

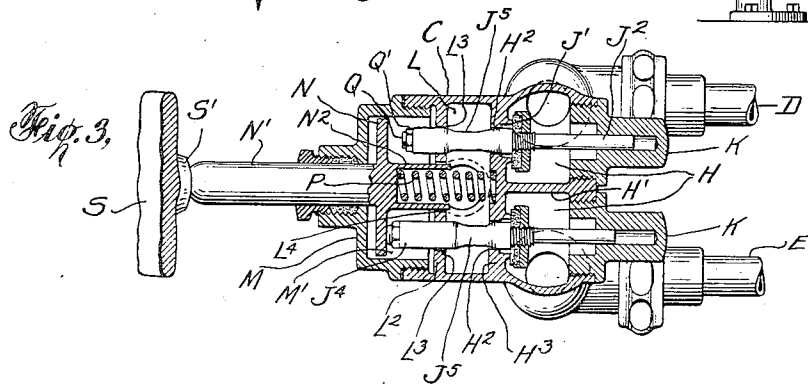
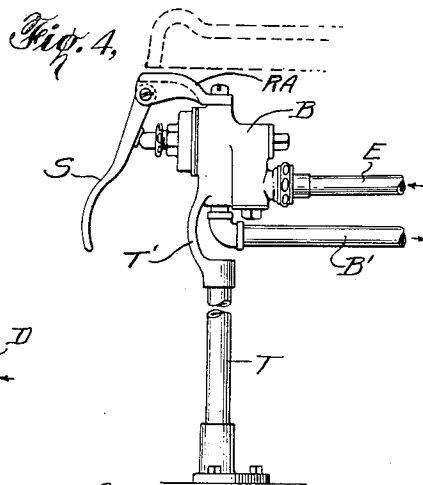
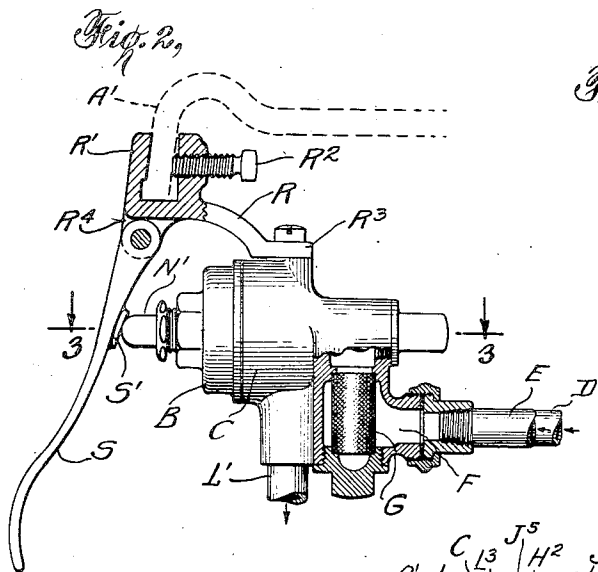
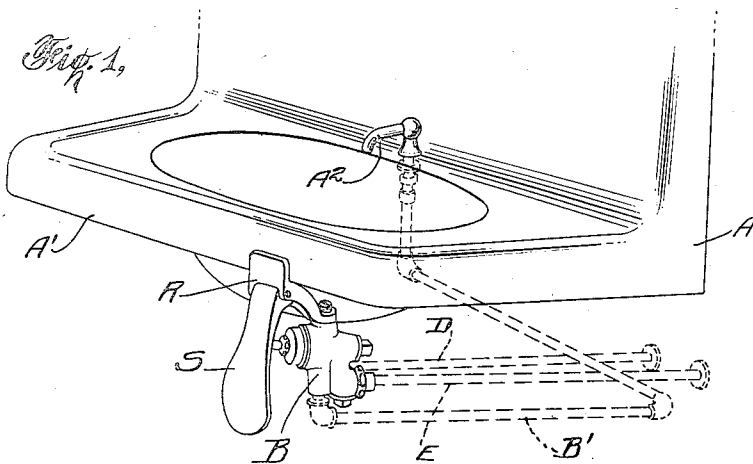
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LAVATORY VALVE

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LAVATORY VALVE

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The present invention relates to lavatory valves and the control means therefor and the object of my invention is to provide an improved construction and arrangement of the various parts of a hot and cold water self-closing mixing valve having control provisions adapted to be actuated by a knee of the lavatory user.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, and the advantages possessed by it reference should be had to the accompanying drawing and descriptive matter in which I have illustrated and described preferred embodiments of the invention.

Of the drawing:

Fig. 1 is a perspective view of the valve and lavatory;

Fig. 2 is an enlarged elevation partly in section of the valve and valve support;

Fig. 3 is a section on the line 3—3 of Fig. 2; and

Fig. 4 is an elevation of a modified form.

In the drawing and particularly in Figs. 1 to 3, I have illustrated one embodiment of my invention in which a lavatory bowl A composed of enameled iron or vitreous china and having a depending apron A' at the front and sides thereof, is provided at its underside with a self-closing mixing valve B. The lavatory is suitably supported on a vertical wall surface a substantial distance above the floor level.

The combined mixing valve is of a well known general type and comprises a valve casing C having hot and cold water supply connections D and E, respectively, secured to the lower rear side thereof. Each water connection connects with a corresponding chamber F having a cylindrical strainer G mounted therein. Each chamber F is connected at its upper end with a corresponding chamber H. The chambers H are separated by a vertical partition H'. Each chamber has an opening H² in its front wall H³ normally sealed by a valve disc J' mounted on a spindle J. Each spindle J is provided with a projecting portion J² arranged to move horizontally in a socket formed in a plug K mounted in the rear side of the valve casing C. The openings H² in the front wall of the chambers H connect those chambers with a mixing chamber L having an outlet L' in the bottom thereof. A pipe B' connects the valve outlet L' with the lavatory discharge nozzle A². The front wall L² of the chamber L is provided with

openings L³ for the valve spindles J in alignment with the openings H².

The spindle J controlling the hot water supply is formed with enlarged end portions J⁴ normally positioned in and in slidable contact with the openings H² and L³. The neck portion J⁵ between the enlarged end portions is considerably smaller in diameter than the corresponding opening H². The cold water control spindle is of the same general form as the hot water control spindle except that the neck portion is of less length and the enlarged end normally positioned in the wall opening L³ projects further from both sides of the wall L² than the corresponding portion of the hot water spindle.

A casing M is threaded in the front of the valve casing to form a chamber M'. A plunger N is mounted in the chamber M' with the plunger rod N' projecting externally of the casing M. The inner face of the plunger is formed with a hollow extension N² positioned in a central opening L⁴ in the wall L². A coiled spring P is arranged in the extension N² with its other end engaging in a recess in the wall H³ to normally maintain the plunger in its extreme outward position.

With the various parts constructed and arranged as shown, the plunger rod is forced inwardly against the pressure of the spring P on the opposite side of the plunger. The plunger moves inwardly and first contacts with the outer end of the cold water spindle. The corresponding valve disc is unseated and as the neck portion of the spindle enters the opening H², the cold water passes from the chamber H to the mixing chamber L. On a further actuation of the spindle the enlarged outer end portion enters the opening H² and practically closes that opening.

The hot water control spindle is engaged by the plunger when the cold water supply is at the maximum discharge point and on a further movement of the plunger the hot water valve is unseated and the reduced neck portion enters the corresponding opening H² to permit a supply of hot water to enter the chamber L.

The various parts are thus so proportioned that as the plunger N moves inwardly, the supply of cold water is gradually increased to a maximum point, then gradually reduced with a simultaneous increase in the hot water supply until the hot water supply is a maximum and the cold water supply is cut off.

The outer end of each spindle is provided with a screw Q and a locknut Q' for varying the point of contact of the spindles with the plunger. The spring P will maintain the plunger in its normal

outer position when the pressure on the plunger rod is released, thereby maintaining the valve discs in their sealing position.

The self-closing mixing valve described is supported from the lavatory bowl by a curved bracket R having a pair of lateral jaw members R' arranged to fit over the lower end of the lavatory apron A'. The jaw members are secured to the depending apron by one or more set screws R² at the rear thereof. The opposite end R³ of the bracket is secured to the top of the valve casing C.

The front end of the bracket R is provided with a pair of depending ears R⁴, to which the upper end of a tongue member S is pivoted. The tongue S is formed with a boss S' on its rear side and the various parts are so proportioned and arranged that the boss S' contacts with the outer end of the plunger rod N' throughout its operating limits. The tongue is curved longitudinally and laterally to conform to the knee of the lavatory user.

In the modified construction shown in Fig. 4 the valve is directly supported by a bracket T' secured to the upper end of a standard T mounted on the floor. The tongue member N is pivotally secured to one end of a bracket RA having its opposite end fastened to the valve casing. This construction eliminates the strain on the bowl of the weight of the valve and other parts.

My invention is characterized by the effective arrangement of the parts and the ease in which they can be assembled. The apparatus is particularly designed for use in factory washrooms where it is important that the water supply be conserved. The specific type of self-closing valve described provides an effective control of both the hot and cold water supplies with little or no waste of water. The operating member is so positioned that the user can easily operate the valve while in the normal position for using the lavatory. Knee operation of the mixing valve is particularly advantageous in permitting the free use of the hands while maintaining an accurate control of both the amount and temperature of the water. Self-closing valves heretofore used in such installations have usually required hand operation by the user and are disadvantageous in that it is almost impossible to effectively use the apparatus with a continuous flow of water from the nozzle. The necessity of having only a single discharge nozzle reduces the usual cost of the fixtures.

While in accordance with the provisions of the statutes, I have illustrated and described the best forms of embodiment of my invention now known to me, it will be apparent to those skilled in the art that changes may be made in the form of the apparatus disclosed without departing from

the spirit of my invention as set forth in the appended claims and that in some cases certain features of my invention may be used to advantage without a corresponding use of other features.

Having now described my invention what I claim as new and desire to secure by Letters Patent, is:

1. Lavatory apparatus comprising in combination a mixing valve including a valve casing having a mixing chamber, hot and cold water supply connections to said chamber, means for controlling the amount of hot and cold water admitted to said chamber, said means including a plunger, a coiled spring in said casing opposing movement of said plunger in one direction and a plunger rod having its outer end externally of said casing, a bracket secured to said casing, and a lever pivoted to said bracket and arranged to move said plunger rod against the action of said spring, said lever being positioned for operation by the knee of the lavatory user.

2. Lavatory apparatus comprising in combination a self-closing mixing valve having a central mixing chamber, hot and cold water supply connections to said chamber, a pair of axially movable valve spindles controlling the admission of the water to said chamber, a plunger arranged to contact with the ends of said spindles at different points in its path of movement, a spring in said casing opposing the movement of said plunger and a plunger rod connected to said plunger and having its opposite end externally of said casing, a bracket secured to said casing, and a lever pivoted on said bracket and arranged to engage the external end of said plunger rod, said lever being positioned for operation by the knee of the lavatory user.

3. A lavatory hot and cold water mixing valve of the self closing type comprising a valve casing, hot and cold water valve members mounted in said casing for movement each in a direction parallel to the direction of movement of the other between open and closed positions and tending to move into its closed position, a common valve operating member mounted in and projecting from said casing and movable relative thereto in a direction parallel to each of the first mentioned directions of movement to thereby engage and move said valve members away from their closed positions, a lever external to said casing and pivotally connected to the latter to turn about an axis transverse to said directions and adapted to be engaged and operated by the knee of a user of the valve.

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