

No. 685,928.

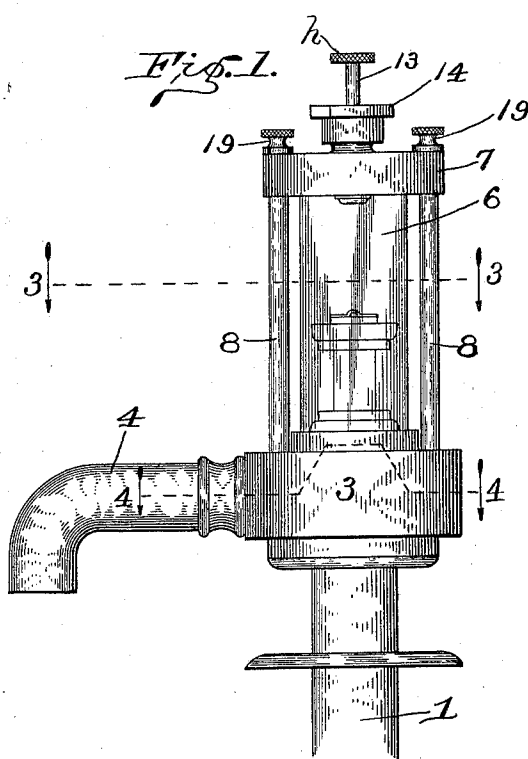
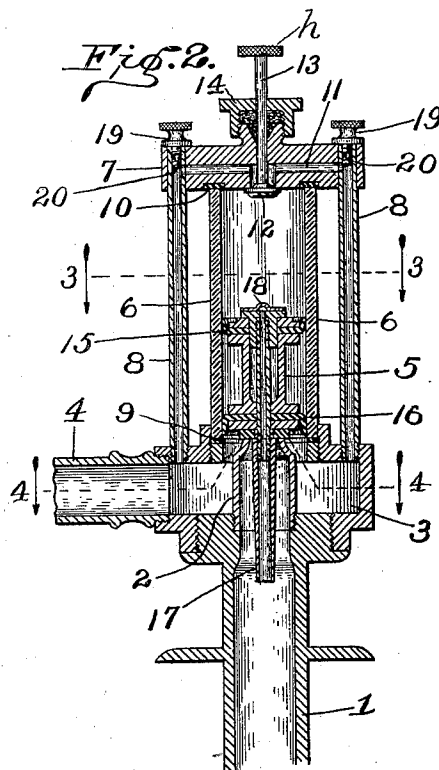
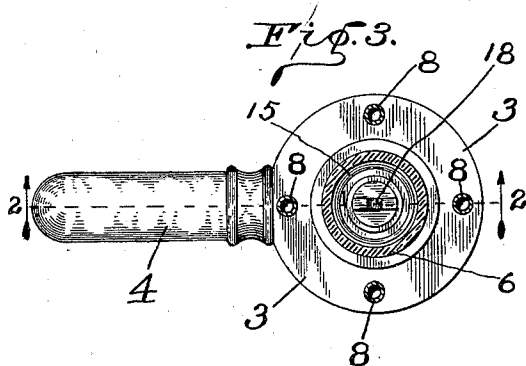
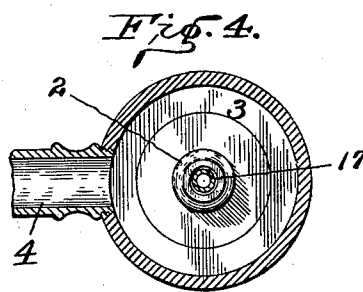
Patented Nov. 5, 1901.

J. W. NETHERY.

VALVE.

(Application filed Mar. 29, 1901.)

(No Model.)



WITNESSES:

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JOSEPH W. NETHERY, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE NETHERY HYDRAULIC VALVE COMPANY, OF INDIANAPOLIS, INDIANA; NEW YORK, N. Y., AND JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

VALVE.

SPECIFICATION forming part of Letters Patent No. 685,928, dated November 5, 1901.

Application filed March 29, 1901. Serial No. 53,528. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. NETHERY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Valves, of which the following is a specification.

The principal objects of my said invention are to provide a valve or faucet by means of which a predetermined amount of fluid may be drawn, whereupon the faucet will automatically close, and to secure in such a faucet or valve certain advantages of construction and arrangement, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a side elevation of a valve or faucet embodying my said invention; Fig. 2, a central vertical sectional view of the same as seen when looking upwardly from the dotted line 2 2 in Fig. 3; and Figs. 3 and 4 horizontal sectional views as seen when looking downwardly from the dotted lines 3 3 and 4 4, respectively, in Figs. 1 and 2.

The fluid enters my improved valve or faucet by way of a pipe 1, first flowing up a prolongation 2 thereof, which forms the valve-seat, and thence downwardly through the chamber 3 and out through the nozzle 4. Above and resting upon the part 2 (which, as above stated, forms the valve-seat) is the main valve 5, which is contained within a cylinder 6, which cylinder I prefer to form of glass, as shown. Upon the upper end of this cylinder is a head 7, and this is connected to the upper portion of the shell of the chamber 3 by rods 8. Packing 9 and 10 at the lower and upper ends, respectively, of the glass cylinder 6 is provided as a means of maintaining fluid-tight joints. A transverse perforation 11 in the head 7 connects centrally with the interior of the cylinder 6 and at the outer portion with one or more of the hollow rods 8, and these constitute a by-pass from the chamber formed by the cylinder 6 back to the chamber 3. I have shown all of the rods 8 as tubular, and consequently adapt-

ed for this service; but obviously a single one will answer the purpose, although two or more furnish a larger discharging area as the discharging end of the by-pass is approached. The central opening in the head 7 terminates in a valve-seat on the under side of the head and is adapted to be closed by a valve 12. Said valve has a valve-stem 13, which extends up through the stuffing-box 14 on the cap 7 and terminates in a push or head *h*.

The valve 5 maintains water-tight connection with the interior of the cylinder 6 by means of its cup-leathers 15 and 16. It has a central perforation extending therethrough, through which a small stream of water from the main pipe 1 may pass up into the chamber formed by the glass cylinder 6. It also has a prolongation 17 extending downwardly from its central point, the lower end of which is always below the upper surface of the valve-seat and the upper end of which registers with the perforation through the body of the valve, so that the fluid under the full pressure which is maintained in the pipe 1 may always flow through the valve to the chamber above. As this central perforation through the valve 5 is directly below valve 12, the fluid passing through said perforation would if not prevented strike said valve 12 with considerable force, and thus might sometimes close it before the proper time. I have therefore provided a shield 18 on the top of the valve 5 and over the mouth of this perforation, against which the fluid will strike and be spread out sidewise instead of being permitted to flow vertically upward against the valve 12. The latter is therefore permitted to close gradually and uniformly as the operation progresses.

In operation any one wishing to draw water (or such other fluid as a valve or faucet is used with) will first press down on the head *h* of the valve-stem 13, thus opening the valve 12. The by-pass being larger than the perforation through the valve 5, the pressure in the chamber in the cylinder 6 will at once be reduced, as the fluid will flow out faster than it will enter. The valve 5 then under the

force of the fluid in the pipe 1 will rise off its seat, so that the fluid will flow through said valve-seat, first entering the chamber 3 and then passing out through the nozzle 4. As the valve 5 rises it comes in contact with the valve 12, closing the latter. The pressure then begins at once to increase in the chamber formed by the cylinder 6, and as the area of the upper end of the valve 5 is considerably greater than the valve-seat at the upper end of the part 2 this increased pressure begins at once to force the valve 5 downwardly, and it presently reaches its seat, whereupon the flow of the fluid is stopped and will so remain until the valve 12 is again opened. The speed with which the chamber may be emptied through the by-pass of course depends upon the size of said by-pass, and in order that this may be regulated to suit and the amount of fluid to be drawn at one opening of the valve 6 determined at pleasure I have provided below each of the frame-screws 19 a suitable shut-off screw 20, which is capable of being driven in until it closes the by-pass. As is obvious, this can be adjusted as desired, and any required result thus obtained.

There is an advantage in the use of the chamber 3 as a receptacle for the discharge from the by-pass rather than to deliver it directly into the nozzle of the faucet, as the chamber being considerably the larger of the two the fluid enters it more freely than it could enter the comparatively small nozzle. In the arrangement shown also, where the valve-seat is above the top of the chamber at the point the by-pass discharges into said chamber, the flow of fluid from the main supply and from the by-pass is substantially in the same direction, so that there is no tendency on the part of the main flow to back up against the flow from the by-pass.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a valve, of the main ingress-pipe, a chamber arranged at the terminal of said ingress-pipe, a nozzle leading

out from said chamber, an extension to the ingress-pipe leading up centrally through said chamber and forming the main-valve seat, a valve above said valve-seat, a cylinder within which said valve is contained, a by-pass leading from said chamber around said cylinder and communicating therewith at the upper end, and a small valve to said by-pass.

2. The combination, in a valve, of the main ingress-pipe, a glass cylinder arranged above said pipe, a valve within said glass cylinder, an extension-pipe from the main pipe forming a valve-seat for said valve, a cap above said glass cylinder, an orifice forming a part of the by-pass, a valve to said by-pass, and tubular rods leading from said cap to said chamber and constituting both connecting-rods and a part of the by-pass, substantially as set forth.

3. The combination, in a valve, of the main ingress-pipe, a cylinder above said pipe, a valve in said cylinder having a longitudinal perforation therethrough leading from below to above said valve, a shield arranged over said perforation to receive the flow of fluid therethrough, a by-pass from the upper end of the chamber in the cylinder above the main valve back to below said main valve, and a small valve to said by-pass; said shield serving as a guard to prevent the jet of water from the orifice in the main valve from striking the by-pass valve, substantially as set forth.

4. The combination, in a valve, of a glass cylinder within which the valve proper operates, a head to said cylinder, and tubular rods connecting said head to the structure below, said tubular rods being arranged to serve also as a portion of the by-pass, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 27th day of March, A. D. 1901.

JOSEPH W. NETHERY. [L. S.]

Witnesses:

CHESTER BRADFORD,
NETTIE ADAMS.