No. 891,207. PATENTED JUNE 16, 1908.

P. CONNOLLY.

VALVE.

APPLICATION FILED FEB. 6, 1896.

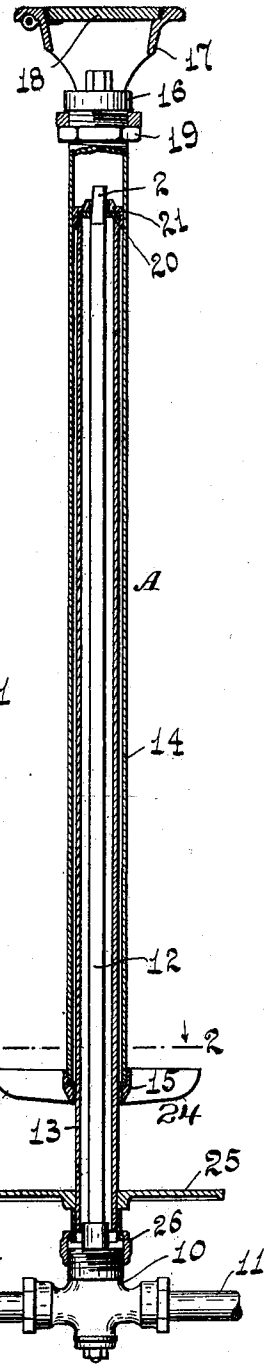

Fig. 1.

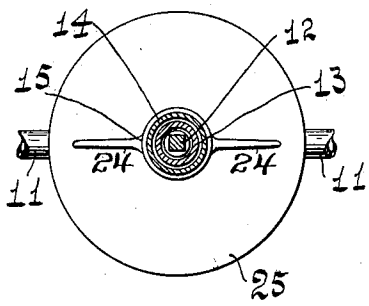

Fig. 2.

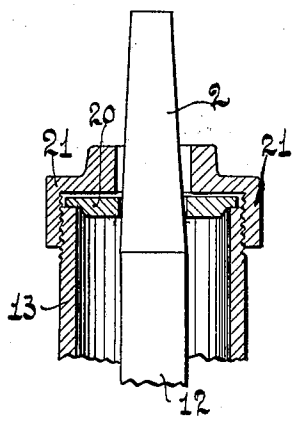

Fig. 3.

WITNESSES:

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VALVE.

No. 891,207. Specification of Letters Patent. Patented June 16, 1908.

Application filed February 6, 1896. Serial No. 578,241.

To all whom it may concern:

Be it known that I, PATRICK CONNOLLY, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Valves, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to valves, and more especially to the construction of a protecting casing for the operating rod of valves which are designed to be placed in the ground below the reach of frost.

In placing the valves in pipes sunk in the ground beyond the reach of frost, it is customary to operate the valve by means of a rod extending upward from the valve and to provide a casing for protecting and affording access to this operating rod, generally an iron pipe reaching from the valve to a box at the surface. Heretofore, great difficulty has been experienced in the use of such devices, due to the rising of the box and casing caused by the freezing and thawing of the earth, the box being thus left in the spring, after the earth has settled back to its normal position, elevated above the surface of the ground; and this raising of the box and casing brings a strain on the valve and on the pipe, whereby the valve and the pipe, and the connections between them, are apt to be injured.

The object of the present invention is to provide a practical construction whereby this difficulty is overcome; and to this end I employ a casing for the operating rod, constructed so that the part in contact with the earth which is affected by the frost may be raised without the pipe or valve or operating rod being disturbed or subjected to any strain, and may be readily returned to its proper position by pressing on the top of the surface box.

For a clear understanding of the invention, a detailed description will now be given of a preferred construction embodying the same, and the features forming the invention afterwards specifically pointed out in the claims. Such a preferred construction is illustrated in the accompanying drawings, in which—

Figure 1 is a central sectional view. Fig. 2 is a section taken on line 2 of Fig. 1. Fig. 3 is a detail on an enlarged scale.

In said drawings, 10 represents a valve of any usual construction, shown as set in a pipe 11. Extending upward from the valve, is an operating rod 12, having a squared end 2 to receive a suitable key. The operating rod is protected by a casing A, which consists of a tube 13, preferably formed of a piece of iron or other piping, which is secured at its lower end to the shell of the valve and extends upward around the operating rod, and a similar tube 14 of a size adapted to slide freely over the tube 13 so that it may be moved upward and downward thereon. The tubes 13 and 14 thus form a telescope casing for protecting and affording access to the operating rod. The tube 14 is preferably provided at its lower end with a screw cap 15 having a hole just large enough so that it may slide freely on the tube 13, which cap 15 is preferably tapered as shown so as to better cut through and press the earth aside when the tube 14 is being pressed down as hereinafter explained.

By providing the cap 15 the lower end of the outer tube 14 is conveniently caused to extend inwardly to fit closely about the tube 13. Having the lower end of the tube 14 so formed is a feature of the invention and may be otherwise accomplished. For example, the end of the tube itself may be tapered, thus providing not only a closely fitting lower end for the tube but also the beveled or tapered outside for cutting through the earth. The cap is preferable, however. The tube 14 is also preferably provided at its upper end with a protecting screw cap 16, and preferably carries at its upper end a suitable box 17, preferably of metal and having a hinged cover 18, and, in the construction shown in the drawings, the end of the tube extends through the bottom of the box and the box is secured by means of a screw collar 19 and the screw cap 16. The tube 14 is preferably slightly larger than is necessary to slide freely on the tube 13, so that there will be a space between the tubes wide enough so that it will not be readily clogged by any dirt which may enter between the tube 13 and the cap 15 or the tapered end of the tube 14.

The upper end of the operating rod 12 is preferably tapered and preferably extends through an opening in a plate 20 held free to turn against the top of the tube 13 by means of a cap 21 which screws onto the end of the tube 13, the plate 20 acting both as a guide for the upper end of the operating rod, and to prevent the entrance of dirt into the tube 13

and thence to the valve, and the screw cap 21 acting as a guide for the upper end of the tube 13 within the tube 14. The plate 20 also acts to prevent the operating rod 12 from rising, and thus holds its lower end in position in the plug of the valve.

The tube 14 being of sufficient length so that when the device is set in the ground its lower end will extend downward substantially to the frost line or preferably below the reach of frost, the movement of the earth due to freezing and thawing will affect only the tube 14 and the box 17, and the tube 14 being free to move up or down upon and without disturbing or causing any movement of the tube 13, there will thus be no strain brought upon the valve whereby it or the pipe in which it is set, or the connections between it and the pipe, could be injured, and the tube 14 and the box 17 when thus raised can be readily returned to proper position by merely pressing on the top of the box 17.

In order to prevent the tube 14 from being turned when in the ground by the screwing on or unscrewing of the cap 16, it is preferably provided with one or more laterally extending blades or wings 24, which, being formed with a comparatively sharp lower edge, offer but slight resistance to the downward movement of the tube, while effectually holding it against turning. For convenience and cheapness of manufacture, I prefer to form these wings on the cap 15, as shown, although they may be otherwise secured to or formed on the tube at some other point.

The tube 13 may, of course, be secured to the valve in any suitable manner, but I prefer to secure it by means of a union 26, as shown in the drawings, as I am thereby enabled to more easily attach the tube 13 to the valve after the latter is secured in the pipe 11. Such an arrangement will be found to be especially advantageous where the valve is to be set in a lead pipe and secured by means of wiped joints, which might otherwise be injured by careless handling.

Although not absolutely necessary, I prefer to employ the usual frost plate 25, by which the cock and pipe are firmly held in position.

It will be observed that by having the larger of the tubes forming the casing extend downward over the tube extending up from the valve, the opening between the tubes is upward, so that dirt draining or falling down along the casing will not enter between the tubes, as it would if the tubes were reversed. This is very important, as otherwise enough dirt would soon enter through the opening to clog the space between the tubes and greatly hinder or entirely prevent the sliding of the tubes.

It will be understood that my improvement may be used in connection with parts differing widely from those shown in the drawings, and that the construction of the protecting telescope tube or casing A may be varied as may be found desirable.

It is sometimes desirable to employ, instead of the long operating rod shown in the drawings, a short operating rod to be turned by means of a long key rod, and my improved telescope casing may of course be used in connection with such a short operating rod.

What I claim is:—

1. The combination with a valve and an operating rod therefor, of a casing consisting of a telescope tube, one member of which is secured to and extends upward from the valve, and the members being of such length that only the movable member of the casing will be in contact with the earth from the surface down substantially to the frost line when the device is in position in the ground and the outer member having its lower end extending inwardly to fit closely about the inner member, substantially as described.

2. The combination with a valve and an operating rod therefor, of a tube 13 secured to the valve, and a tube 14 adapted to slide on the tube 13 and extending downward substantially to the frost line when the device is in position in the ground and provided at its lower end with a beveled cap extending closely around the tube 13, substantially as described.

3. The combination with a valve and an operating rod therefor, of a tube 13 secured to the valve, a tube 14 adapted to slide on the tube 13 and extending beyond the upper end thereof, and extending downward substantially to the frost line when the device is in position in the ground a cap on the lower end of the tube 14 extending closely around the tube 13 and forming a bearing for the tube 14 on the tube 13, and a cap on the upper end of the tube 13 forming a bearing for the tube 13 within the tube 14, substantially as described.

4. The combination with a valve and an operating rod therefor, of a tube 13 secured to the valve, and a tube 14 adapted to slide on the tube 13 and extending downward substantially to the frost line when the device is in position in the ground and having its lower end extending inwardly to fit closely about the tube 13, substantially as described.

5. The combination with a valve and an operating rod therefor, of a casing consisting of a tube extending upward from the valve around the operating rod, and a tube adapted to slide on the first mentioned tube and having its lower end extending inwardly to fit closely about said tube, substantially as described.

6. The combination with a valve and an operating rod therefor, of a tube 13 secured

to the valve, a tube 14 adapted to slide on the tube 13, and extending downward substantially to the frost line when the device is in position in the ground a cap on the lower end of the tube 14 extending closely around the tube 13 and having one or more laterally extending vertical wings 24, and a screw cap on the upper end of the tube 14, substantially as described.

7. The combination with a valve and an operating rod therefor, of a tube 13, a tube 14 adapted to slide on the tube 13, and extending downward substantially to the frost line when the device is in position in the ground a beveled cap 15 on the lower end of the tube 14, a box 17 carried by the tube 14, and a protecting cap 16, substantially as described.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

PATRICK CONNOLLY.

Witnesses:
A. L. KENT,
P. F. KEHOE.