May 29, 1934. E. F. NIEDECKEN 1,960,278

PLUMBING FIXTURE

Filed Aug. 13, 1932 2 Sheets-Sheet 1

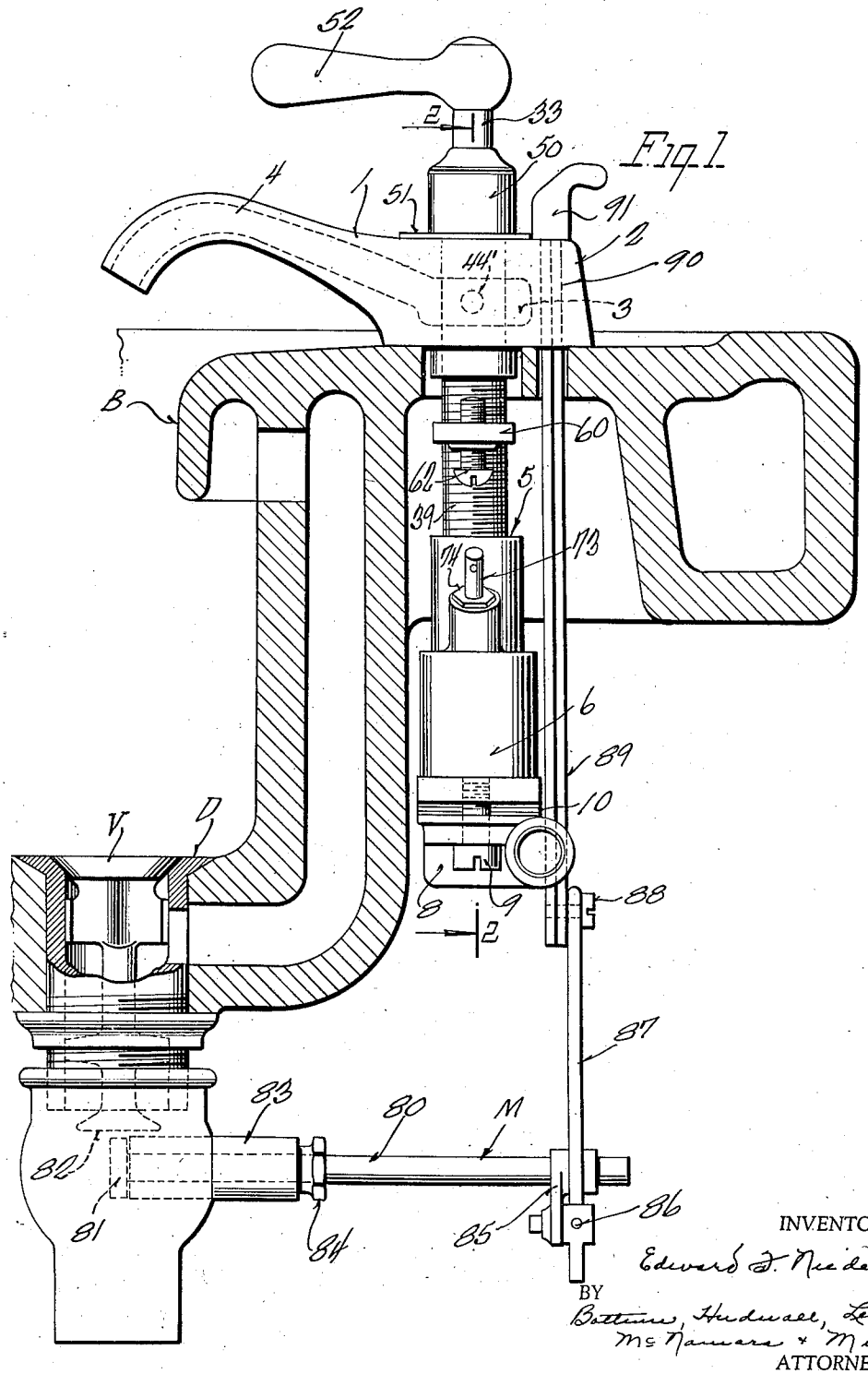


Fig. 1.

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Filed Aug. 13, 1932 2 Sheets-Sheet 2

Fig. 2

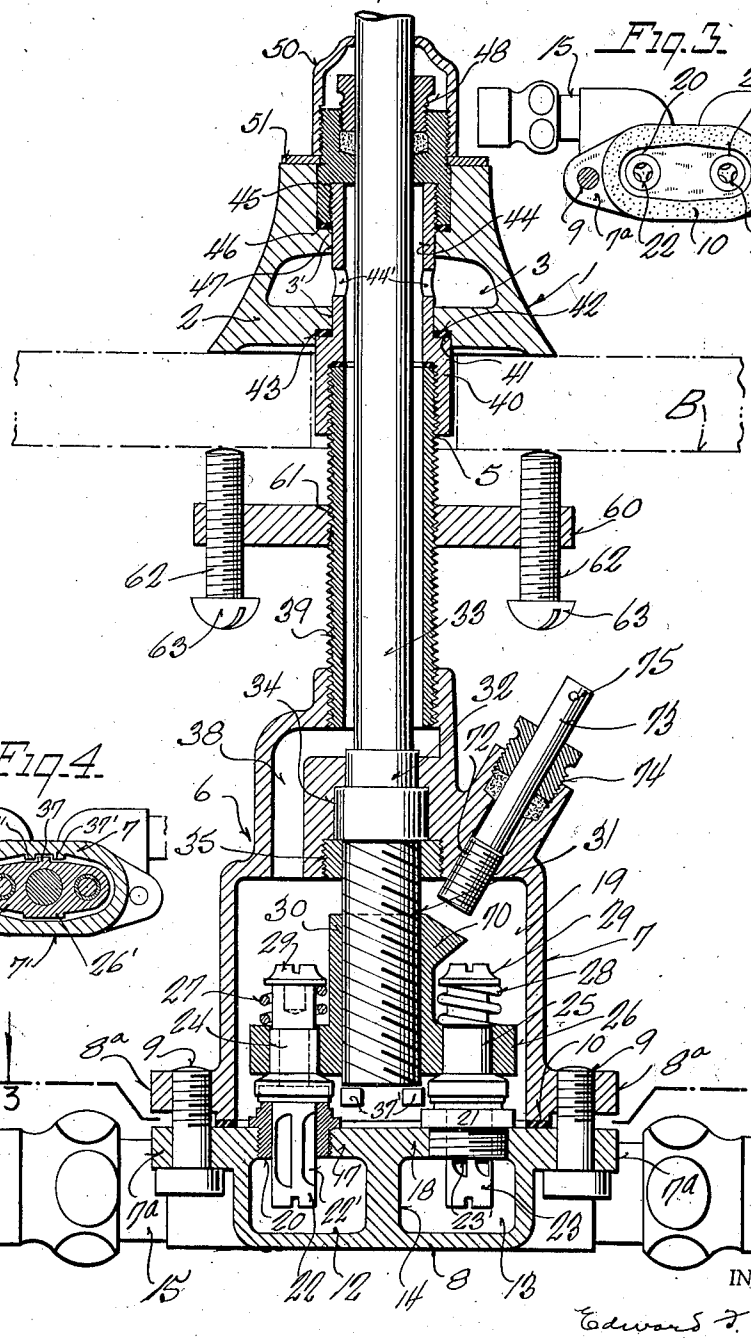


Fig. 3

Fig. 4

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Patented May 29, 1934 1,960,278

UNITED STATES PATENT OFFICE

1,960,278

PLUMBING FIXTURE

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Application August 13, 1932, Serial No. 628,619

6 Claims. (Cl. 4—192)

This invention relates in general to improvements in plumbing fixtures, especially, although not necessarily, adapted for use with lavatory basins of the type in which there is but a narrow crowded space between the basin and the adjacent wall of the building.

Among the objects of the invention are to provide a lavatory fixture which embodies in its structure but a single faucet and yet provides for the supply of cold, warm or hot water. The single faucet is positioned above the shelf or top of the basin but inasmuch as there is a single faucet the shelf room provided by the basin is increased. To provide for the supply of hot, cold or warm water a mixing valve is combined with the faucet and is organized and constructed so compactly as to be well adapted to be accommodated conveniently in the crowded space between the basin and the adjacent wall structure and this while rendering the various elements of the assembly conveniently accessible for purposes of replacement and repair.

Another object is to combine with a fixture of this character a novel and conveniently controllable waste plug operator.

A still further object is to provide a fixture having these advantages and capacities, which is simple and durable in construction, reliable and effective in operation, and easy and comparatively inexpensive to manufacture and install.

Other objects and advantages reside in certain novel features of the construction, arrangement and combination of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings, forming a part of this specification, and in which:

Figure 1 is a view in elevation illustrating a lavatory fixture embodying the present invention, portions of the basin and the outlet for drain being shown in section for the sake of illustration;

Figure 2 is a fragmentary view in transverse vertical section taken on line 2—2 of Figure 1;

Figure 3 is a view in horizontal section taken on line 3—3 of Figure 2; and

Figure 4 is a detail view in horizontal cross section showing the means provided to insure proper assembly of the valve with the valve casing.

Referring to the drawings, a portion of any conventional type of basin or equivalent lavatory fixture is designated at B. The basin may have a conventional drain connection D provided with a valve or waste plug V biased in any suitable manner as by its weight to closed position but which may be opened, when desired, by means of a waste plug operating mechanism designated generally at M and hereinafter more fully described.

The lavatory fixture embodying the present invention comprises a single nozzle designated generally at 1 and utilized to deliver either cold, warm or hot water. The nozzle 1 has a body portion 2 which is clamped in position on the shelf of the basin and is formed interiorly with a water chamber 3 which freely communicates with the opening extending through the discharge spout 4 of the faucet. The water is supplied to the chamber 3 through a conduit designated generally at 5 which leads to the faucet from a mixer valve designated generally at 6.

The mixer valve 6 comprises a valve casing including an upper section 7 and a lower section 8 releasably secured together by means of studs or screws 9. The screws 9 in exerting their securing action compress a gasket 10 between the sections to provide for a liquid tight seal therebetween. The sections 7 and 8 of the valve casing are of flat oblong form in horizontal cross section and this together with the slightly elongated vertical formation of the valve casing adapts it to be conveniently accommodated in the crowded space back of the basin, that is, the space between the adjacent wall and the back of the basin. The section 8 is formed interiorly with a hot water inlet chamber 12 and a cold water inlet chamber 13, these chambers being separated from each other by a partition 14 and directly communicating respectively with hot and cold water supply pipes designated at 15 and 16. Ported partitions 17 and 18 are provided between the chambers 12 and 13 and a mixing chamber 19 provided within the upper valve casing section 7. In the ports or openings of the partitions 17 and 18 valve seats 20 and 21 are threaded. It is obvious that by removing the screws 9 and disconnecting the lower valve section 8 from the hot and cold water supply pipes that the lower section with the valve seats may be removed as a unit so that the valve seats may be conveniently repaired or replaced.

Cooperable with the valve seats are graduating valve plugs 22 and 23, the valve plug 22 controlling the supply of hot water while the valve plug 23 controls the supply of cold water. As will be noted from the dotted lines in Figure 2, the grooves 23' in the valve plug 23 extend up to the upper end of the valve plug, while the grooves 22' in the valve plug 22 terminate short of the upper end of the valve plug 22. Furthermore, these grooves are spaced differently from the

lower ends of the valve plugs whereby when the valve plugs are drawn upwardly or opened first cold water, next warm water and finally hot water is supplied. In this connection it is to be understood that the particular form of valve plugs may be varied, the present invention contemplating the use of graduating valve plugs such as shown in my prior Patent No. 1,054,023, granted February 23, 1913, or if a small stream of hot water be desired such as shown in my prior Patent No. 1,669,772, granted May 15, 1928.

The valve plugs 22 and 23 have their stems 24 and 25 slidably interconnected with an actuating member or cross yoke 26. If desired springs 27 and 28 may be provided between the cross yoke and the screw and washers 29 on the valve stems to provide yieldable connections between the valves and the cross yoke. The cross yoke or actuating member 26 is formed centrally with a threaded bearing or nut 30, with which an operating screw 31 is interengaged. The screw 31 has integral therewith a stepped portion 32 and beyond the stepped portion has a shank or stem 33. The stepped portion 32 is rotatably interfitted with a correspondingly formed opening 34 in the upper section 7 of the valve casing and is held in such stepped opening by means of a nut 35 whereby a swivel connection is provided between the screw and the valve casing, that is to say, the screw is constrained to rotation about its own axis but is held against longitudinal shifting movement. Consequently when the screw 31 is turned it acts on the nut 30 to raise or lower the actuating member or yoke 26 depending on the direction in which the screw is turned.

To insure proper assembly of the valves 22 and 23 and their yoke 26 with the valve casing 6, a laterally projecting lug 37 is integrally formed with one side of the yoke and is designed to pass between spaced lugs 37′ integrally formed on the inner wall of the section 7 of the valve casing when the ports are properly assembled. On the side of the yoke 26 opposite the lug 37 is a flat guide boss 26′ slidable along the appropriately formed guide surface 7′ of the section 7 of the valve casing. The lugs 37 and 37′ and guide boss 26′ preclude improper assembly.

The upper section 7 of the valve casing is provided with a passage 38 which communicates at its lower end with the mixing chamber 19 and which communicates at its upper end with the lower end of an externally threaded pipe section 39. The pipe section 39 constitutes one of the elements of the conduit designated generally at 5 and has its lower end threadedly interconnected with the section 7 of the valve casing and has its upper end threaded into the lower end of a coupling member 40. The coupling member 40 is provided with a shoulder 41 between which shoulder and a seat 42 on the body of the faucet a gasket 43 is compressed. Beyond its shoulder 41 the coupling member 40 is provided with a reduced extension 44 fitted in a vertical opening 3′ which intersects the water chamber 3 of the faucet. The portion of the reduced extension 44 lying within the chamber 3 is provided with one or more openings 44′ which afford communication between the coupling member 40 and the water chamber 3 of the faucet. The upper end of the coupling member 40 is externally threaded and interconnected with a bushing 45, the lower end of which bushing presses against a gasket 46 which bears on a shoulder 47 formed on the body portion 2 of the faucet. A packing gland 48 provides a liquid tight seal between the bushing 45 and the stem 33 of the operating screw. A cap 50 threaded on the bushing encloses the packing gland 48 and holds in position a dial plate 51 which bears indicia such as "Hot", "Warm", "Cold".

Above the cap 50, a handle 52 is releasably secured to the stem 33 of the screw.

The fixture is secured in position on the basin by means of a spider 60 having its hub threadedly interengaged with the pipe section 39 and provided at its outer ends with threaded openings receiving clamping screws 62. The screws 62 are inverted, with their slotted heads 63 facing downwardly, so that a mechanic by using a screw-driver may conveniently turn the screws to bring them into clamping engagement with the underside of the basin or to release them as desired.

The mixer valve embodying the present invention readily lends itself to the use of means for limiting the movement of the cross yoke or actuating member whereby to regulate the extent to which the valve may be opened and thus the amount of hot water supplied to the mixing chamber 19. In carrying out this purpose, a stop or abutment 70 may be integrally formed with the threaded bearing 30 of the actuating member or yoke 26, the active face of the stop being angled to engage the lower end of an inclined stop screw 72. The stop screw 72 is threadedly engaged with the section 7 of the valve casing and has an integral operating stem 73 extending through a stuffing box 74 provided on the valve casing and formed exteriorly of the stuffing box with a transverse opening 75 to facilitate its adjustment by means of a nail or other suitable implement or tool.

The waste plug operating mechanism includes a rock shaft 80 having a crank arm 81 fixed to one end and designed to wipe against the enlarged lower end 82 of the stem of the waste plug to control the opening and closing of the same. The shaft 80 is supported for rocking movement in a bearing 83 provided with a packing gland 84 and exteriorly has a second crank arm 85 fixed thereto. The crank arm 85 has an adjustable pivotal connection of any suitable type as designated at 86 to the lower end of a link 87, the upper end of which is releasably and pivotally secured as at 88 to the lower end of a slide rod 89. The upper end portion of the slide rod 89 is slidably interfitted with a vertical opening 90 provided therefor in the body portion 2 of the faucet and is secured about said body portion to a finger piece or handle 91. When the finger piece 91 is grasped and pulled upwardly the shaft 80 will be rocked to cause its crank arm 81 to wipe against the enlarged lower end 82 of the stem of the waste plug V to move the plug V to open position. Depression of the finger piece 91 so moves the crank arm 81 as to provide for closure of the waste plug V under the influence of its inherent bias.

A fixture of the character described may be readily and easily installed and conveniently accommodated in the crowded space between the rear of the basin and the adjacent wall. Notwithstanding the disposition of the mixer valve and such crowded quarters access may be readily had to the valve seats and to the valves for purposes of replacement or repair.

With the section 8 of the valve casing removed, the handle 52 may be rotated to cause the threaded bearing 30 of the actuating yoke 26 to

advance downwardly until it is disengaged from and drops off from the screw 31. Reverse actuation of the screw 31 is all that is needed to reassemble the actuating yoke and valves therewith.

As illustrated in Figures 2 and 3, the openings in the flanges 7ª and 8ª of the sections 7 and 8 which receive the screws 9 are offset from the transverse center line of these sections thereby insuring proper assembly of the sections inasmuch as proper assembly requires that the openings accommodating the screws 9 be alined and such alinement is possible only when the parts are properly assembled.

While I have shown and described one construction embodying my invention, it is to be understood that this construction has been selected merely for the purposes of illustration and assembly and that various changes in the size, shape and arrangement of the parts may be made without departing from the spirit of the invention or the scope of the subjoined claims.

The invention claimed is:

1. A fixture for use with lavatory basins having a faucet for supplying water to the basin and a mixer valve controlling the supply of water to the faucet and including a casing of flat oblong form adapted to be accommodated in the space between the rear of the basin and the adjacent wall and made up of an upper section and a lower section, means releasable from the lower side of the lower section for securing said sections together, said lower section having hot and cold water inlet chambers, said upper section having a mixing chamber, ported partitions between the inlet chambers and the mixing chamber, valve plugs slidable through said ported partitions for regulating flow therethrough, an actuating member connected to said valve plugs, screw and nut mechanism for operating said valve plugs, a conduit connecting the mixing chamber of the casing with said faucet, and means operable from above the faucet and extending through said conduit for actuating the screw and nut mechanism.

2. In a fixture of the character described a mixer valve having a casing made up of an upper and lower section, means releasable from the lower side of the lower section for securing said sections together, said lower section having hot and cold water inlet chambers, said upper section having a mixing chamber, ported partitions between the inlet chambers and the mixing chamber, valve plugs slidable through said ported partitions for regulating flow therethrough, an actuating member connected to said valve plugs and manually operable means connected to said actuating member for moving the same.

3. In a fixture of the character described a mixer valve having a casing including an upper section and a lower section, means for releasably securing the sections together, said lower section having hot and cold water inlet sections, said upper section having a mixing chamber, partition means between the chambers having ports, valve plugs slidable through said ports for regulating flow therethrough, an actuating yoke connected to said valve plugs, means for raising and lowering the yoke to actuate the valves, and cooperable means between the casing and the yoke for insuring proper assembly.

4. In a fixture of the character described a mixer valve having a casing including an upper section and a lower section, means for releasably securing the sections together, said lower section having hot and cold water inlet sections, said upper section having a mixing chamber, partition means between the chambers having ports, valve plugs slidable through said ports for regulating flow therethrough, an actuating yoke connected to said valve plugs, means for raising and lowering the yoke to actuate the valves, and cooperable means between the casing and the yoke for insuring proper assembly and including lugs on the casing and on the yoke adapted to slidably interfit only when the parts are properly related.

5. In a fixture of the character described a mixer valve having a casing made up of upper and lower sections, fastening devices offset from a center line of said sections for releasably securing the same together, said lower section having hot and cold water inlet chambers, said upper section having a mixing valve, partition means between the chambers having ports symmetrically disposed with respect to said center line, valve plugs slidable through said ports, and means for actuating said valve plugs.

6. A fixture for use with lavatory basins comprising in combination a faucet disposed above the basin and discharging thereinto, a conduit and mixing chamber connected with the faucet, there being two inlet ports connecting with said mixing chamber, a slidable plug valve in each port, said mixing chamber, ports and valves being disposed within the space defined by the rear of the basin and the rear shelf of the basin, said ports and valves being offset from the center line of the conduit, and operating means for simultaneously adjusting said valves extending through said conduit and operable from above the faucet.

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