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E. C. HILLMAN

FLUID CONTROL

Filed April 22, 1923

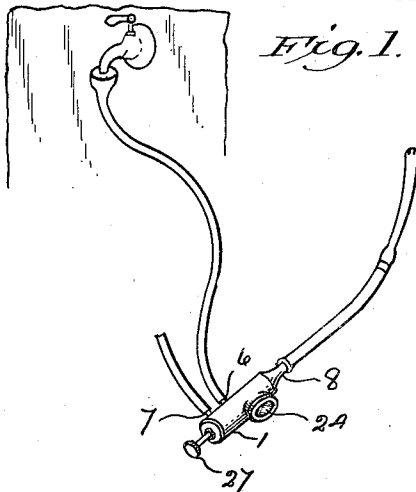


Fig. 1.

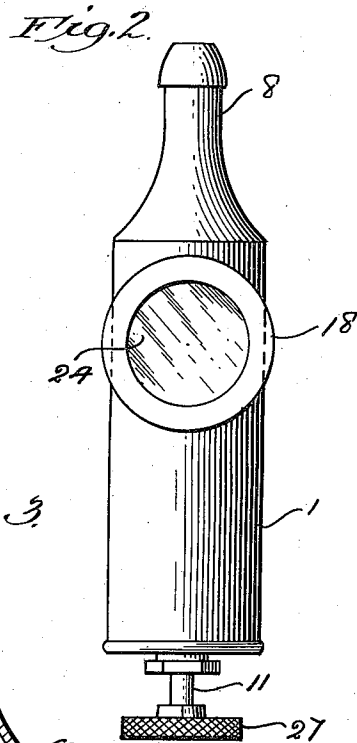


Fig. 2.

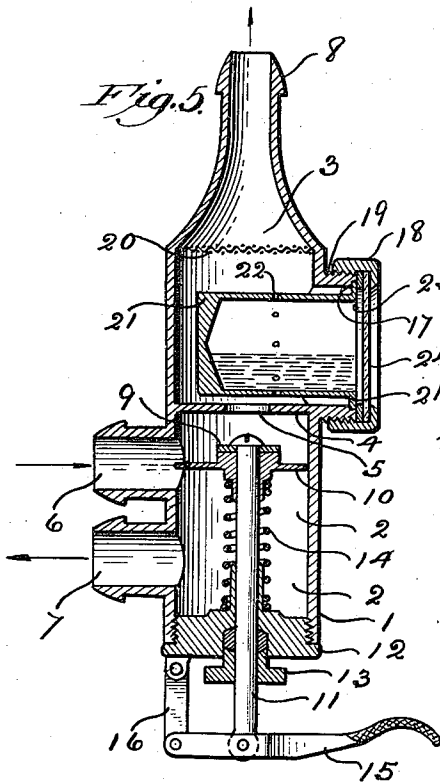


Fig. 5.

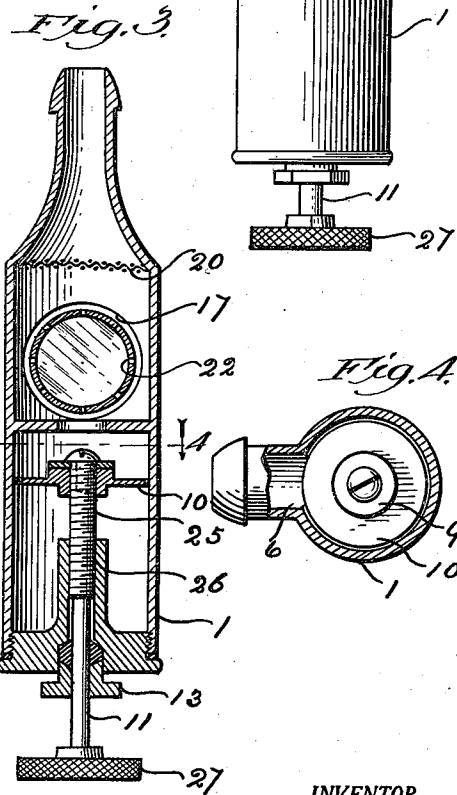


Fig. 3.

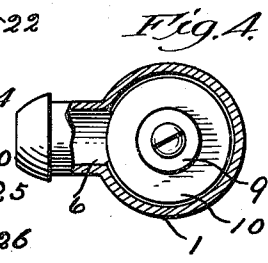


Fig. 4.

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FLUID CONTROL.

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This invention relates to a system for the distribution of fluids, and it has especial reference to the utilization of a fluid under pressure for internal application or other uses.

The object of my invention is primarily to provide a simple means for utilizing a fluid in a main and under pressure and for controllably regulating the supply whereof from a full head of fluid such portion as desired may be diverted and conducted internally or otherwise.

Other objects will appear from the specification following in connection with the accompanying drawing, which is illustrative of a convenient form of embodiment of the invention and in which—

Fig. 1 is a diagrammatic perspective view showing my invention.

Fig. 2 is a plan view.

Fig. 3 is a sectional view.

Fig. 4 is a transverse section on line 4-4 Fig. 3, and

Fig. 5 is a longitudinal view showing a preferred form of embodiment of the invention.

Referring particularly to Fig. 5, my invention is there shown in the form which I prefer to use, and as comprising generally a hollow body having a fluid inlet and two fluid outlets, one serving to waste the unneeded fluid and reduce the pressure and volume of the incoming flow to that required, and the other arranged to conduct the fluid needed to the point of application, with a control whereby the flow or cessation of the flow may be effected instantaneously.

The form referred to, to wit, that shown in Fig. 5, comprises in its detail a hollow cylindrical chamber 1, divided into a primary compartment 2 and a secondary compartment 3 by a transverse wall 4. Through an opening 5 in said wall 4, the primary and secondary compartments may freely communicate with one another. The cylindrical chamber 1 is provided with a fluid inlet 6 and a fluid or relief outlet 7, both inlet 6 and outlet 7 being in free communication with the primary compartment 2, and operating simultaneously, the former to receive or conduct fluid into the compartment 1 and the latter to carry off or waste fluid from the primary compartment 2. The secondary compartment 3 is formed at the end thereof to receive a tube or other conduit,

as shown at 8, for conducting a portion of the fluid escaping from the primary compartment 2 through the opening 5 in the wall 4, in a controllable manner as presently explained.

Within said compartment 1 is a valve 9 operable relative to said opening 5 to cover or uncover same and permit the passage therethrough of whatever fluid may be diverted from the quantity entering into the compartment 2 through the inlet 6. To cause the fluid entering into the compartment 2 through the inlet 6, to be divided and the divided portion to be diverted through the opening 5 into the secondary compartment 3 from which it may pass into and through the conduit or main outlet 8, I provide a means, such as a disk 10, on the stem 11 of the valve 9. This disk 10 is operable by and with the valve stem 11 relative to and across the inlet 6. As seen, the inlet 6 is in proximity to the wall 4 and the disk 10 positioned in such relation to the valve 9 that when the valve is seated, the disk 10 will be moved entirely past the inlet 6, at which time the flow of fluid through the inlet 6 into the compartment 2 will be undivided and will escape through the outlet 7 in the same proportion as it enters the compartment 2. By moving the disk 10 relative to the area of the opening or inlet 6, a proportion of the inflowing fluid may be caused to pass through the opening 5 into the compartment 3, while the balance of the flow wastes or discharges from the compartment 2 through the outlet 7. Thereby a desirable quantity of fluid, under a controllable pressure may be available for personal or other use, while the excess pressure and quantity which it would not be possible to use internally, is relieved through the outlet 7. A convenient form of operation of said valve stem 11 is illustrated in Fig. 5. The valve stem 11, passes through a plug 12, which threads in the end of the compartment 2, and which plug 12 is provided with a bushing 13, for obvious purposes. Between the plug 12 and the disk 10, and coiled about the stem 11 is a spring 14 which operates normally to hold seated or automatically seat, the valve 9. On the end of the stem 11, is pivoted a lever 15, the end of which is fulcrumed on a link 16 pivotally connected to said plug 12. This lever 15 is arranged to be operated by the thumb or other member. In using the device for

conducting water internally, it will be seen that the lever 15 must be operated by the user, and that the extent to which the lever is moved outwardly, governs the quantity and pressure of water passing through the conduit 8. Should the pressure be too great, or the fluid be too hot, (it being understood that the fluid is delivered from a mixing bib of any type), the water may be instantly shut off from passing through the conduit 8, without disturbing the flow through the system, by releasing the lever 15, whereby the valve 9 under the influence of the spring 14 is instantly seated. The compartment 3 serves chiefly to contain a suitable chemical, either in the form of granules or of tablets, which are gradually dissolved by the fluid passing from the compartment 2 to the compartment 3, and in this manner the sterilization of the water, is effected as well as the conduct internally of antiseptic or other solutions. A charge of the substance desired for use may be deposited into said compartment 3 through an opening 17, which is arranged to be closed by a cap 18, threading on a collar 19 provided on the chamber 1. A screen 20 is placed within said compartment and serves to prevent the deposited charge or parts of same from being bodily carried into the conduit 8.

Where strong poisons in liquid form are to be used for internal irrigation, I prefer to use a cup 21 for containing the dosage. This cup 21 is provided with a row of very small orifices 22 through which only minute portions of the contained antiseptic may ooze and commingle with the fluid passing through the compartment 3. In this manner, the antiseptic is many times diluted and may be used with perfect safety.

The cup 21 for containing the antiseptic is preferably provided with an annular flange 21' for seating in the collar 19. The cap 18, threading on the collar 19 closing the same and holding in place a gasket 23 and a sight glass 24.

In some instances, I may prefer the form shown in Figs. 1, 2, and 4, which while accomplishing in all respects the same ends as the described form, embodies merely a different mode of operation of the valve stem 11. In this form, the valve stem 11 is threaded, as seen at 25, and threads in an extension 26 of the plug 12. On the end of the stem 11, is a knurled device 27 for rotating the same to move the valve 9 and the disk 10 thereon, in manner as described.

It will be apparent from the foregoing that by this device, any quantity of water or other fluid may be used continuously for

internal or other application and, under a controllable pressure regardless of the pressure in the main and that the utilization of fluid directly from a mixing bib substitutes the unsightly appliances now in common use.

What I claim, is:—

1. A fluid control device comprising a hollow cylindrical chamber having a transverse wall which divides said chamber into a primary and a secondary compartment formed to receive a tube, and the transverse wall between said compartments provided with a central opening, the primary chamber having a fluid inlet and a fluid outlet, a valve within said chamber to control the flow of fluid through the opening in said transverse wall, a disk on said valve and operable with said valve and relative to said fluid inlet to control the fluid entering said inlet, and means for operating said valve and disk.

2. A fluid distributing device comprising a cylindrical chamber having a ported partition dividing said chamber into a primary and a secondary compartment, the primary compartment having a fluid inlet and a fluid outlet, a plug closing the end of said primary compartment, a stem extending through said plug and into said compartment, a valve on the end of said stem to open and close the port in said partition, a disk on said stem and in operative relation to the inlet to said primary compartment, a spring on said stem and between said disk and plug normally to hold said valve seated in the port in said partition, and means to operate said stem to move said disk relative to said fluid inlet to proportion the fluid that is to enter through said port.

3. A fluid distributing device comprising a hollow cylindrical chamber formed with a transverse ported wall which divides said chamber into a primary and a secondary compartment, said primary compartment having a fluid inlet and a fluid outlet, a plug sealing the end of said primary compartment, a stem extending through said plug and into said primary compartment, a valve on the end of said stem to control the passage of fluid through the port in said partition, a disk on said stem disposed in controllable relation to said fluid inlet to proportion the quantity of fluid that is to pass through said inlet, means to operate said stem, a fluid containing cup within said secondary compartment having a plurality of perforations, and means to hold said cup in position in said secondary compartment.

In testimony whereof I have set my hand.

ERNEST C. HILLMAN.