

No. 825,570.

PATENTED JULY 10, 1906.

R. D. WIRT.
AUTOMATIC HOSE VALVE.

APPLICATION FILED JAN. 19, 1906. RENEWED JUNE 8, 1908.

2 SHEETS—SHEET 1.

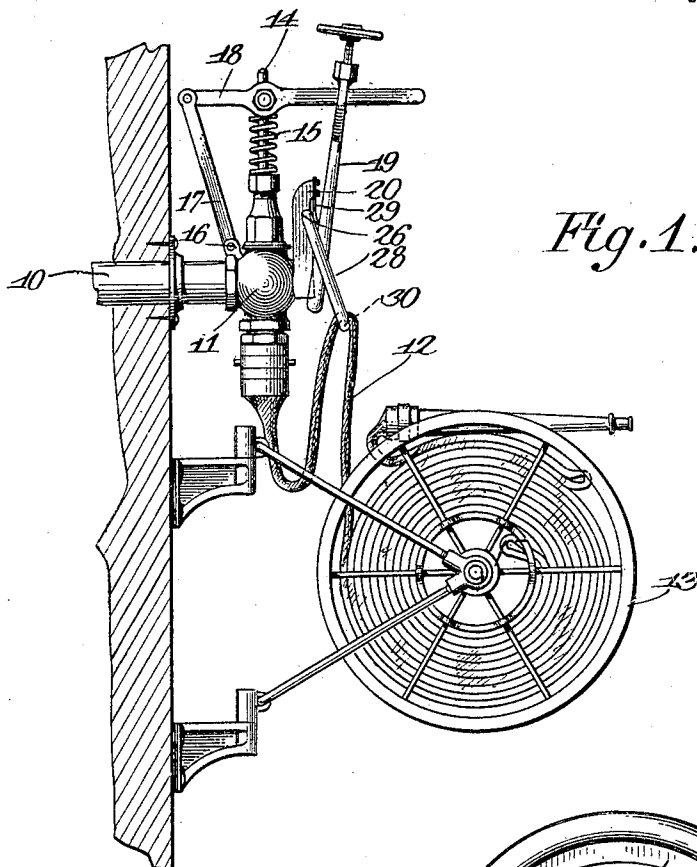


Fig. 1.

Fig. 5.

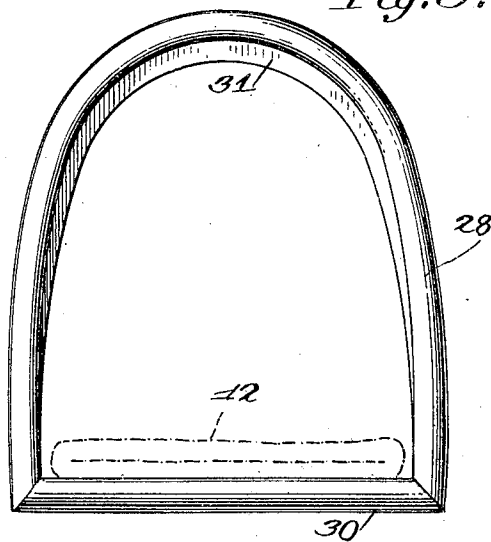
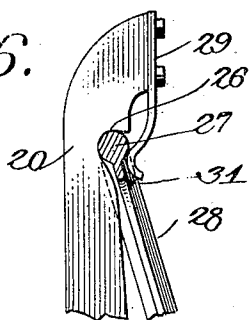


Fig. 6.



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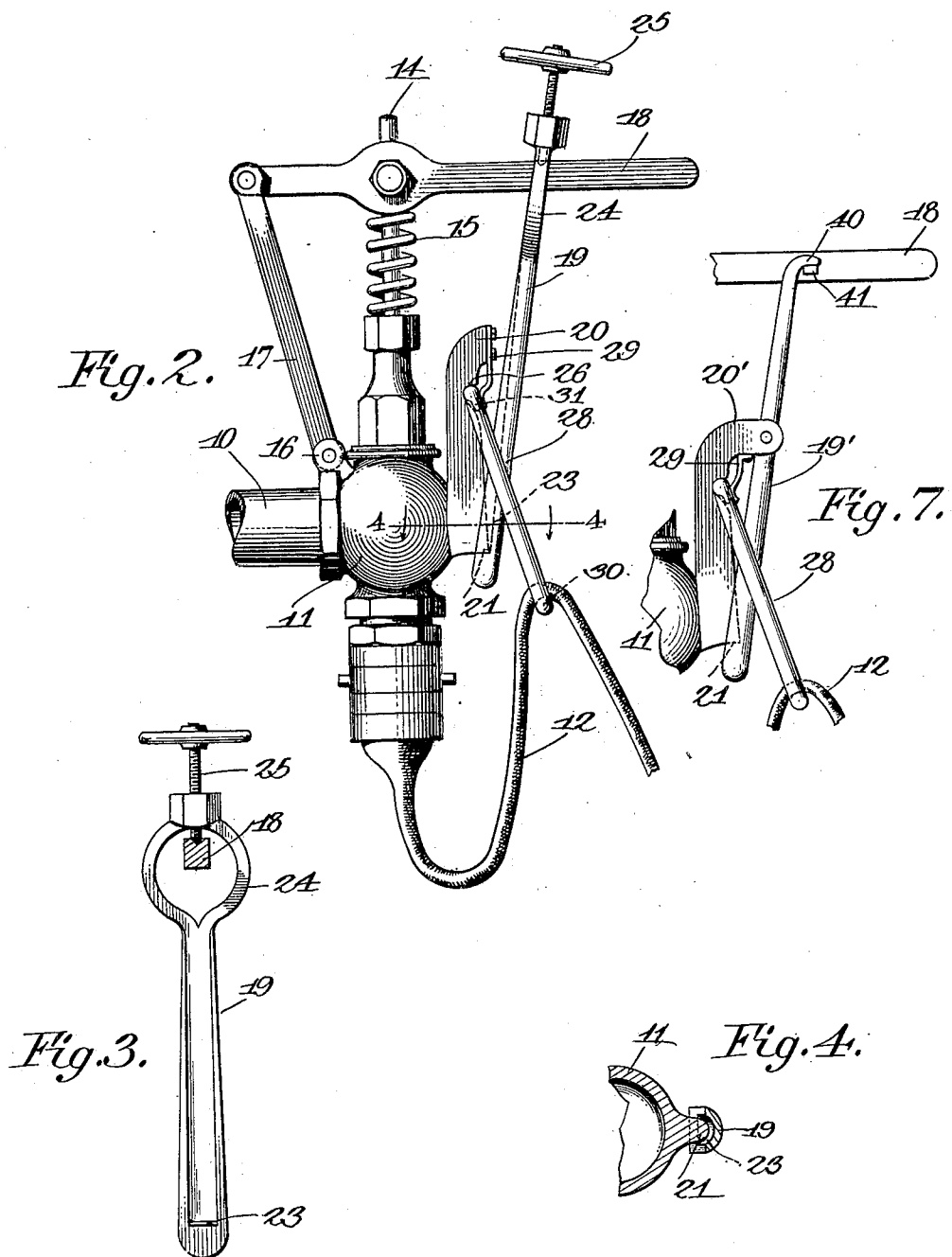
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3 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

REUBEN D. WIRT, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC HOSE-VALVE.

No. 825,570.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed January 19, 1905. Renewed June 8, 1906. Serial No. 320,793.

To all whom it may concern:

Be it known that I, REUBEN D. WIRT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Automatic Hose-Valve, of which the following is a specification.

This invention relates to apparatus of that general class employed for fire protection in factories, hotels, office buildings, and the like wherein a stand-pipe is provided on each floor with hose connections that are immediately available for use in case of fire.

The principal object of the invention is to provide an automatic means whereby on the withdrawal of the hose from its support, usually a reel or rack, the valve connecting the hose with the stand-pipe will be opened and permit the flow of water through the hose.

A further object of the invention is to provide a device of this character in which the valve is provided with an opening means and is held in closed position by a locking device that is automatically released by a pull on the hose.

A still further object of the invention is to provide an automatic valve-releasing device which may be readily adjusted to close the valve in advance of the return of the hose to the rack or reel.

A still further object of the invention is to provide a valve-releasing device of such nature that a positive operation will be insured without regard to the direction in which strain is exerted on the hose, so that the latter may be led off in any direction with the certainty that at the proper time the valve will be fully opened.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation of an automatic valve-opening device arranged and constructed in accordance with the invention and illustrating the same as employed in connection with a hose-reel. Fig. 2 is a view similar to Fig.

1, illustrating the mechanism on a somewhat larger scale. Fig. 3 is a detail view of the valve-locking link, illustrating the valve-closing lever in section. Fig. 4 is a sectional plan view, on an enlarged scale, on the line 4 4 of Fig. 2. Fig. 5 is an elevation of the catch-releasing ring detached. Fig. 6 is a detail view of the ring-supporting arm and spring, the ring being illustrated in section. Fig. 7 illustrates a slight modification of the valve-releasing catch or link.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In mills, hotels, office buildings, and other large structures it is usual to employ a stand-pipe running from floor to floor and connected to a suitable source of water-supply, and at each floor is arranged a hose carried by a reel, rack, or other support and provided with a valved connection with the stand-pipe, so that water may be instantly available for use in case of fire at any point.

The present invention aims to improve mechanism of this class by so arranging the valve that when the hose has been pulled from the rack or reel or other support the valve will be automatically opened.

The water-pipe 10 is shown as provided with a valve 11, the casing of which is coupled in the usual manner to a hose 12, that is shown in the present instance as mounted on a supporting-reel 13, although the support may be of the rack or any other approved type. The valve shown is of a well-known type in which the stem 14 is encircled by a spring 15, normally held under pressure while the valve is in closed position, and as soon as this pressure is relieved the spring will raise the stem and open said valve. The valve-casing is provided with ears or lugs 16, to which is pivoted the lower end of a link 17, connected at its opposite end to a lever 18, which is coupled at a point intermediate of its length to the valve-stem 14. The outer arm of the lever is engaged by a link or catch 19, constructed in accordance with the present invention and designed to hold the lever in its lowest position and the valve closed.

The valve-casing is provided with a vertically-arranged post 20, at the lower edge of which is formed a shoulder 21, having a flat lower face, said shoulder fitting within a transversely-curved recess 23, formed in the lower end of the link 19. The upper end of the link is in the form of a ring 24, that may be placed

over the end of lever 18, and at the top of the ring is a boss having a threaded opening for the reception of a handled screw 25, the lower end of the screw entering a recess or indentation in the upper face of the lever in order to prevent accidental displacement. By turning this screw the lever may be forced down in order to insure positive closing of the valve on its seat, or its adjustment may be accomplished in any other suitable manner.

In the outer face of the upper portion of the post 20 is a recess 26 for the reception of the upper portion of a ring 28, that is normally held within the recess by a leaf-spring 29, the upper end of which is secured to the post. The ring is approximately of horse-shoe form, and its lower straight bar 30 is designed to form a support for a portion of the hose adjacent to the coupling of the latter, while the ring itself is of such diameter as to allow the free passage of the coupling and to avoid any choking of the passage while the hose is in use. At the upper edge of the ring is formed a web 31, which is designed to act as a cam in freeing the ring from the spring 29 and in forcing the link 19 from engagement with the shoulder 21, it being observed that the ring encircles the lower portion of the link and when released from the spring will fall to a position between the post and the adjacent recessed surface of said link.

It will be observed on reference to Fig. 4 that the lower outer edge of the post 20 is rounded or curved transversely and that the recess 23 in the lower portion of the link is similarly curved, so that the link may swing or turn slightly from side to side, the upper ring 24 of the link being of sufficient diameter to permit a considerable range of movement. This movement of the link is found of value in effecting its positive disengagement from the shoulder 21 of the post when the hose is led off in different directions.

In operation the parts are normally in the position illustrated in Figs. 1 and 2, with a short loop of the hose supported by the horizontal bar 30 of the ring 28. When the hose has been removed from its support, either a reel or rack, a sharp pull will cause the ring 28 to free itself from the spring 29 and drop between the post 20 and link 19, and under ordinary conditions this will be found sufficient to detach the lower end of the link from the shoulder 21 and by thus releasing the link 19 permit the spring 15 to open the valve. In order to provide against accidents, however, and render the operation certain, the cam-like flange 31 of said ring is so arranged that when the ring is in the angular space between the post and link a pull on said ring in any direction will cause the flange to pry the link outward and effect its positive disengagement from the post, and this will occur no matter what direction the strain may be exerted, owing to the fact that the flange is coexten-

sive with the whole of the upper portion of the ring and owing, further, to the fact that the link may turn slightly owing to the curvature of the outer face of the post and the curvature of the recess 23 of said link. It will be observed that the side walls of the recess 23 of the link extend outward for the full thickness of the link, so that there will be no danger of the ring catching on the lower wall of the recess or that wall which engages with the shoulder 21 of the post, so that the ring will fall with the hose and the flow of water will not be interfered with. In restoring the parts to initial position the ring may be readily slipped along the hose to its proper place and then engaged in the recess 26. The outer end of the lever 18 is then pulled down and the link is placed in position after being inserted through the ring, after which the screw 25 may be turned to insure the full closing of the valve.

It is obvious that the construction may be altered in a variety of ways—as, for instance, by pivoting the link in the manner shown in Fig. 7. In this case the upper end of the arm 20 is extended outward to form a pivotal support for an intermediate portion of a link 19', the lower portion of the link remaining the same as previously described. The upper portion of this link is bifurcated and is provided with a pair of bills or hooks 40, which engage with suitable lugs 41, projecting from the sides of the valve-closing lever 18. The operation in this case will be the same as that previously described, with the exception that the link will be wholly disengaged from the lever instead of hanging thereon, as in the construction shown in Fig. 1.

Having thus described the invention, what is claimed is—

1. In apparatus of the class described, the combination with an automatically-opened valve, of a locking means for holding the valve in closed position, and a hose-engaged member normally held from contact with said locking means, and movable into operative engagement therewith by strain on the hose.

2. In apparatus of the class described, the combination with an automatically-opened valve, of a locking means for holding the valve in closed position, and a separate hose-engaging member movable by strain on the hose and serving to release said locking means.

3. In apparatus of the class described, an automatically-opened valve, a valve-lever, means for locking said lever with the valve in closed position, and a separate hose-actuated member for engaging and releasing the locking means and permitting the lever to move with the valve as the latter opens.

4. In apparatus of the class described, an automatically-opened valve, a link member tending normally to hold the valve in closed

position, and a separate hose-engaging member movable by stress on the hose into operative engagement with said link.

5 5. In apparatus of the class described, the combination with an automatically-opened valve, of a valve-lever, a link connecting the valve-lever to a fixed point, and a hose-encircling ring normally held from contact with the link and movable into operative engagement therewith by strain on the hose.

6. In apparatus of the class described, the combination with an automatically-opened valve, of a valve-lever, a link connecting the lever to a fixed point, a link-disengaging ring encircling the hose, and means for supporting the ring independently of said link.

7. In apparatus of the class described, the combination with an automatically-opened valve, of a valve-lever, a link forming a connection between the valve-lever and valve-casing, a hose-encircling ring arranged to engage said link, and a yieldable means serving to support the ring independently of the link.

8. In apparatus of the class described, an automatically-opened valve, a link member tending normally to hold the valve in closed position, and a hose-encircling ring movable by stress on the hose into operative engagement with said link.

9. In apparatus of the class described, an automatically-opened valve, a link normally locking the valve in closed position, and a hose-encircling ring having a wedge for engagement with the link.

10. In apparatus of the class described, an automatically-opened valve, a link serving

normally to lock the valve in closed position, a hose-encircling ring having a wedge for engaging the link, and a yieldable support for said ring.

11. In apparatus of the class described, the combination with an automatically-opened valve, of a link serving normally to hold the valve in closed position, a ring encircling the hose, and link, and means serving to prevent engagement of the ring with the link.

12. In apparatus of the class described, the combination with a valve-casing having a post, the outer edge of which is curved transversely, the upper portion of the post being provided with a recess, a hose-encircling ring fitting within the recess and provided with a horizontal bar forming a hose-support, the upper portion of the ring being provided with a wedge-shaped flange, a spring to retain the ring within the recess, a spring for opening the valve, a pivotally-mounted lever connected to the stem of the valve, a link having a transversely-curved recess for the reception of the lower portion of the post, said link extending through the ring and being provided at its upper end with a lever-encircling ring, and a screw carried by said lever-encircling ring and bearing on the lever.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

REUBEN D. WIRT.

Witnesses:

THOS. W. WILKINSON,
JOSEPH THOMASSON.