March 8, 1949. A. PLETT 2,463,640

THERMOSTATIC WATER CONTROL

Filed June 7, 1946

Fig. 1.

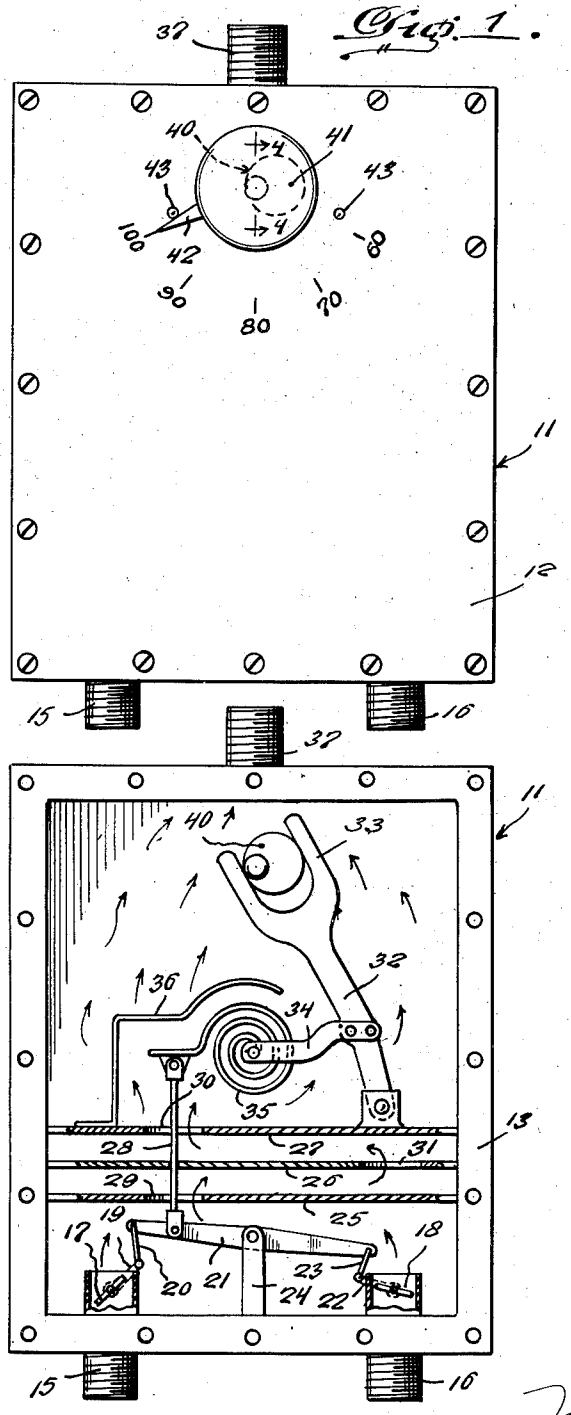


Fig. 2.

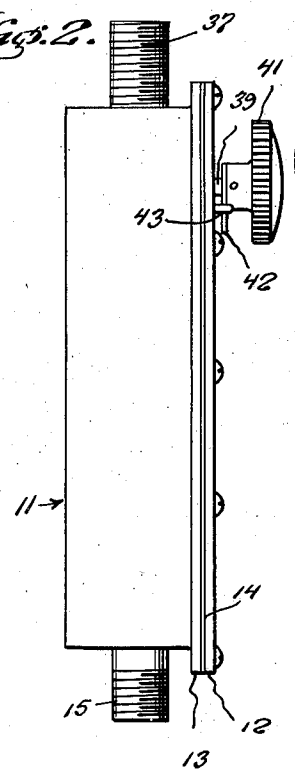


Fig. 3.

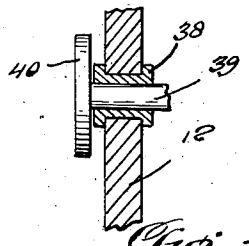


Fig. 4.

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THERMOSTATIC WATER CONTROL

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1 Claim. (Cl. 236—12)

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This invention relates to hot and cold water-mixing valves, and more particularly to a thermostatically controlled mixing valve.

A main object of the invention is to provide a novel and improved hot and cold water-mixing valve of very simple construction which is easy to adjust and which is reliable in operation.

A further object of the invention is to provide an improved hot and cold water-mixing valve which may be adjusted to obtain a substantial range of resultant mixture temperatures, the adjusted temperature being accurately maintained by thermostatic means in the valve, said valve being very rugged in construction and being relatively inexpensive to manufacture.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a front elevational view of a mixing valve constructed in accordance with the present invention.

Figure 2 is a side elevational view of the valve of Fig. 1.

Figure 3 is a front elevational view of the valve of Figure 1 with the front cover panel removed.

Figure 4 is a cross-sectional detail view taken on line 4—4 of Figure 1.

Referring to the drawings, 11 designates a water-mixing housing, said housing being preferably in the form of a rectangular box having a removable front cover plate 12 which is normally secured to a front peripheral flange 13 formed at the front edge of housing 11, a suitable gasket 14 being interposed between the cover plate and the flange to provide a water-tight joint.

Provided in the bottom wall of housing 11 is a hot water inlet conduit 15 and a cold water inlet conduit 16. Rotatively mounted in hot water conduit 15 is a butterfly valve 17 and rotatively mounted in cold water conduit 16 is a similar butterfly valve 18. Valve 17 is provided with an actuating arm 19 which is connected by a link 20 to one end of a lever member 21. Valve 18 is provided with a similar actuating arm 22 connected by a link 23 to the other end of lever 21. Lever 21 is pivotally connected at its center to a vertical supporting post 24 secured to the bottom wall of housing 11.

Secured in housing 11 above lever 21 are a plurality of vertically spaced horizontal baffle plates, there being preferably three baffle plates 25, 26 and 27. Pivotally secured to lever 21 adjacent link 20 is an upwardly extending link member 28 which passes through a large opening

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29 formed in plate 25, and small opening formed in plate 26, and a large opening 30 formed in the top baffle plate 27. A large opening 31 is provided in the intermediate plate 26, said opening 31 being displaced laterally a substantial distance with respect to the openings 29 and 30.

Pivotally supported on the top surface of baffle plate 27 is an upstanding arm 32 formed at its top end with a U-shaped element 33. Secured rigidly to the intermediate portion of arm 32 is a laterally extending bracket member 34. Connected to the end of bracket member 34 is the inner end of a spiral bimetallic spring 35. The outer end of spring 35 is pivotally connected to the top end of link member 28. Overlying bimetallic spring 35 is a partition member 36 which is rigidly secured to the top baffle plate 27. The water from the respective hot and cold inlet conduits 15 and 16 is mixed, while passing upwardly through the openings 29, 31 and 30 in the baffle plates and the mixed water is guided over the thermostatic spring 35 by the guiding partition 36. An outlet conduit 37 is provided in the top wall of housing 11 for distributing the mixed water to its desired destination.

Rotatively supported in cover plate 12 in a rubber or other suitable substantially water-tight bushing 38 is a shaft member 39 carrying at its inner end an eccentric disc 40 which is slidably received within U-shaped element 33. To the outer end of shaft member 39 is secured a knob 41 provided with a pointer 42. The outer face of cover plate 12 is suitably calibrated in degrees of temperature adjacent pointer 42. A pair of stop pins 43, 43 limit rotation of pointer 42 to the range defined by the calibration markings.

In the position of the elements shown in the drawings the butterfly valves are set in respective positions where the highest value of water mixture temperature will be obtained at outlet conduit 37. Bimetallic spring 35 is arranged to maintain the resultant temperature value substantially constant, since if the temperature drops, the spiral will contract and rotate lever 21 in a direction tending to open hot water valve 17 and close cold water valve 18. A reverse action occurs if the mixed water temperature uses substantially above the calibrated temperature indicated by pointer 42.

When knob 41 is rotated to lower temperature values, eccentric disc 40 rotates arm 32, and at the same time rotates spring 35 and moves link member 28 to rotate lever 21 to adjust the butterfly valves to new positions wherein the required proportions of hot and cold water to ob-

tain the desired mixture temperatures are obtained. Thermostatic spring 35 will readjust the butterfly valves 17 and 18 as required to maintain the water mixture at the designated temperature.

While a specific embodiment of a thermostatic water-mixing valve has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention other than as defined by the scope of the appended claim.

What is claimed is:

In a thermostatically-controlled water-mixing valve including a housing, a hot water inlet fitting and a cold water inlet fitting in one end of said housing, a mixed water outlet fitting in the opposite end of said housing, a respective valve in each inlet fitting, valve-operating means pivotally mounted on said housing operative to oppositely actuate said valves to control the proportion of hot and cold water admitted to said housing, a thermostat in said housing operatively connected to said valve-operating means, and

thermostat-adjusting means extending through one wall of the housing, a plurality of apertured, spaced-apart baffles extending transversely of said housing between said inlet fittings and said thermostat, a guiding partition mounted on the baffle adjacent said thermostat and overlying said thermostat to direct water therearound, and a thermostat-supporting arm pivotally mounted upon said thermostat adjacent baffle and operatively connected with said thermostat-adjusting means.

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