

No. 845,505.

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A. O. BABENDREIER.

FIRE HYDRANT.

APPLICATION FILED MAR. 16, 1905.

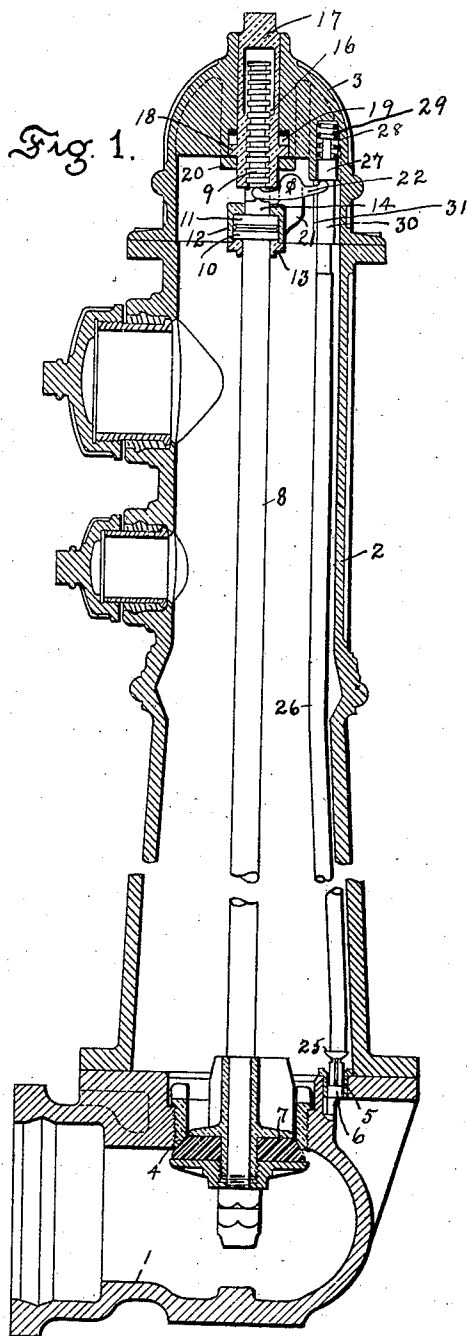


Fig. 1.

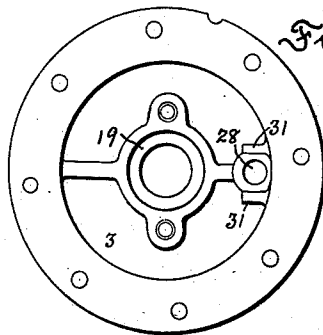


Fig. 2.

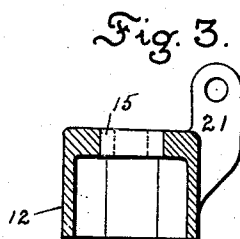


Fig. 3.

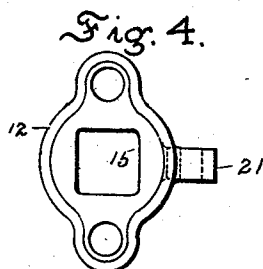


Fig. 4.

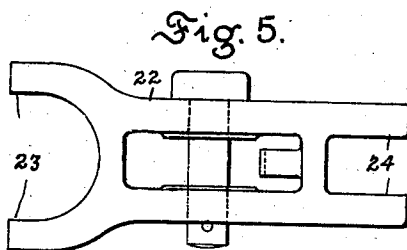


Fig. 5.

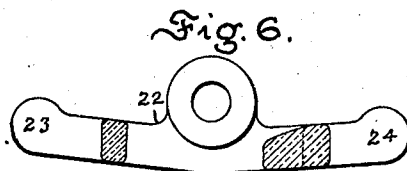


Fig. 6.

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FIRE-HYDRANT.

No. 845,505.

Specification of Letters Patent.

Patented Feb. 26, 1907.

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To all whom it may concern:

Be it known that I, ARTHUR O. BABENDREIER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented a new and useful Fire-Hydrant, of which the following is a specification.

This invention relates to new and useful improvements in fire-hydrants, and has for its object to provide a simple and effective fire-hydrant in which a drip-valve in addition to a main valve is employed, the said drip-valve being closed when the main valve is open and open when the main valve is closed, the purpose of the drip-valve being to permit the water remaining in the hydrant after the main valve is closed to run off into the ground.

Other features of the invention will be fully set forth in the following specification and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view showing the main valve closed and the drip-valve open. Fig. 2 is an inverted plan view of the bonnet. Fig. 3 is a vertical sectional view of the nut connecting the two sections of the main-valve stem. Fig. 4 is a plan view of Fig. 3. Fig. 5 is a plan view of the bifurcated lever for operating the drip-valve. Fig. 6 is a vertical sectional view of Fig. 5.

For the purpose of illustration I have shown my invention applied to a compression-hydrant. Compression-hydrants are those in which the main valve closes with the pressure and opens against the pressure. It will be understood from this that the main valve if not held away from its seat by some external force would act as a check-valve, being closed by the pressure of water in the main.

Referring to the accompanying drawings, forming part of this specification, 1 designates a tail or inlet pipe 2, the stand-pipe, and 3 the stand-pipe bonnet. The said tail-pipe and bonnet are bolted to the lower and upper ends, respectively, of the stand-pipe. The tail-pipe 2 is provided with a main-valve seat 4, having position in the top thereof, and a drip-valve seat 5, having position in the top of the drip-outlet 6.

The main valve 7 is secured to the lower end of the main-valve stem, which latter is shown in two sections 8 and 9, provided at their abutting ends with cylindrical heads 10

and 11 and secured together by a coupling comprising a cap 12 and plate 13. The section 9 of the main-valve stem is square at 14 adjacent the head 11 and projects through the square aperture 15 in the cap 12, which prevents the said section 9 from revolving. The lower section 8 of the main-valve stem carrying the main valve projects through a circular aperture in the plate 13 and is free to revolve. The upper section 9 is also screw-threaded at its upper end and projects up into a screw-threaded aperture 16 in the cylindrical operating-nut 17. This nut 17 is closed at its upper end and extends through the bonnet 3 and on its outer closed end is provided with a suitable head to receive a wrench, by means of which it is turned to operate the valves. The nut 17 is also provided with an annular flange 18 near its lower end, which has position in a counter-bore 19, formed in the bonnet 3. This counter-bore 19 is made deeper than the flange 18 to permit of a vertical movement of the said nut, the purpose of which will be hereinafter described. The flange 18 of the nut 17 is confined in the counter-bore 19 by a perforated plate 20, bolted up against the under surface of the bonnet 3. The said counter-bore 19 is provided with a gasket to form a water-tight joint.

The cap 12, which secures together the two sections 8 and 9 of the main-valve stem, is provided with a fulcrum-arm 21, on which latter is pivoted a lever 22, bifurcated at each end, the fork 23 being segment-shaped and large enough to receive loosely the main-valve stem and the other fork 24 being square and adapted to take on either side of the drip-valve stem. The drip-valve 25 is secured to the lower end of the drip-valve stem 26, which latter projects up through the stand-pipe 2 and through and above the bifurcated lever 22 and has a cylindrical head 27 at or near its upper end, which extends into a hole or pocket 28 in the bonnet 3 and against the buffer-spring 29 therein. The drip-valve stem 26 below the head 27 is flat on opposite sides at 30 where it passes between the prongs 24 of the lever 22, which prevents the said stem from turning. The bonnet 3 below the pocket 28 is provided with two interiorly-extending wings or guides 31, between which the forks 24 of the lever 22 travel. It will thus be seen that by hav-

ing one end of the lever 22 projecting between the guides 31 and the cap 12, to which said lever is pivoted, provided with a square aperture surrounding the square portion 14 of the main-valve stem the upper section 9 will be prevented from revolving. It will be observed that as the fulcrum-arm 21 of the bifurcated lever 22 is fixed to the main-valve stem it will consequently travel up and down with the main valve when the latter is either being opened or closed.

While I have shown and described the main-valve stem constructed of two sections, it is obvious the same may be made of one piece, with the fulcrum-arm secured thereto in any suitable manner.

The relation of the different parts of the hydrant when closed and idle are as follows: The main valve 7 is to its seat 4. The flange 18 of the operating-nut 17 is down and against one end 23 of the lever 22 and has tilted the latter. The opposite end 24 of the said lever 22 impinging against the lower surface of the cylindrical head 27 of the drip-valve stem 26 has lifted the latter, unseating the drip-valve 25 and opened the drip-outlet 6. Upon first turning the operating-nut in order to open the main valve the resulting action is as follows: The operating-nut 17 raises until the flange 18 strikes the gasket in the counterbore 19. During that time the main valve 7 has remained closed, due to the water-pressure under it, but the lever 22 has been allowed to tilt, having been relieved of the pressure of the nut 17 on the end 23 thereof, its end 24 being depressed or forced down by the weight of the drip-valve and its stem 26, causing the drip-valve 25 to become seated and closing the drip-outlet 6. A further turning of the nut 17, its flange being against the gasket in the top of the counterbore 19, forces the screw end of the main-valve stem downwardly from the operating-nut 17 and causes the main valve to unseat and the flow of water allowed to take place through the hydrant.

In closing off the hydrant the action is as follows: The main valve tending to always close, similar to a check-valve, keeps the flange 18 of the operating-nut 17 against the gasket in the top of the counterbore 19 during the turning of the nut 17 until the main valve 7 has reached its seat 4. The further turning of the said nut 17 causes the latter to screw down on the main-valve stem, forcing down the inner end of the lever 22 and raising the opposite end, lifting the drip-valve stem and drip-valve 25 and opening the drip-outlet 6, which permits the water remaining in the stand-pipe to drain off into the ground.

It will be seen from the foregoing description that the main valve and drip-valve are never open at the same time. The drip-valve is operative only when the main valve is closed—that is to say, it cannot be opened

or will not open until the main valve is to its seat, and it will close again before the main valve can be driven from its seat.

Having thus described my invention, what I claim is—

1. In a fire-hydrant, the combination of the main valve, a main-valve stem, a drip-valve, a drip-valve stem, a lever pivoted within the hydrant, and a nut threaded upon the upper end of the main-valve stem adapted to seat and unseat the main valve and having a predetermined vertical movement independent of the said stem upon which it is threaded by means of which it is adapted to operate the said lever to unseat the drip-valve after the main valve is closed.

2. In a fire-hydrant, the combination of the main valve, a main-valve stem, a drip-valve, a drip-valve stem, a lever carried by the main-valve stem and having one end impinging against the drip-valve stem, and an interiorly-threaded nut threaded upon the upper end of the main-valve stem adapted to seat and unseat the main valve and also adapted to operate the said lever to seat the drip-valve before the main valve is opened or to unseat the drip-valve after the main valve is closed.

3. In a fire-hydrant comprising a tail-pipe, a stand-pipe, and a bonnet, the combination of a main valve, a main-valve stem, a drip-valve, a drip-valve stem, a lever carried by the main-valve stem, an interiorly-threaded cylindrical nut projecting through the said bonnet and having an annular flange near its lower end which has position, and is adapted to move vertically, in a counterbore in the lower surface of the said bonnet, said nut being adapted to seat and unseat the main valve and also adapted to operate the said lever to unseat the drip-valve after the main valve is closed.

4. In a fire-hydrant comprising a tail-pipe, a stand-pipe, and a bonnet, the combination of a main valve, a main-valve stem, a drip-valve, a drip-valve stem having a cylindrical head fitted in a pocket in the said bonnet and having flat sides diametrically opposite each other below said head, a lever carried by the main-valve stem and bifurcated at each end, the forks of one end being adapted to receive the main-valve stem and those of the other end take on either side of the flat surfaces of the drip-valve stem, an interiorly-threaded cylindrical nut projecting through the said bonnet and having an annular flange near its lower end which has position, and is adapted to move vertically, in a counterbore in the lower surface of the said bonnet, said nut being adapted to seat and unseat the main valve, and also adapted to operate the said lever to unseat the drip-valve after the main valve is closed, and two wings or guides at one side of the bonnet between which one end of the said lever operates.

5. In a fire-hydrant, the combination of the main valve, a main-valve stem having a fulcrum-arm secured thereto to prevent the said stem from turning, a lever pivoted to
5 said fulcrum-arm, a drip-valve, a drip-valve stem, and means for seating and unseating the main valve, said means being adapted to operate the said lever to seat the drip-valve before the main valve is opened or to unseat
10 the drip-valve after the main valve is closed.

6. In a fire-hydrant, the combination of the main valve, a main-valve stem, a drip-valve, a drip-valve stem, a nut threaded upon the upper end of the main-valve stem adapt-

ed to seat and unseat the main valve and hav- 15
ing a predetermined vertical movement independent of the movement of the said stem upon which it is threaded, and means operated by said nut for opening or closing the
20 drip-valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR O. BABENDREIER.

Witnesses:

CHAPIN A. FERGUSON,
H. CARHART SHIMER.