain a high degree of perfection in the adjustment of the force of this spring, I make the position of the collar C<sup>2</sup> on the rod C adjustable up and down. This may be effected in various ways; but I have attained it with convenience by threading the interior of the collar C<sup>2</sup> and making the rod C in two pieces, abutting together within the collar C<sup>2</sup>. This open-work collar C<sup>2</sup> is, at its exterior, an open-work or perforated flange, nearly filling the interior of the pipe A, and at its inner edge a tube of moderate length.

To adjust the collar upward and increase the tension of the spring G, it is necessary simply to unscrew the lower part of the rod C and to screw in the upper part until they again abut. This has the effect to raise the collar C<sup>2</sup> and cause the spring G to act with more force.



This should be done from time to time, as the force of the spring tends to decrease with long use.

The top casting, A', is formed with a capacious branch, A<sup>2</sup>, which forms the delivery-passage of the water. An ordinary lead pipe or other tube may be connected to this, as indicated by A<sup>3</sup>, leading to the spreader of the water-closet, or to any other point where the water is to be delivered.

The water is received at the bottom through a side pipe, M. The device stands on a broad flange, A<sup>4</sup>, which may be bolted down to a floor or any suitable piece.

An orifice, *i*, is produced in the side of the tube A in a position which is above the edge of the enlargement B' of the valve. This forms the waste. A pipe, I, connects to this, and, in the case of a house water-closet, leads the waste-water into the bottom of the trap of the water-closet. (Not represented.) In the case of a street-hydrant, or of a water-closet in the yard, the waste may in some cases be allowed to discharge directly into the ground. In the practical manufacture the position of this orifice *i* is necessarily determined at an early stage; but the length of the enlargement B' of the valve may be varied at any time. I make the length at first a little greater than is required, and, when all is ready, turn down or otherwise shorten the part B' until the orifice *i* is nearly or quite uncovered, when the valve is down firmly on its seat. Thus conditioned, any sufficient rising of the valve to admit an adequate flow of water closes the waste; but as soon as the handle C' is liberated and the spring G forces down the valve to its seat the waste-orifice *i* is uncovered, and the water standing in the tube A is soon discharged.

Modifications may be made. The substitution of a lever or other means of applying more than the direct force of the hand has been already suggested. The side aperture through

which to deliver the water may be formed in one with the pipe A, instead of in a separate head, and the piece C<sup>2</sup> may be any efficient coupling, formed with a wide top to afford a bearing for the spring.

The base of the part M and flanges A<sup>4</sup> may be made in a separate piece and screw onto the main part M. The delivery branch A<sup>2</sup> may be carried downward to serve as a hydrant.

I may cheapen the device, when I desire to use it in connection with a water-closet, by increasing the length of the body above the waste *i* and making the delivery-tube A<sup>2</sup> on this casting.

A cap corresponding to A' may be screwed directly onto the upper part of the casting M, the operating-rod C being extended through a suitable stuffing-box formed in this cap. In such case the spring G may bear directly upon the part B.

The valve B may be reduced to the proper size of the rod C and prolonged upward through the stuffing-box, being properly plugged, and connected in any suitable way with the handle.

I claim as my invention—

1. The pipe A and branch A<sup>2</sup>, in combination with the valve-seat *a*, lifting-valve B *b*, rod C, stuffing-box D, and closing-spring G, combined and adapted for joint operation as herein specified.

2. In combination with the pipe A, branch pipe A<sup>2</sup>, valve-seat *a*, valve B *b*, and rod C, the adjustable collar C<sup>2</sup> and spring G, adapted to serve as herein specified.

In testimony whereof I have hereunto set my hand this 14th day of April, 1879, in the presence of two subscribing witnesses.

PATRICK CONNOLLY.

Witnesses:

W. COLBORNE BROOKES,  
E. B. BOLTON.