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ADJUSTABLE VALVE MECHANISM.
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By
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To all whom it may concern:

Be it known that we, FRANK W. HENRIKSON and THOMAS DAVISON, citizens of the United States, residing at Mulberry, in the county of Crawford and State of Kansas, have invented a certain new and useful Improvement in Adjustable Valve Mechanisms, of which the following is a specification.

Our invention relates to improvements in shower bath mechanisms.

The object of our invention is to provide a novel, simple, efficient and easily operated shower bath mechanism, in which the water is easily regulated as to temperature and as to amount.

Our invention is particularly adapted for mineral water supplies.

The novel features of our invention are hereinafter fully described and claimed.

In the accompanying drawing, which illustrates the preferred embodiment of our invention,

Figure 1 is a side elevation of our improved shower bath mechanism.

Fig. 2 is an enlarged longitudinal sectional view of the mixing valve casing and parts connected therewith.

Fig. 3 is an enlarged vertical sectional view on the line 3—3 of Fig. 1.

Fig. 4 is an enlarged side elevation, partly broken away, of the mixing valve mechanism.

Fig. 5 is a bottom view of the nozzle.

Similar reference characters designate similar parts in the different views.

1 designates a valve casing of the mixing valve mechanism provided with two inlets 2 and 3 and an outlet 4. The inlet 2 is adapted to receive a fluid, such as steam or hot water, and the inlet 3 is adapted to receive cold water. It is designed to intermingle, the cold water with the steam or hot water and to discharge the mixture through the outlet 4.

49 For controlling the supply of steam or hot water entering the casing 1 through the inlet 2, there is provided a pivotedly mounted rock valve 5 extending transversely across the inlet passage 2 and having a port 6 adapted to aline with said passage or to be closed by the casing 1, as shown in Fig. 2.

The valve 5 outside the casing 1, is provided with a crank arm 7.

Pivoted as is the valve 5, on a horizontal axis in the casing 1, is a rock valve 8, which extends across and controls the outlet 4 and which is provided with a port 9 adapted to aline with the outlet 4 or to be closed by the casing 1, as shown in Fig. 2. The valve 8, outside the casing 1, is provided with a crank arm 10.

In order that the valve 5 may be adjusted as to its length of stroke, without changing the stroke of the valve 8, while at the same time connecting said valves, so that they may be simultaneously moved to either the open or to the closed position, the following described mechanism is, preferably, employed.

Referring particularly to Fig. 4, 11 designates a horizontal transverse pin which extends through the crank arm 10 and through a member 12 and serves to pivotally connect said member with said crank arm. The member 12 is screw-threaded from its free end and has slidably mounted on the threaded portion a member 13, which is pivoted on a horizontal axis to the crank arm 7. Two nuts 14 and 15 are mounted on the greater portion of the member 12 and are adapted to bear respectively against opposite sides of the member 13.

When the valve 8 is swung to the open position, the valve 5 will be swung in the reverse direction to the open position by the crank 10, members 12 and 13 and crank 7.

By adjusting the nuts 14 and 15, the position of the member 13 on the member 12 may be changed, thereby changing the length of stroke of the valve 5, so that it may be fully or only partly opened, when the valve 8 is swung to the fully open position, and without changing the length of stroke of the valve 8. By proper adjustment of the member 13 on the member 12, the amount of steam or hot water admitted into the casing 1 through the inlet 2 may be proportioned, so that the desired temperature of the mixture may be obtained.

For rocking the valve 8, it is provided, outside the casing 1, with a crank 16, which is adapted to strike a projection 17, Fig. 4,
on the outside of the casing 1 to limit the closing movement of said valve, 8. The crank 16 is provided with one or more holes 18, located at different distances from the axis of the valve 8, and each of which is adapted to receive and pivotally retain the upper end of an upright rod 19, which for opening the valves 8 and 5, is forced downwardly by suitable manually operated means. For automatically closing the valves 8 and 5, when the rod 19 is not depressed, a coil spring 20 has its lower end secured to the crank 16, the upper end of the spring being secured to any suitable support, such as a screw eye 21 secured to the ceiling 22.

For depressing the rod 19, its lower end is pivoted to one end of an inclined treadle 23, the other end of which is pivoted by a hinge 24 to the floor 25.

Steam or hot water is supplied to the inlet 2 by a pipe 26 connected to a suitable source of supply, not shown.

A pipe 27 discharges into the inlet 3 and is connected with a suitable source of supply of cold water.

In the outlet end of the casing 1 is attached one end of a pipe 28, into which the outlet 4 discharges. The other end of the pipe 28 extends downwardly and is provided at its lower end with a nozzle comprising a tubular member 29, the lower end of which is externally screw-threaded and has fitted thereon a screw-cap 30 provided with a central opening 31 and which clampingly holds against the lower end of the member 29 a horizontal plate 32, having perforations 33 which are adapted to register respectively with perforations 34 provided in a horizontal disk valve 35, Fig. 3, which is pivotally mounted upon the upper side of the perforated plate 32 to which it is pivotally connected by means of a vertical pin 36.

The valve disk 35 is provided with an arm 37 which extends downwardly through a slot 38 provided in the plate 32. When the operator steps upon the treadle 23, the latter will be depressed, thereby swinging the valves 8 and 5 to the open position through the intermediacy of the mechanism already described, thus permitting steam or hot water to enter the casing 1 through the inlet 2 and port 6. The steam or hot water will mix with the cold water in the casing 1 entering through the inlet 3, and the mixture will pass through the outlet 4 and port 9 into the discharge pipe 25, from which it will be discharged through the perforations 34 and 33, when the valve disk 35 is open, upon the person standing upon the treadle 23. Such person may wholly or partially shut off the supply of water, while still standing on the treadle 23, by moving the arm 37 and with it the valve disk 35 to the closed or to a partly closed position. By nearly closing the valve disk 35, the temperature of the water discharged through the nozzle will be higher than when the valve disk is fully open. This is due to the steam or hot water entering the casing 1 through the inlet 2, and thereby holding back a part of the cold water. By opening the valve disk 5 fully, a greater supply of cold water will be discharged and the temperature of the mixture will thus be lowered.

The operator may, therefore, first take a hot bath and then have a cold shower, the temperature of which will depend upon the adjustment of the valve 5 with respect to the valve 8.

After the operator steps off from the treadle 3, the spring 20 will lift the treadle and at the same time will swing the crank 16 upwardly, thus closing the valves 8 and 5.

We do not limit our invention to the structure shown and described, as modifications, within the scope of the appended claims, may be made without departing from the spirit of our invention.

What we claim is:

1. In a shower bath mechanism, a valve casing having two inlets and an outlet, two valves in said casing, one controlling one inlet and the other controlling the outlet, means connecting said valves by which they are simultaneously moved, one valve having a crank, a treadle, means connecting said crank with said treadle by which the crank is moved in one direction, and yielding means for moving the crank in the opposite direction.

2. In a shower bath mechanism, a valve casing having two inlets and an outlet, two valves in said casing, one controlling one inlet and the other controlling the outlet, means connecting said valves by which they are simultaneously moved, a treadle, means connected with one of said valves and the treadle for moving the last named valve to the open position when the treadle is depressed, and yielding means for moving the last named valve to the closed position when the treadle is released.

3. In a shower bath mechanism, a valve casing having two inlets and an outlet, two valves in said casing, one controlling one inlet and the other controlling the outlet, means connecting said valves by which they are simultaneously moved, a treadle, means actuated by the treadle for opening one of the valves, yielding means for normally closing the last named valve, and a discharge pipe into which said outlet discharges having a nozzle above the said discharge pipe.
treadle, means connecting said valves by which they may be simultaneously moved, means actuated by the treadle for actuating one of the valves to move it to the open position, yielding means for normally closing the last named valve, and a discharge pipe into which said outlet discharges having a nozzle above said treadle and provided with means for regulating the flow therethrough. In testimony whereof we have signed our names to this specification.

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