June 9, 1931. A. N. PASMAN 1,809,567

TRANSFER VALVE

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Fig. 1.

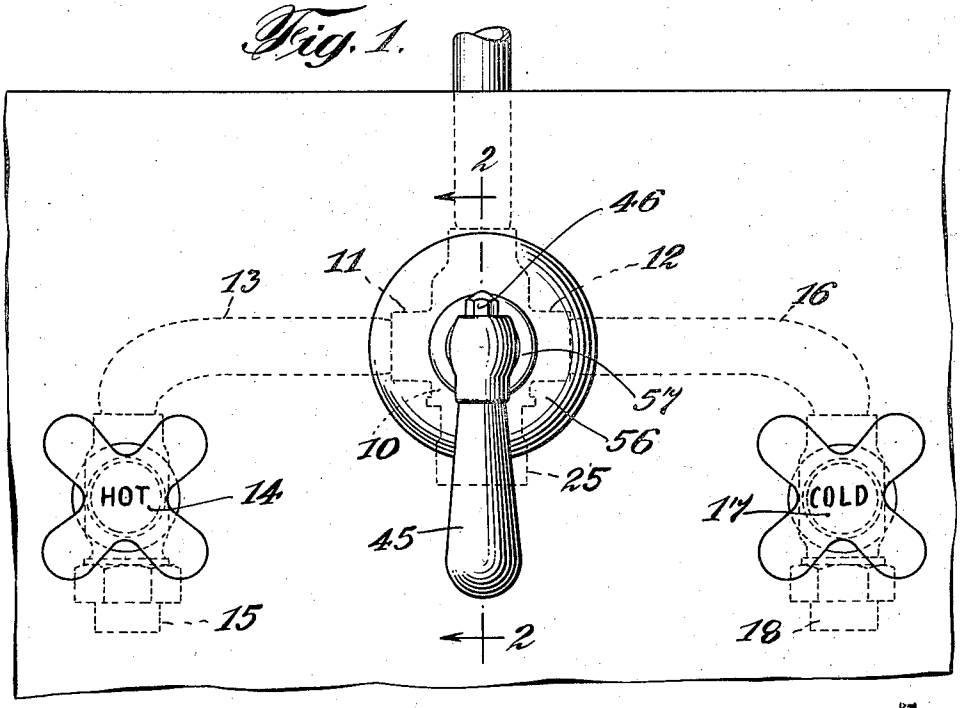


Fig. 4.

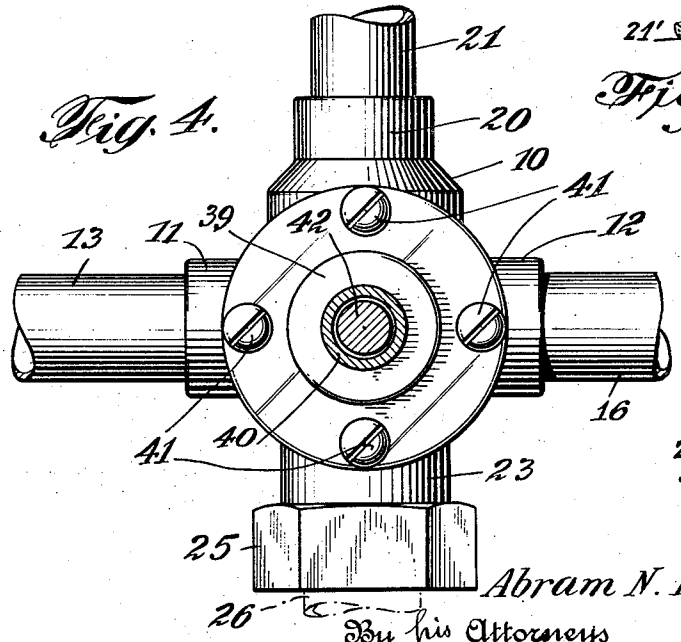
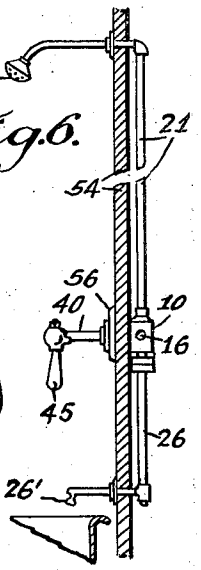


Fig. 6.



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Fig. 2.

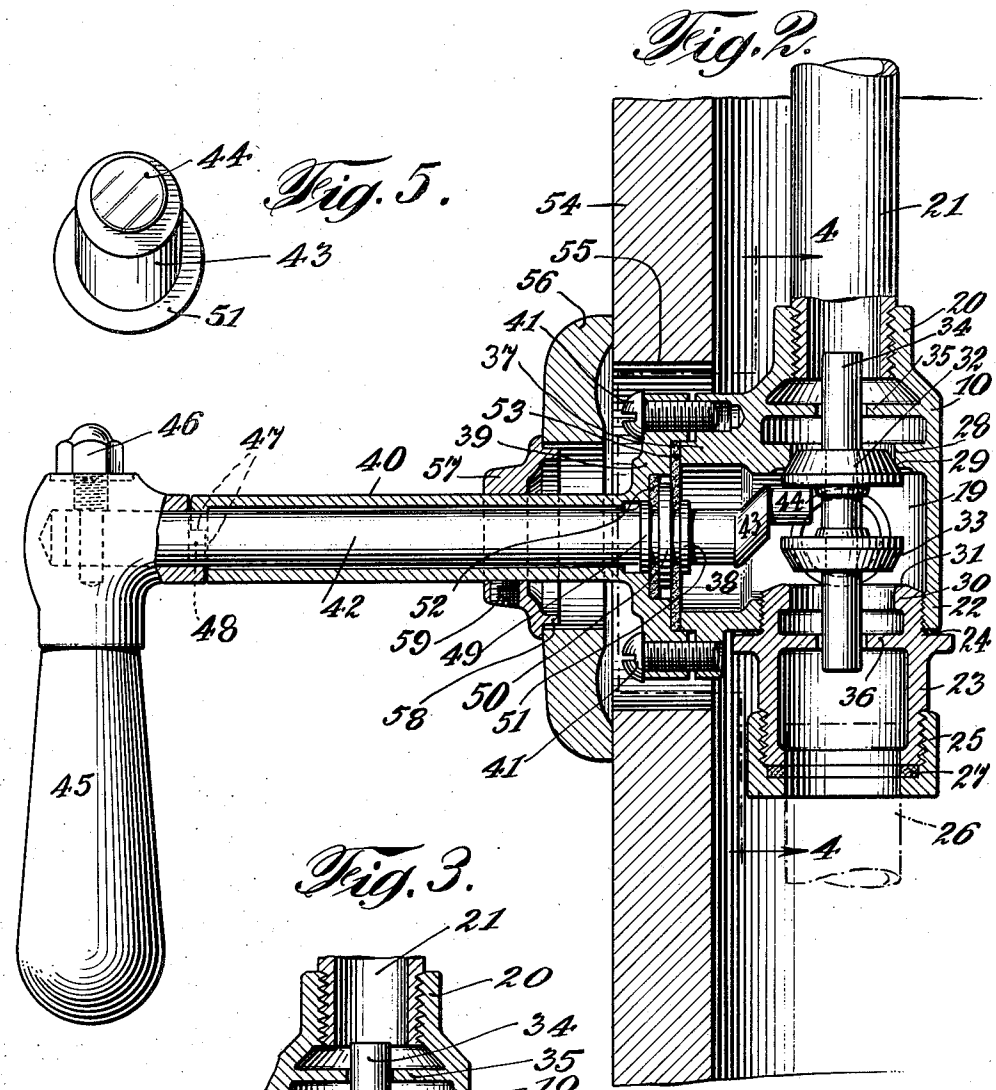
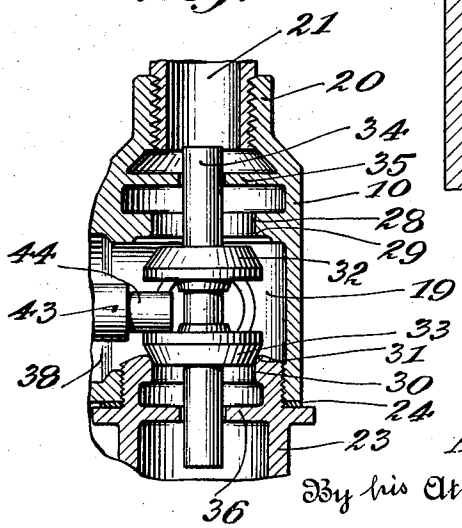


Fig. 5.

Fig. 3.



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UNITED STATES PATENT OFFICE

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TRANSFER VALVE

Application filed January 26, 1928. Serial No. 249,544.

My present invention relates to a transfer valve, that is to say, a valve so constructed that in the use thereof it is adapted to direct the flow of water to one of a plurality of passages depending upon the place at which it is desired to use the liquid. The device is particularly adapted for use in connection with shower baths and bath tubs in order that the water may be directed either to the shower or to the tub, as the user may require. I am aware that heretofore various forms of valves have been constructed and used for a similar purpose, that is, for directing the flow of water either to a shower bath or to a tub. In these structures, however, it is necessary not only to operate the valve to determine the path through which the water will flow but also to positively operate the valve to return the same to its initial position. Because of this condition and the forgetfulness of the user the valve may not be returned but left in one position or another, for example, the valve may be shifted to the shower and allowed to remain in this position when normally it should be so placed that the water will flow to the tub. Obviously in such instances when the water is turned on it is sent through the shower unexpectedly, and the user being unprepared for this may either have the water diverted over the sides of the tub, or the water will wet the clothing, or there may be other unexpected results before the valve can be turned to a position in which the water flows to the tub as intended.

The object of my invention is the provision of a valve so constructed that in the use thereof a passage to the tub or other fitting is normally open and a passage to the shower, or other fitting, is normally closed. In the use of the valve when it is desired to direct the flow of the water to the shower or other fitting rather than to the tub the valve may be operated by suitable devices causing the valve to move to close the passage to the tub and open the passage in the shower. Furthermore, the construction is such that with the valve moved to the shower position the water pressure automatically maintains it in place causing the water to continue to flow to the shower or other fitting independently of the valve operating devices until the water is shut off. When the water pressure is relieved the water in the line to the shower or other fitting is permitted to flow to the tub and in so doing tends to return the valve to its initial position until the head of water in the shower line has entirely escaped, and then the valve and its operating devices are automatically returned to their normal or initial position in which the passage to the tub is open and the passage to the shower or other fitting is closed.

The transfer valve made in accordance with this invention will be hereinafter more particularly described in conjunction with the drawings in which Figure 1 is a front elevation illustrating the use of the transfer valve,

Figure 2 is an enlarged section on line 2—2, Fig. 1,

Figure 3 is a partial section similar to Fig. 2 but showing the valve device in its other position,

Figure 4 is a sectional elevation on line 4—4, Fig. 2,

Figure 5 is an end view of the valve rod, and

Figure 6 is a sectional elevation illustrating the use of the apparatus.

Referring to the drawings the transfer valve made in accordance with this invention and as illustrated is constructed to include a valve body 10 having oppositely disposed preferably lateral inlet connections 11 and 12, the former of which may be connected by a pipe 13 to a valve 14 in the pipe line 15 for hot water while the inlet connection 12 may be similarly connected by a pipe 16 to a valve 17 in a cold water pipe line 18. It will be understood, of course, that the pipe lines 15 and 18 are connected respectively to any suitable source of hot and cold water supply. These inlet connections 11 and 12 communicate with the chamber 19 within the valve body. Also in communication with this chamber 19 there is an outlet connection 20 preferably on the upper side of the valve body and with which a discharge pipe 21 is connected and also an outlet connection 22 preferably on the underside of the valve body and

to which there is secured a plug connection 23 for making communication with a second discharge pipe. As illustrated, in order to make a tight joint a gasket 24 is employed between this plug and the face of the outlet connection 20. Also fitted on the plug there is a nut 25 adapted to connect the flanged end of a pipe 26 to the outer end of the plug with an intervening gasket 27 or otherwise. The discharge pipe 26 is adapted to lead to a bath tub spout 26′ or similar fixture while the discharge pipe 21 is adapted to be connected to a shower bath or spray 21′ or other similar fitting, as shown in Fig. 6.

In a suitable position in the valve body 10 there is transverse wall 28 having an opening or port centrally disposed therein and provided with a valve seat 29. The inner end of the plug 23 is provided with an internal flange 30 providing for an opening or port therethrough and a similar and oppositely disposed valve seat 31. Operating in the valve body I employ spaced valve members 32 and 33. These may be similarly formed and made of any suitable material. As illustrated they are mounted in spaced positions on a valve stem 34. The valves are horizontally disposed and suitably secured on the valve stem. The valve stem is vertical, the upper portion of which passes through a bearing provided therefor in an internal bracket 35 in the valve body. In like manner the lower end of the valve stem 34 passes through a bearing provided therefor in an internal bracket 36 in the plug 23. The valve 32 is adapted to bear against the valve seat 29 to close the port controlled thereby and shut off the flow of water or other liquid from the chamber 19 to the discharge pipe 21. When the valve 32 is in this position the valve 33 is raised an appreciable distance from its seat 31 whereby the chamber 19 is in open communication through the plug 23 with the discharge pipe 26. Conversely when the valve member is shifted to the position in which the valve 33 bears against its seat 31 the passage is closed to the pipe 26 and the passage is open to the pipe 21 whereby, for example, the flow of water is shut off to the tub and is open to the shower.

The valve body is constructed to include a head 37 through which there is a passage 38 communicating with the chamber 19. The passage 38 is closed by a cover 39 fitting over the same and being secured to the head. This cover 39 includes a tubular extension or sleeve 40. As illustrated the cover and its sleeve may be connected to the head of the valve body by means of suitable screws 41 or otherwise. Passing through the sleeve 40 and into the chamber 19 I employ a valve rod 42. At one end this valve rod is constructed to include a crank or offset portion 43 and a pin connected thereto in a position eccentric to the valve rod. The pin 44 extends into the space between the valves 32 and 33 to operate the valve device, as will be hereinafter more particularly described. At its outer end the valve rod 42 is connected to the handle 45 by means of a stud bolt 46 or otherwise. As illustrated the end of the sleeve 40 may be recessed or cut-away, as indicated at 47, and that portion of the handle fitting over the valve rod may be similarly recessed, as indicated at 48, whereby the revoluble movement of the handle is limited and determined by the extent of these recessed or cut-away portions.

The inner end of the valve rod 42 is provided with a set of flanges, indicated at 49, 50 and 51. These flanges are suitably spaced and the central flange 50 is preferably of an appreciable greater diameter than the adjacent flanges 49 and 51 on either side thereof. Mounted on the valve rod 42 and associated with these flanges I employ gaskets 52 and 53, the construction being such as to make substantially a water tight joint without causing sufficient friction to prevent the automatic return of the valve and its operating devices to their normal position. The inner portion of the gasket 53 lies in the space between the flanges 50 and 51, while its outer portion is clamped between the face of the head and the adjacent portions of the cover 39. The inner portion of the gasket 52 lies between the flanges 49 and 50 while the outer portion thereof lies between the outer face of the flange 50 and the base of a recess or socket provided therefor in the cover 39. It will be noted furthermore that the cover 39 is provided with a recess of a diameter substantially the same as that of the flange 49 and in which the flange 49 fits.

As illustrated, the valve and the parts associated therewith are placed at the rear of a wall 54 so as to be enclosed and concealed in accordance with present plumbing practice. However, the apparatus may be used in a construction in which the parts are not concealed. In the structure as illustrated, however, the wall 54 is provided with an opening 55 through which a part of the valve projects. Normally this opening 55 is covered by an escutcheon 56 secured in place by a collar 57 having a flange 58 fitting into an opening in the escutcheon, and the collar, as illustrated, is fixed in position on the sleeve 40 by means of a set screw 59 or otherwise in order to maintain the escutcheon in position to cover the opening in the wall to conceal the parts of the valve.

In the use of the transfer valve, as hereinbefore described, the parts normally assume an initial position which is that illustrated in Figure 2. In this position the handle 45 is vertical and the valve rod 42 is so placed that the pin 44 is in its uppermost position wherein it engages the valve 32 and maintains the same against its seat 29. In this position the

valve 33 is raised an appreciable distance from its seat 31 whereupon, as will be understood, if either one or both of the valves 14 and 17 are opened water will flow to the chamber 19 and pass to the plug 23 and thence through the discharge pipe 26 to a tub or other fixture. Furthermore the water will always flow through the pipe 26 unless the user intentionally operates the valve. When it is desired to transfer or divert the water to the shower the handle 45 may be turned a partial revolution in either direction whereupon the pin 44 will be caused to move downwardly to contact with and assist the action of gravity in forcing downwardly the valve device to seat the valve 33 against the valve seat 31 thereby closing the port to the pipe 26 and opening the passage normally closed by the valve 32 and permitting the water to flow through the pipe 21 to the shower. It will also be understood that due to the pressure of the water it is unnecessary for the user or operator to hold the handle in the position to which it has been moved to shift the valve, the water pressure being sufficient to maintain the valve 33 against its seat 31 whereby while the water pressure is maintained in the chamber 19 under these conditions the water will continue to flow to the pipe 21 and thence to the shower. Furthermore, when the water is shut off and the service pressure thus relieved in the chamber 19 the head of the column of water in the pipe 21 will create a sufficient pressure to prevent the valve member from entirely returning to its initial position until this head of water is permitted to escape to the tub by way of the pipe 26 whereupon due to the weight of the handle and the section of gravity the same returns to a vertical position and in doing so lifts the valve device returning the parts to the position as illustrated in Figure 2 which action is entirely automatic as will be readily understood. It will now be apparent also that when the water supply is shut off there will be no pressure other than that of the atmosphere in the chamber 19 of the valve body 10 and that this condition lends to the ready automatic return of the handle, the valve rod and the valve members to their initial normal positions after having been operated. Still furthermore, it will be understood that when it is desired or necessary the handle may be manually operated while the water is passing through the transfer device in order to shift or transfer the passage of the water either from the shower to the tub or vice versa.

I claim as my invention:

1. In an apparatus of the class described, a body member having an inlet connection and discharge connections, a valve device which in its normal position closes a port to an outlet connection and opens a port to another outlet connection, and means for operating the valve device to so shift the same as to open the port normally closed to the first aforesaid outlet connection and to close the port normally open to the second outlet connection, the said valve device being maintained in the position in which it closes the second outlet connection by the pressure of the water as long as the same passes through the body member and being automatically returned to its normal position when the water pressure is relieved by shutting off the supply to the body member.

2. In an apparatus of the class described, a body member having a laterally disposed inlet connection and upper and lower outlet connections, a valve device which normally closes a port to the upper outlet connection and opens a port to the lower outlet connection, and valve device operating means for maintaining the valve device in its normal position, for shifting the valve device to close the port to the lower outlet connection and open the port to the upper outlet connection, and to return the valve device to its normal position, the said valve device being maintained by the water pressure in a position in which it closes the port to the lower outlet connection while the water flows through the valve body and when the pressure is relieved, by shutting off the water supply is automatically returned to its normal position by the said valve operating means.

3. In an apparatus of the class described, a body member having a laterally disposed inlet connection and upper and lower outlet connections, a valve device which normally closes a port to the upper outlet connection and opens a port to the lower outlet connection, and valve device operating means for maintaining the valve device in its normal position for shifting the valve device to close the port to the lower outlet connection and open the port to the upper outlet connection and to return the valve device to its normal position, the said valve device being maintained independently of the valve operating means by the water pressure in that position in which the port to the lower outlet connection is closed as long as the water flows through the valve body and being automatically returned to its normal position by the said valve operating means when the pressure is relieved by shutting off the water supply.

4. In an apparatus of the class described, a body member having an inlet connection and upper and lower outlet connections, a pair of valves mounted in a spaced position in the body member, one valve being adapted to close a port to the upper outlet connection and the other to close a port to the lower outlet connection, and a valve operating device adapted to normally maintain the valves in that position in which the port to the

upper inlet connection is closed and the port to the lower outlet connection is open, to shift the said valves to close the port to the lower outlet connection and open the port to the upper outlet connection, and also to automatically return and maintain the said valves in their normal positions.

5. In an apparatus of the class described, a body member having an inlet connection, an upper outlet connection and a lower outlet connection, the valve body being also provided with upper and lower valve seats, spaced valves, a valve spindle on which the said valves are mounted, one valve being adapted to bear against the upper valve seat and the other against the lower valve seat, means for guiding the movement of the valve stem and valves, and valve actuating means for normally maintaining the said valves in that position in which one valve closes the upper valve port, for shifting the valves to cause the other valve to close the lower valve port, and for automatically returning and maintaining the said valves in their normal positions.

6. In an apparatus of the class described, a body member having an inlet connection, an upper discharge connection and a lower discharge connection, the said body member also having an upper valve seat and a lower valve seat therein, a valve adapted to bear against the upper valve seat, a valve adapted to bear against the lower valve seat, a valve stem on which the valves are mounted in a spaced relationship, means for guiding the valve stem in the movement thereof, and a valve operating device for normally maintaining the upper valve against its seat and the lower valve away from its seat, for shifting the valves to cause the lower valve to bear against its seat and the upper valve to leave its seat and for automatically returning and retaining the valves in their normal positions.

7. In an apparatus of the class described, a body member having an inlet connection, an upper discharge connection and a lower discharge connection, the said body member also having an upper valve seat and a lower valve seat therein, a valve adapted to bear against the upper valve seat, a valve adapted to bear against the lower valve seat, a valve stem on which the valves are mounted in a spaced relationship, a valve rod passing into the valve body, a pin at the inner end of the valve rod eccentric thereto and adapted to lie between the said valves, and means for turning and limiting the movement of the valve rod whereby normally the pin at the end of the valve rod maintains the valves in the position in which the upper valve bears against its seat and the lower valve is removed from its seat, and by turning the valve rod the pin bears against the lower valve to cause the same to bear against its seat and the upper valve to leave its seat, the said valve rod being automatically returnable to its initial position to return and maintain the valves in their normal positions.

8. In an apparatus of the class described, a body member having an inlet connection, an upper discharge connection and a lower discharge connection, the said body member also having an upper valve seat and a lower valve seat therein, a valve adapted to bear against the upper valve seat, a valve adapted to bear against the lower valve seat, a valve stem on which the valves are mounted in a spaced relationship, a valve rod passing into the valve body, a pin adapted to lie between the said valves, and a handle connected to the valve rod and adapted by action of gravity to normally assume a vertical position in which the pin maintains the upper valve against its seat and the lower valve away from its seat, the handle when manually operated causes the pin to bear against the lower seat the same and move the upper valve from its seat, the handle being automatically returnable to its initial position to return and maintain the valves in their normal positions.

9. A combination spout and spray fixture including a spray, a spout, means for connecting the spout and spray with a source of water under pressure, a diverter member adapted to remain normally open to permit water to flow from said source through the spout and adapted to be closed to cause said water to flow through the spray, the diverter member being held closed by the pressure of the water, and means to return the diverter member to the open position when the flow of water from the source is stopped.

10. The combination with a spout and spray fixture including a spout, a spray, means for connecting the spout and spray to a source of water under pressure, valve means for controlling the flow of water from the source to the spout and spray, of a diverter member normally open to permit the water to flow from the source through the spout, the diverter member when closed diverting the water to the spray and being held closed by the water pressure, and means operably connected with the diverter member for opening the same when said valve means are closed.

11. In a combination spout and spray fixture, the combination of a spout, a spray, means connecting the spout and spray to a source of water under pressure, a diverter member, the diverter member being normally open or in nondiverting position to permit flow through the spout and being held closed by the water pressure to cause the flow to be diverted through the spray, and means operably connected with the diverter member for moving the diverter member to the

open position when the supply of water from said source is stopped.

12. In a device of the class described, a body member having a water inlet connection and water outlet connections, and a valve device normally maintained in position to open a port to one water outlet connection and to close a port to another water outlet connection, the said valve device being shiftable to position to close the port to the first aforesaid water outlet connection and to open the port to the said second water outlet connection, in which position the said valve device is maintained by water flowing through the said body member to the said second water outlet connection, and the said valve device being automatically returnable to its normal position when the water ceases to flow through the said body member to the said second water outlet connection.

13. In a plumbing fixture, a spout, a spray, means for making communication between the said spout and spray and a source of water supply, and a diverter member adapted normally to close communication between the spray and the source of water supply and to open communication between the spout and the source of water supply, the said diverter member being shiftable to a position in which it opens communication to the said spray and closes communication to the said spout, in which position the said diverter member is retained by water flowing to the said spray, the said diverter member being automatically returnable to its normal position when the flow of water to the spray is shut off.

14. In an apparatus of the class described, a body member having an inlet connection and outlet connections, a valve device adapted to normally close a port to one outlet connection and open a port to another outlet connection, a valve rod for shifting the positions of the said valve device, a handle for operating the valve rod and adapted to normally assume a vertical position by the action of gravity, a cover fitting on the head of the valve body and through which the said valve rod passes, and means for making a water tight joint between the head of the valve body cover and the valve rod.

15. In an apparatus of the class described, a body member having an inlet connection, an upper outlet connection, a lower outlet connection and a head, a valve device adapted to normally close a port to the upper outlet connection and to open a port to the lower outlet connection, a cover for the head of the body member, a valve rod passing through the cover of the body member, a handle for operating the valve rod and adapted to normally maintain the valve device in its initial position by the action of gravity, said handle being manually operable to actuate the valve to close the port to the lower outlet connection and open the port to the upper outlet connection and adapted to automatically return to its initial position when the water pressure in the valve device is released, and gaskets associated with the cover of the valve rod and the head of the body member for making a water tight joint between the same.

16. In an apparatus of the class described, a body member having an inlet connection, an upper outlet connection, a lower outlet connection and a head, a valve device adapted normally to close a port to the upper outlet connection and to open a port to the lower outlet connection, a cover for the head of the body member, a valve rod passing through the cover of the body member, a handle for operating the valve rod and adapted to normally maintain the valve device in its initial position by the action of gravity, said handle being manually operable to actuate the valve to close the port to the lower outlet connection and open the port to the upper outlet connection and adapted to automatically return to its initial position when the water pressure in the valve device is released, the said valve rod having spaced flanges thereon, a gasket lying between two of the flanges at the face of a recess in the said cover, and a second gasket having a portion lying between the other flanges and a portion between the said cover and the head of the body member whereby a water tight joint is made between these parts.

Signed by me this 19th day of January, 1928.

ABRAM N. PASMAN.