Sept. 12, 1939. E. H. BUCKNELL ET AL 2,172,345

UNIT ASSEMBLY PRESSURE CONTROL FITTING

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Fig. 1

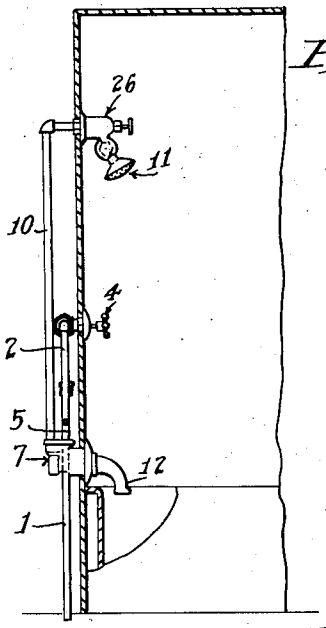


Fig. 2

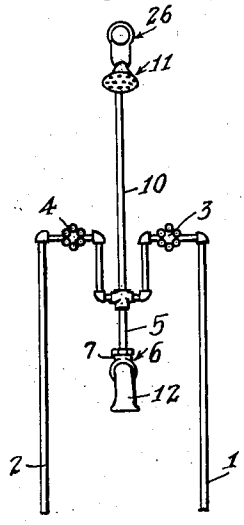
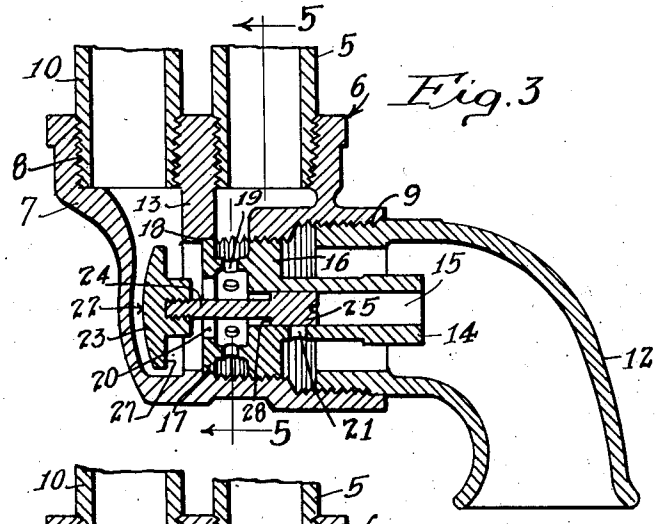


Fig. 3



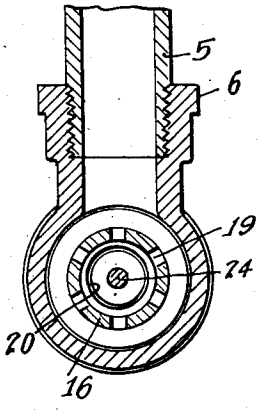


Fig. 5

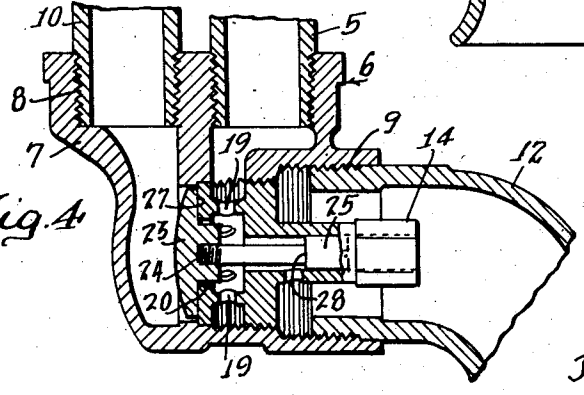


Fig. 4

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Fig. 7

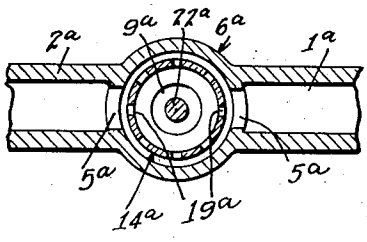


Fig. 6

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UNIT ASSEMBLY PRESSURE CONTROL FITTING

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Los Angeles, Calif.

Application March 20, 1937, Serial No. 132,124

6 Claims. (Cl. 277—1)

This invention relates to unit assembly pressure control fittings, and more particularly to the construction of a fixture for the selective control of the discharge water to two outlets where the control element of such fixture is constructed as a removable unit.

Pressure control fittings of the type here under consideration are known in the art, particularly as disclosed in and by the Schossow Patent No. 1,256,600 of February 19, 1918, for Shampoo spray.

In the use of permanently installed fixtures such as sink fixtures, combination bath and shower fixtures and the like, the use of a structure like that disclosed in the Schossow patent is impractical because of the fact that the fixture must be completely disassembled in order to permit a repair or replacement of worn parts. In this type of installation wherein the fixture itself may be completely embedded in the wall structure of the particular building wherein the fitting is installed, it is necessary that all fixtures utilized be of such construction as to permit their ready disassembly for the purpose of repair or replacement, as occasion demands.

It is therefore an object of this invention to provide a unit assembly pressure control fitting which includes a casing having a water inlet and two water outlets and in which fitting there is included a unit pressure control valve assembly adapted to be removed as a unit through one of said outlets for the purpose of repair or replacement.

Another object of this invention is to provide a unit assembly pressure control fitting in which there is provided a carrier and which carrier is formed and constructed so as to include a pressure control valve all in unit assembly, which unit assembly and valve structure includes a water inlet in registry with the water inlet of the fixture and a pair of water outlets corresponding to the water outlets of the fixture so mounted in the fixture as to permit removal thereof through one of the fixture outlets.

Other objects and advantages of this invention it is believed will be apparent from the following detailed description of a preferred embodiment thereof as illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a diagrammatic view of a shower and bathtub fixture in which our invention is incorporated.

Figure 2 is a front elevation of the piping and connections illustrated in Figure 1.

Figure 3 is a sectional elevation of the structure embodying our invention illustrating the same as connected with fragments of the pipes as illustrated in Figure 1.

Figure 4 is a sectional elevation similar to Figure 3 illustrating the pressure controlled valve as moved to the closed position to discharge water through the opposite outlet of the fitting from that illustrated in Figure 3.

Figure 5 is a sectional end elevation taken substantially on the line 5—5 of Figure 3.

Figure 6 is a fragmental front elevation mainly in vertical section of a modified form of structure embodying our invention illustrating the same as adapted to a sink fixture and spray combination.

Figure 7 is a sectional top plan view taken substantially on the line 7—7 of Figure 6.

In the modification of our invention illustrated in Figures 1 to 5, 1 indicates a hot water supply pipe and 2 a cold water supply pipe, the supply of water from which is collected through valves 3 and 4 as admitted to the inlet 5 of the casing 6 of the control fixture 7. The casing 6 also includes two outlets 8 and 9. In the outlet 8 is connected the conduit 10 which leads upwardly to the shower head 11. In the outlet 9 is fitted the bathtub spout 12. The casing 6 is divided by the partition 13 between the inlet 5 and the outlet 8.

In order to control the direction of flow of the water admitted to the casing 6 through the inlet 5 to selectively discharge the water through either the spout 12 or the shower head 11, a pressure controlled valve means is provided which is formed as a unit assembly so that the entire valve unit may be removed from the casing 6 by merely removing the spout 12.

In this manner repairs required to be made in this fixture may be made simply and economically while the casing 6 remains in position and without necessity of disturbing the setting of any of the fixtures. This unit assembly includes a carrier 14 which is provided with an axial passage 15. The carrier 14 is likewise provided with a securing flange 16 by means of which the carrier is threaded into position so that the stop flange 17 thereof engages the annular shoulder 18 formed in the partition 13. The carrier 14 is provided with an inlet passage or a plurality of inlet ports 19 in registry with the inlet 5 of the casing 6. The carrier 14 is likewise provided with outlets 20 and 21 corresponding to the two discharge outlets 8 and 9 formed in the casing 6. Mounted axially of the carrier 14 is a pressure

controlled valve assembly 22 which includes a valve head 23 which is adapted to seat on the inner end of the carrier 14 and close the passage 20. The stem 24 of the valve 22 extends axially in the axial passage 15 and is provided with an enlarged guide-head 25 by means of which the valve 22 is guided during its axial movement. The enlarged guide-head 25 likewise provides the valve head for closing the discharge outlet 21 when the valve is moved to the position illustrated in Figure 3.

Mounted in the discharge conduit 10 at any suitable position as, for example, is illustrated in Figure 1, is a valve 26 which may be of any suitable or desirable construction. The valve 26 is of the common form requiring manual actuation to and from closed position.

The operation of the structure is: with the valves 3 and 4 open to the proper degree water of the desired temperature is admitted through the inlet 5 into the casing 6. The water passes through the inlet 19 in the carrier 14 and is directed against the face 27 of the valve head 23 in opposition to the force of the water being directed against the face 28 of the head 25. As the area of the face 27 is the larger, the valve 22 is moved to the position indicated in Figure 3, thereby closing the outlet 21 and opening the outlet 20 so that the water is discharged up through the conduit 10 and out the shower head 11. This, however, is of course assuming that the valve 26 is open. If the valve 26 is closed, the force of the water acts in the reverse direction to move the valve 22 to the position indicated in Figure 4 whereupon the water is discharged through the spout 12 into the bathtub. As soon as the valve 26 is open, the flow of water, however, will at all times reverse and discharge through the shower head 11.

The valve 26 may be at any suitable location in the system or may be of any suitable kind or character.

In the modified form of our invention illustrated in Figures 6 and 7, similar parts are indicated by similar numerals with the addition of an exponent "a" thereto. This modification of our invention is particularly directed to use in sink fixtures wherein the spout 12^a discharges into the sink and the spray head 11^a is of the type used for spraying dishes or the like and is connected to the outlet 8^a by means of a flexible conduit or hose 10^a.

In this modification of our invention, the water, that is, the hot and cold water in the pipes 1^a and 2^a, is mixed directly within the fixture itself rather than being mixed prior to the admission of the water to the fixture, so that the fixture casing 6^a includes a pair of water inlets 5^a, 5^a.

As in the previous modification of our invention, this sink fixture modification includes a carrier 14^a in which the pressure actuated valve is mounted as a unit assembly so that by removing the cap 30^a by means of which the flexible conduit 10^a is secured to the outlet 8^a, the unit assembly may be lifted out for repair or renewal as occasion may require. The carrier 14^a has a pair of water inlets 19^a, 19^a in registry with the water inlets 5^a, 5^a, and is provided with a pair of outlets 8^a and 9^a leading to the spray head 11^a and spout 12^a, respectively. The valve member 22^a is mounted in axial position with the carrier 14^a and acts to control, in accordance with the pressure conditions within the fitting, the direction in which the water is discharged from the fitting.

Water is admitted to the valve assembly in this modification through the water inlets 19^a and passes either directly through the outlet 9^a to the spout 12^a and likewise passes through the port or ports 31^a formed in the valve head 23^a. The valve head 25^a will move to position to close the outlet 9^a.

In the operation of this structure, with the water admitted through the inlets 19^a under pressure, normal action of the water is to unseat the valve head 23^a to permit the water to be discharged through the spray head 11^a. When, however, the valve 26^a is in the closed position as illustrated in Figure 6, the valve 22^a will be moved into position to discharge the water through the outlet 9^a and spout 12^a. As herein illustrated, the valve 26^a is of the spring-closing construction which includes a casing 33^a in which a valve is positioned. The valve is normally held in closed position by means of the spring 34^a acting between the partition 35^a and the shoulder washer 36^a mounted upon the stem of the valve 26^a. Spring 34^a thus normally acts to seat the valve head 37^a, closing the passage of water to the spray 11^a.

Having fully described our invention, it is to be understood that we do not wish to be limited to the details herein set forth, but our invention is of the full scope of the appended claims.

We claim:

1. In a device for controlling the direction of flow of liquid in a combination fixture, including a casing having a liquid inlet and two liquid outlets, the combination of a carrier, means for removably securing the carrier in the casing in position to selectively control the direction of flow of the liquid to said outlets, said carrier having a liquid inlet port in registry with the casing liquid inlet and liquid outlets corresponding with the casing liquid outlets, and a control valve operable by liquid pressure to determine the liquid flow selectively to said outlets, and a valve member in one of the outlets remote from said casing operable to divert the flow of liquid to the other outlet.

2. In a device for controlling the direction of flow of liquid in a combination fixture including a casing having a water inlet and two water outlets, the combination of a carrier, means for removably securing the carrier in the casing, the carrier having a water inlet port in registry with the casing water inlet, and water outlets corresponding with the casing water outlets, and a water pressure controlled valve operable in accordance with the liquid pressure in one of said outlets to determine the water flow selectively to said outlets.

3. In a device for controlling the direction of flow of water in a combination spout and spray fixture, the combination of a casing having a water inlet and two water outlets, a unit assembly control means adapted to be removably secured in the casing, said assembly including a carrier, a water pressure operable valve mounted axially of the carrier and the carrier providing water inlet and water outlet ports corresponding to the inlets and outlets of the casing.

4. In a device for controlling the direction of flow of water in a combination fixture, including a casing adapted to be fixed in position, the casing having a water inlet and two water outlets, a unit assembly pressure controlled valve including a carrier adapted to be removably secured within the casing, a valve carried by the carrier and the carrier including a plurality of ports in-

cluding water inlet in registry with the water inlets of the casing, and a pair of water outlets selectively controlled by the valve of said carrier.

5. In a combination spout and spray fixture, the combination of a casing having a plurality of water ports, including a water inlet port and a pair of water outlet ports, a spray conduit connected to said casing at one of said outlet ports and a spout connected with the casing at the other of said outlet ports, a unitary assembly water pressure operated valve mounted in one of said outlets and including a carrier, water pressure ports in said carrier in registry with the ports in the casing, and a water pressure operated valve mounted in the carrier to control the water discharge through the outlet ports in accordance with the development of back pressure in one of said outlets, and a valve means mounted in the latter said outlet remote from the casing to close the said outlet, whereby a back pressure is developed in said outlet to actuate the water pressure operated valve so that water will pass out of the casing from the other of said outlets.

6. In a combination spout and spray fixture, the combination of a casing having a plurality of water ports, including a water inlet port and a pair of water outlet ports, the spray conduit connected to said casing at one of said outlet ports, a spout connected with the casing at the other of said outlet ports, a unitary assembly mounted in said casing through one of said outlets, including a carrier, and a water pressure operated valve mounted in said carrier to control the water discharge through the outlet ports in accordance with the development of back pressure in one of said outlets, and a valve means positioned in the spray outlet remote from the said casing and operable to maintain a back pressure in said outlet to normally cause the flow of water to pass through the spout outlet, and means for actuating the latter said valve to open the spray conduit, whereby the water pressure operated valve closes the spout outlet so that water passes through the spray.

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