

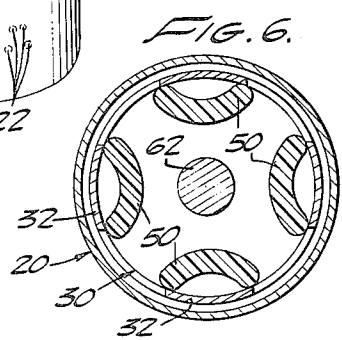
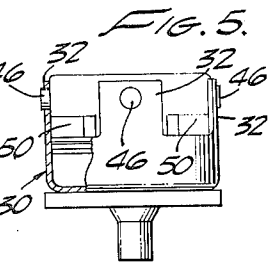
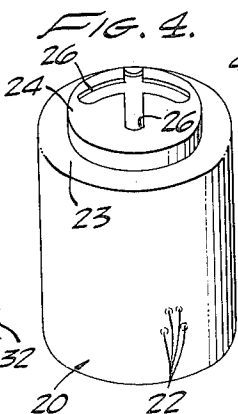
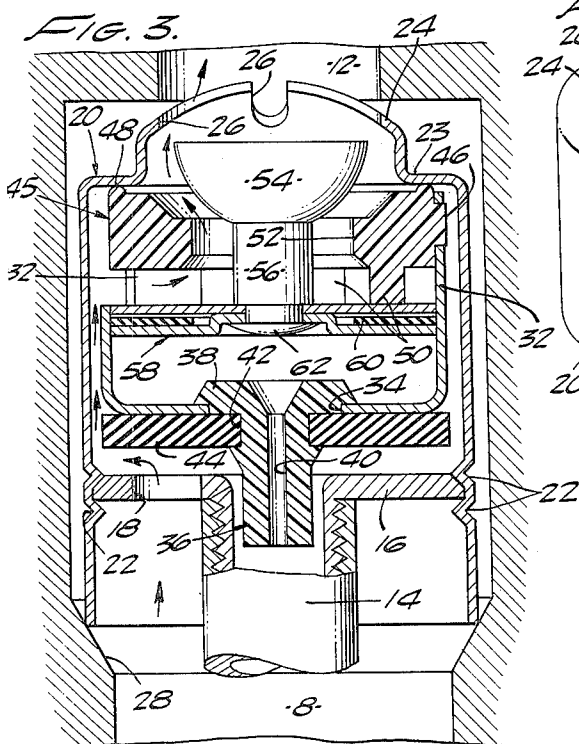
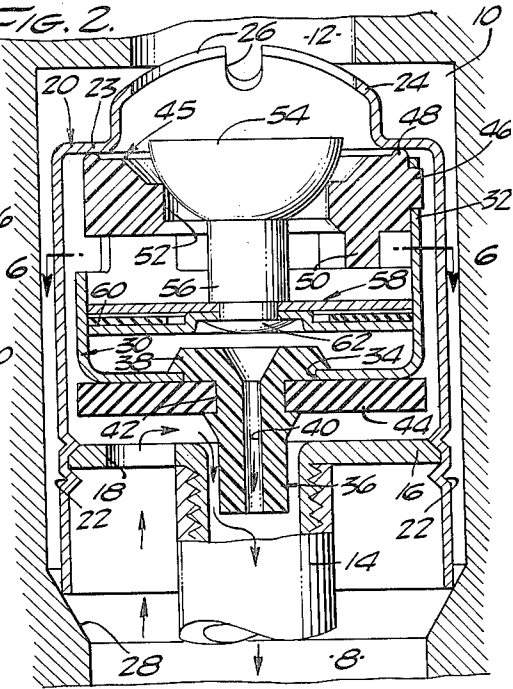
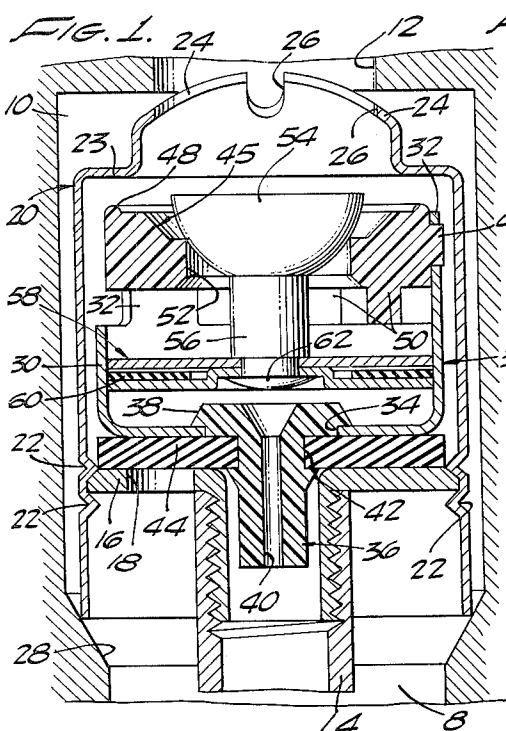
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E. H. BUCKNELL ETAL

3,232,307

TRANSFER VALVE

Filed May 18, 1962



INVENTORS
ERNEST H. BUCKNELL
IRVING A. WARD
BY
Hyoun Hyoun
ATTORNEYS

1

3,232,307
TRANSFER VALVE

Ernest H. Bucknell, and Irving A. Ward, Los Angeles, Calif., assignors of five percent to estate of Ralph E. Bletcher, deceased; three and one-third percent to James H. Bletcher, trustee; ten percent to Pearl W. Bletcher; ten percent to Hazel S. Brondum; eight percent to Charlotte Robertson; one percent to Kenneth Robertson, trustee; two and two-third percent to Gary B. Robertson; eight percent to James H. Bletcher; two percent to Richard J. Bletcher; eight percent to E. H. Bucknell; four and one-half percent to Myron Glauber, trustee; twelve and one-half percent to estate of Mabel Bucknell, deceased; twenty and one-half percent to Marcia B. Liston; and four and one-half percent to Daniel G. Liston, trustee
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5 Claims. (Cl. 137-119)

This invention relates to an improved transfer valve. It is an object of this invention to provide a valve adapted to be placed between a hot and cold water supply and a pair of outlets one leading to a faucet spout, the other to a spray head which permits water to normally flow to the spout but diverts flow therefrom to the spray head when same is opened.

A further object of this invention is to provide a valve wherein a back siphon cannot occur between either outlet and the water supply.

A further object of this invention is to provide such a valve wherein same is in a cartridge form and may be dropped into place as a unit.

Still a further object of this invention is to design such a cartridge wherein the necessity for a close fit of the parts is eliminated.

A further object of this invention is to eliminate the need for seals between the cartridge and the valve chamber.

A further object of this invention is to eliminate pressure on the spout packing when the device is in the spray position.

Other objects and advantages will be readily apparent from the following description:

In the drawings:

FIGURE 1 is a sectional view of a device embodying this invention with the water supply shut off.

FIGURE 2 is a view similar to FIGURE 1 illustrating flow to the spray outlet.

FIGURE 3 is a similar view illustrating flow to the spout outlet.

FIGURE 4 is a perspective of the housing for the transfer valve.

FIGURE 5 is a perspective of the valve assembly.

FIGURE 6 is a view taken along line 6-6 of FIGURE 2.

This invention is an improvement of that disclosed and claimed in Bletcher et al. Patent No. 2,587,961.

Water from both a hot and cold source is directed from an inlet 8 towards a chamber 10 in the spout outlet passage 12. A spray outlet is provided in the form of a tube 14 which leads to a manually operable spray head. The tube 14 is positioned in the inlet 8 and is threaded at its upper extremity to receive a valve seat 16 in the form of a circular flange having a plurality of ports 18 there-through.

A housing 20 which is essentially cylindrical in shape has a series of indentations 22 on either side of flanged valve seat 16 securing same to the housing 20. At its uppermost extremity the housing has an annular shoulder 23 and a dome shaped closure 24 provided with crossed slots 26 suitable for receiving a screw driver permitting rotation thereof and hence valve seat 18 to screw same into the tube 14 to position same within chamber 10.

2

When in this position, the lower edge of housing 20 engages an inclined shoulder 28 in chamber 10 securely locating the housing in position and blocking flow around the outside of same.

Positioned within housing 20 is a cylinder 30 which at its uppermost extremity has a series of upwardly projecting tongues 32 in this embodiment, four in number. At the other extremity the cylinder is necked inwardly to form a central aperture 34. A metering pin 36 fits into such aperture having an enlarged upper extremity 38 which engages said cylinder. The pin has a central aperture 40 and a peripheral groove 42 which receives resilient washer 44 which in turn blocks off ports 18.

A relatively rigid anti-siphon washer 45 formed preferably of a suitable plastic, has a series of peripheral protuberances 46 which project into suitable apertures in tongues 32. At its uppermost extremity the anti-siphon washer 45 has an annular sealing ridge 48 and at its lower extremity a series of legs 50 (one for each tongue 32 in this embodiment).

The anti-siphon washer 45 is provided with a central port 52. A valve head 54 is provided above the anti-siphon washer adapted to seat in the port 52. Depending from valve head 54 is an internally threaded post 56. A piston 58 is formed of two metal washers with a resilient washer 60 housed therebetween. A screw 62 projects through a central bore in piston 58 and threads into post 56 clamping the piston to valve head 54.

In operation, when the water is shut off the device is in the position seen in FIGURE 1 with washer 44 overlying ports 18 preventing water flowing therethrough. The anti-siphon washer 45 is spaced from shoulder 23 venting the device to the atmosphere preventing a back siphon.

When the hot and/or cold water faucets (not shown) are opened, the device will assume the position seen in FIGURE 3. Water pressure will lift washer 44 off ports 18 permitting water to flow into chamber 10. Since the valve in the spray outlet (not shown) is closed, water will flow around washer 44 between tongues 32 and legs 50 and raise valve head 54 off the anti-siphon washer and permit flow out the spout outlet. Also, anti-siphon washer 45 will raise and annular ridge 48 will engage shoulder 23 preventing flow around same. This engagement will likewise limit upward movement of cylinder 30 by virtue of the engagement between same and the anti-siphon washer 45 through protuberances 46.

When the spray valve is opened the device will assume the position seen in FIGURE 2. Flow will commence through ports 18 into tube 14 permitting water to pass through bore 40 from the underside of piston 58 which lowers the piston in cylinder 30 and moves valve head 54 into seating arrangement with anti-siphon washer 45 blocking off flow through the spout outlet 12. At this position water pressure on the anti-siphon washer will hold same against shoulder 23.

While what hereinbefore has been described is the preferred embodiment of this invention, it is readily apparent that alternations and modifications can be resorted to without departing from the scope of this invention.

We claim:

1. In a transfer valve adapted for installation within a body defining a valve chamber having a spout outlet and a spray outlet in opposed relation, said spray outlet being within a tube, and an inlet to said chamber surrounding said tube the combination of: a housing fitting within said chamber and having an opening at each end, a valve seat for said inlet fixedly mounted within the lower end of said housing, means operable by manipulating said housing for securing said valve seat and thereby said housing to said tube, a cylinder movably mounted within said housing, a washer carried by said

3

cylinder at the lower extremity adapted to seat on said valve seat and close off flow through said inlet, an anti-siphon washer in said housing above said cylinder adapted to abut the housing adjacent the upper extremity thereof, a valve head within said housing above said anti-siphon washer adapted to shut off flow therethrough to said spout outlet, a piston within said cylinder attached to said valve head, and means communicating said cylinder with said tube.

2. In a transfer valve adapted for installation as a unit within a body defining a valve chamber having a spout outlet and a spray outlet in opposed relation, said spray outlet being within a tube, and an inlet to said chamber surrounding said tube the combination of: a housing fitting within said chamber open at the lowermost extremity, a valve seat having at least one port therethrough permitting flow from said inlet to said chamber and an extension adapted to be received by said tube, the periphery of said valve seat being engaged and fixedly held within said housing, a cylinder movably mounted within said housing, a washer carrier by said cylinder at the lower extremity adapted to seat on said valve seat and close off flow through said inlet, an anti-siphon washer in said housing above said cylinder adapted to abut the housing adjacent the upper extremity thereof, a valve head within said housing above said anti-siphon washer adapted to shut off flow therethrough to said spout outlet, a piston within said cylinder attached to said valve head, and means communicating said cylinder with said tube.

3. In a transfer valve adapted for installation within a body defining a valve chamber having a spout outlet and a spray outlet in opposed relation, said spray outlet being within a tube, and an inlet to said chamber surrounding said tube the combination of: a housing fitting within said chamber open at the lowermost extremity, a valve seat having at least one port therethrough permitting flow from said inlet to said chamber and an extension adapted to be received by said tube, the periphery of said valve seat being engaged and held by said housing, a cylinder within said housing movable along the longitudinal axis of said housing, a resilient washer between said cylinder and said valve seat movable with said cylinder

4

to close off flow from said inlet to said chamber, the uppermost extremity of said housing having a shoulder surrounding an opening therein, an anti-siphon washer movable within said housing above said anti-siphon washer adapted to shut off flow therethrough to said spout outlet, a piston within said cylinder attached to said valve head, and an extension on said cylinder projecting into said tube having a port therethrough communicating same with the interior of said cylinder.

4. In a transfer adapted for installation within a body defining a valve chamber having a spout outlet and a spray outlet in opposed relation said spray outlet being within a tube the combination of: a cylinder within said chamber, a piston movable within said cylinder, valve means operable by said piston when in the lowermost position within said cylinder to shut off flow through said spout, means carried by said cylinder and defining a metering orifice communicating said cylinder beneath said piston to said spray outlet whereby flow through said spray outlet creates a reduced pressure in said cylinder beneath said piston to shut off said spout outlet.

5. In a transfer valve adapted to selectively control flow from an inlet to one of a pair of outlets comprising: a cylinder positioned between said outlets, a piston movable within said cylinder in response to a pressure differential therein, valve means operable by said piston to shut off flow through one of said outlets when said piston is moved to a predetermined position, means on said cylinder defining a metering orifice communicating said cylinder with the remaining outlet whereby flow therethrough will create a pressure differential in said cylinder for moving said piston to said predetermined position.

References Cited by the Examiner

UNITED STATES PATENTS

2,587,961 3/1952 Bletcher ----- 137-217 X

ISADOR WEIL, *Primary Examiner*.CLARENCE R. GORDON, *Examiner*.

Disclaimer

3,222,307.—*Ernest H. Bucknell* and *Irving A. Ward*, Los Angeles, Calif.
TRANSFER VALVE. Patent dated Feb. 1, 1966. Disclaimer filed
Feb. 23, 1976, by the assignee, *Pearl W. Bleicher*.

Hereby enters this disclaimer to all claims of said patent.

[*Official Gazette March 30, 1976.*]