April 12, 1932. G. A. SNYDER 1,853,154

VALVE STRUCTURE

Filed April 17, 1929

Fig. 2.

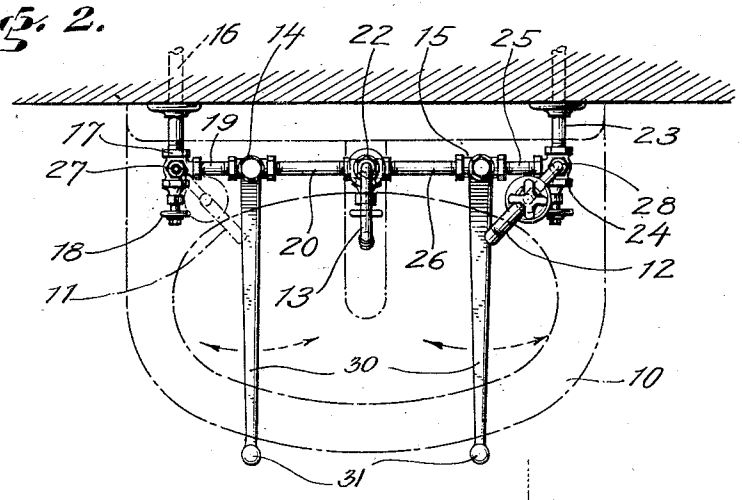


Fig. 1.

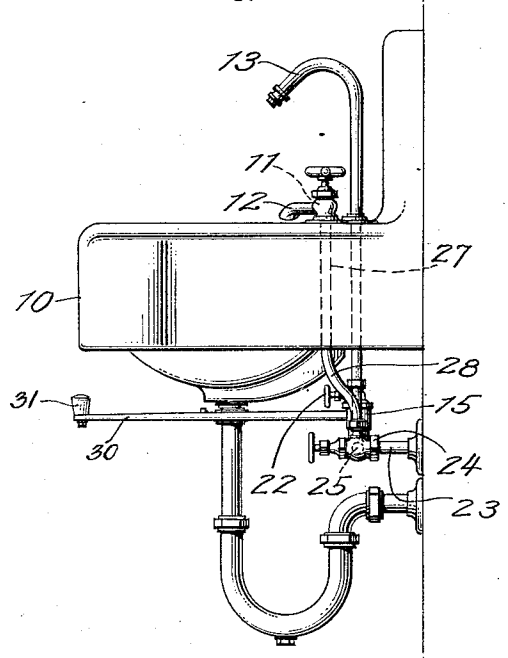
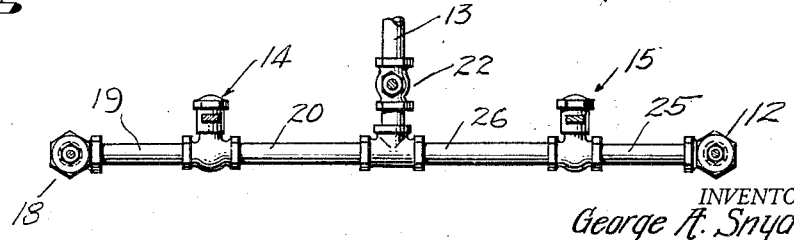


Fig. 3.



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UNITED STATES PATENT OFFICE

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VALVE STRUCTURE

Application filed April 17, 1929. Serial No. 355,771.

This invention relates to plumbing equipment, and particularly pertains to a valve structure.

Wash bowls are usually supplied with faucets for delivering hot and cold water to the bowl. These faucets are fitted with separate control valves for regulating the temperature of water with which the bowl is filled. In some instances a single faucet is provided which provides a common outlet for hot and cold water as controlled by separate valves. In either event it is necessary to grasp the control handles of the valves with the hand in order to open and close the valve structure. Such an operation produces a condition of uncleanness and a lack of sanitation which tends to propagate diseases. This is particularly true in connection with public washrooms and is also of consequence in connection with the wash bowls of surgical operating rooms, where it is desirable to manipulate the faucets of the wash bowl without the necessity of touching the faucets with septic hands, and while leaving the hands free for other duties.

It is the principal object of the present invention to provide valve structures for controlling wash bowl faucets and the like, which structures will not require hand operation and may be conveniently operated by other parts of the body, such as for example, the knee, whereby the unwashed or washed hands will not be required to touch the handles of the faucets, thus making it possible for the hands to be freely manipulated within the bowl or in running water beneath the faucet.

The present invention contemplates the provision of an outlet spout in communication with hot and cold water supply pipes, the pipes being fitted with separate hot and cold water faucets and being provided with operating means disposed beneath the wash bowl at a remote point from the faucets and in a position to be conveniently manipulated by the knees of the operator. Other means being provided to regulate the maximum at which the water may flow from the outlet spout.

The invention is illustrated by way of example in the accompanying drawings in which:—

Fig. 1 is a view in side elevation showing the application of the present invention to a wash bowl.

Fig. 2 is a view in plan disclosing one arrangement of plumbing to embody the present invention and indicating the position of a wash bowl by dotted lines.

Fig. 3 is a fragmentary view in front elevation showing one arrangement of the flow valves and the pressure valve.

Referring more particularly to the drawings, 10 indicates a wash bowl, here shown as being supported from a wall. It will be understood that the present invention is not confined to application upon bowls of this type, but that pedestal bowls may also be used.

This invention is more particularly concerned with a faucet spout 13, to which hot and cold water may be simultaneously delivered as controlled by separate valves 14 and 15. In the installation shown in Fig. 2 of the drawings, a hot water pipe 16 connects with a T-fitting 17. On one leg of this fitting a cut-off valve 18 is secured to completely close off the supply of water from the bowl when it is desired to repair the same. Another leg of the T connects with the pipe 19, which delivers water to the control valve 14. This valve may be of any desired construction, but is preferably of the self-closing type, and may operate when it is rotated in either direction.

A pipe 20 connects the self-closing valve 14 with a T 21. This T is connected with a pressure regulating valve 22 through which water may pass to the spout 13. The cold water pipe 23 is connected with a T 24, similar to the T 17 previously described. This T is in communication with the self-closing cold water 15 through a pipe 25. The opposite side of the valve 15 is connected with the T 21 by a section of pipe 26. It will be understood that while the valve structures 14, 15 and 22 are shown as separate units, that it may be found desirable to embody all of said valves in a unitary structure, thus eliminating the necessity of a number of plumb-

ing fittings and the labor required to assemble them.

The pipes 16 and 23 communicate with upwardly extending hot and cold water pipes 27 and 28, which establish connection between the source of water supply and the hot and cold water faucets 11 and 12. If desired, the separately operable hot and cold water faucets 11 and 12 may be eliminated and the spout 13 may be used to deliver hot or cold water to the bowl, or a mixture of the same.

Rotation of the valve members of valves 14 and 15 is effected by a lever arm 30 which is here shown as extending horizontally from beneath the wash bowl and as terminating in an operating knob 31.

It will be understood that the valve structures 14 and 15 are of the same general self-closing type, and it is to be understood that when the operating arms 30 are released, springs will cause the operating arm to swing to a neutral position, permitting the valve member to rest upon its seat and close the valve.

In the operation of the present invention the structures may be assembled as previously described. When it is desired to obtain water from spout 13, the operator may exert knee pressure to one side or the other to swing the levers 30 horizontally in either direction from a neutral position, as indicated in Fig. 1 of the drawings. In this event the valve members will be raised from their seats to permit a flow of water through the valve or valves which have been operated. It will be evident that in this case the entire structure will act as a mixing valve and that the temperature of the water drawn from the spout 13 will depend upon the relative degrees of opening of the hot and cold water valves with relation to each other.

Attention is directed to the fact that the lever operating arms 30 operate independently of each other and are of considerable length, thus making it possible for the valves to be very easily controlled without great effort and without the possibility of opening the valve too rapidly, which in the case of hot water might result diastrously. For this reason the device is especially adapted for use in public rest rooms and the like, where it is operated by inexperienced persons. Practice will not be required to adjust the valve to a nicety in order to draw water of a desired temperature or to prevent an excessive volume of water to be drawn with a resultant splash or running over of the bowl.

In order to control the maximum flow of water from the spout 13 so that splashing will be prevented, the valve 22 may be adjusted. By the arrangement here shown, it is possible for hot or cold water, or water with an intermediate temperature to be drawn from spout 13 without the necessity of touching the valve operating mechanism with the hands, so that in the event a person with soiled hands wishes to use the bowl, he may immediately place them beneath the spout 13 and in the path of the stream of water flowing therefrom, or within the bowl to wash them without rendering the valve operating mechanism unclean, or unsanitary, and after having thoroughly washed his hands, may close the valves without being required to grasp a valve which has been previously rendered unclean or unsanitary.

It will thus be seen that the structure here disclosed provides the highest degree of sanitation for those using the bowl and makes it possible to manipulate the valves of the bowl while the hands are free to be used for other purposes.

While I have shown the preferred form of my invention as now known to me, it will be understood that various changes may be made in the combination, construction and arrangement of parts by those skilled in the art, without departing from the spirit of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In combination with a wash bowl and a valved system to conduct water to said bowl, valve operating means adapted to actuate certain of said valves, said valve operating means comprising levers in operating relation to certain of said valves and whose free ends when swung to or from open position extend through a radius greater than a radius drawn from the medial vertical line of said bowl, said levers being directly connected with the valves they operate and arranged to swing horizontally.

2. In combination with a wash bowl and a valved control system to conduct water to said bowl, valve actuating means, said means consisting of levers in operating relation to said valves and extending forward of said wash bowl, said levers being arranged to swing horizontally whereby lateral movement of said valves may be effected by the knees of the operator to open or close said valves.

3. In combination with a wash bowl and a valved water control system to deliver water to said bowl, valve actuating levers in operating relation to said valves and extending the width of said bowl and projecting forward of the skirt of said bowl, said levers being arranged to swing horizontally whereby the valves may be actuated by the knees of the operator.

GEORGE A. SNYDER.