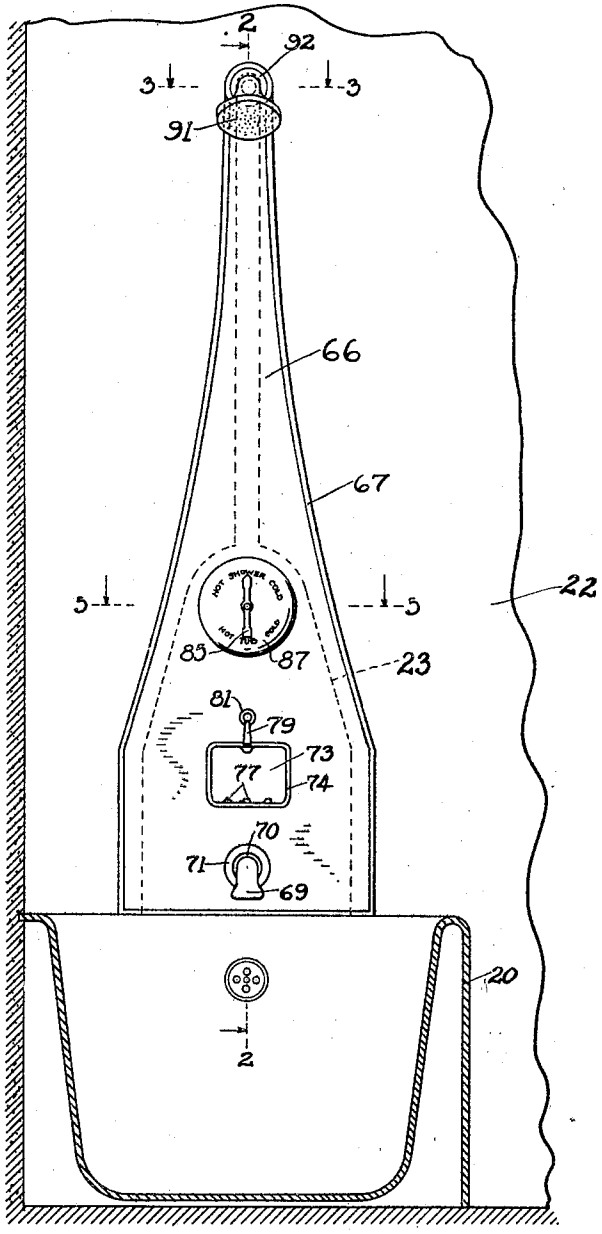
Dec. 8, 1931. V. D. HENNESSEY 1,835,301

PLUMBING FIXTURE INSTALLATION

Filed June 30, 1928 5 Sheets-Sheet 1

FIG. 1



WITNESSES

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PLUMBING FIXTURE INSTALLATION

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FIG. 2

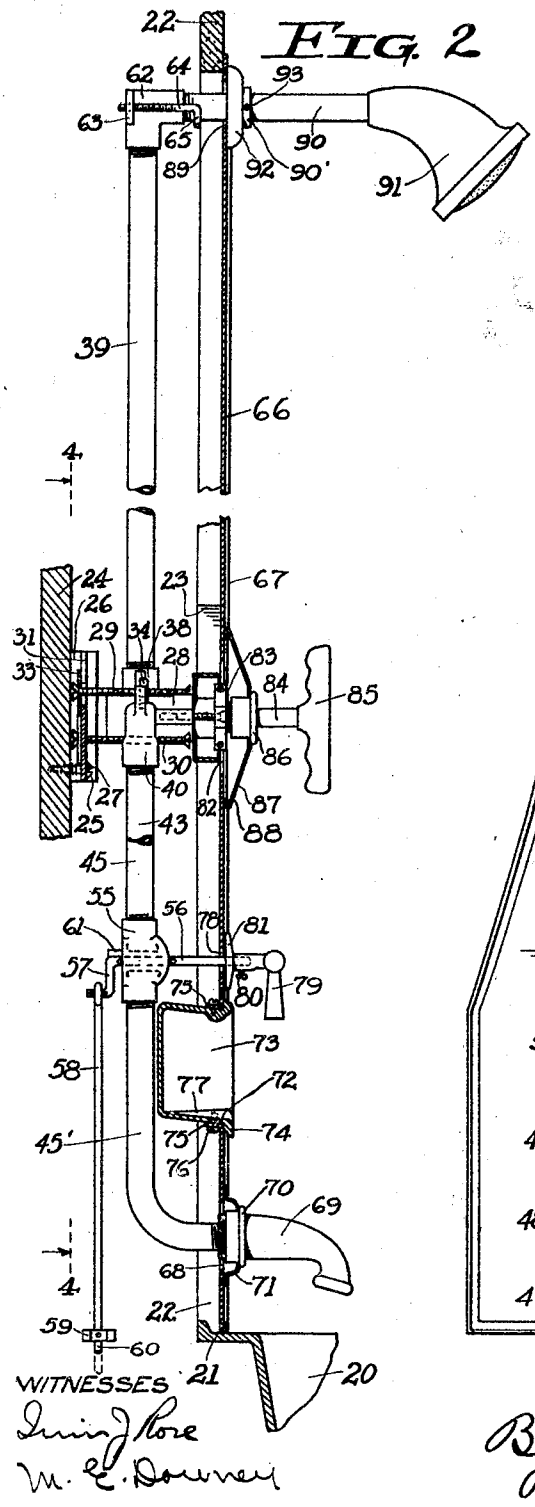

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FIG. 3

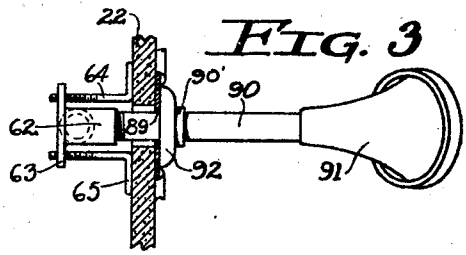
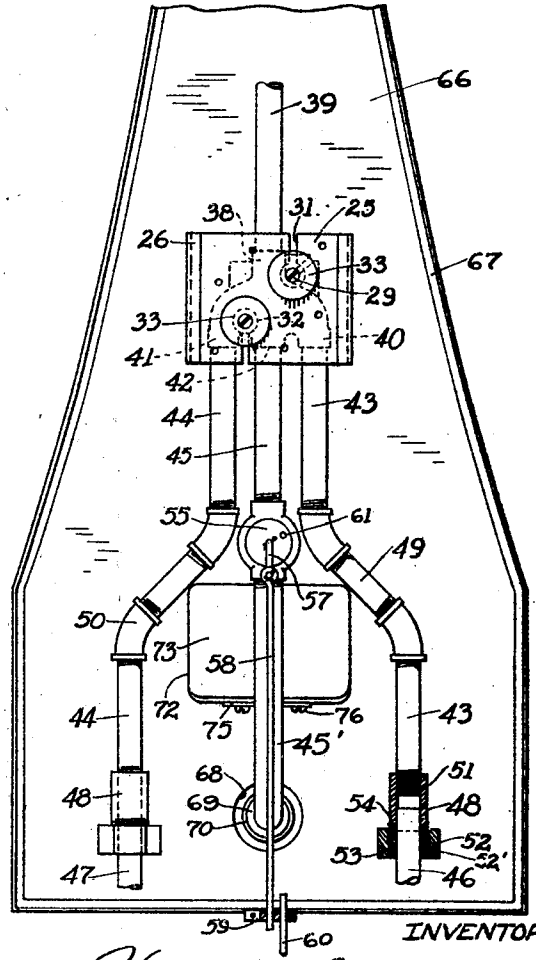


FIG. 4



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PLUMBING FIXTURE INSTALLATION

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FIG. 6

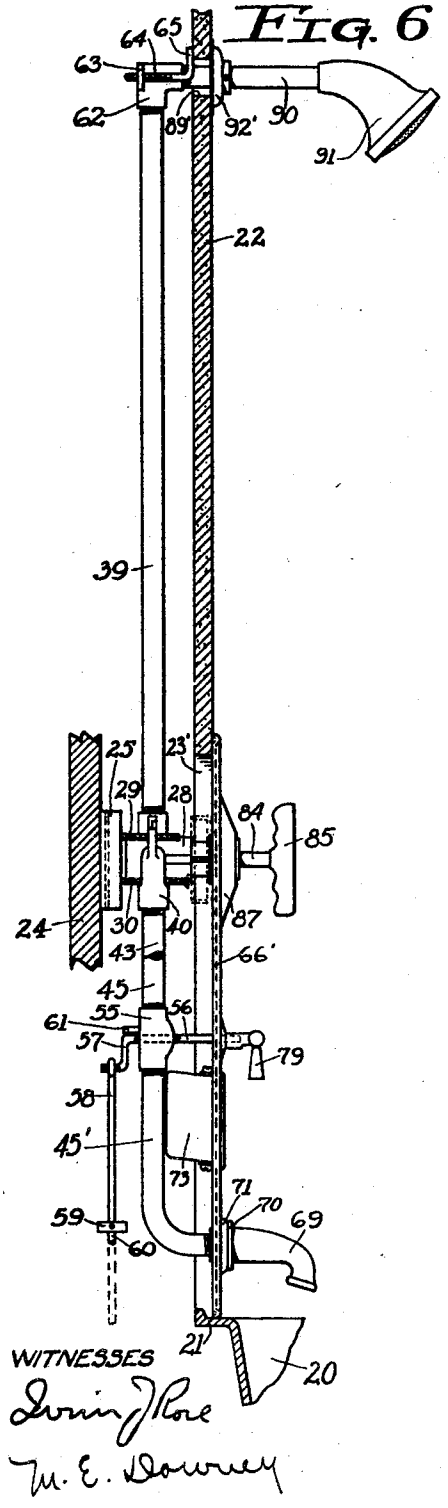


FIG. 5

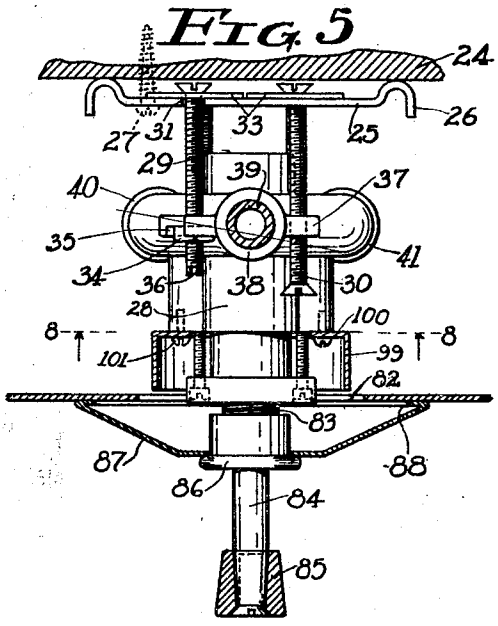
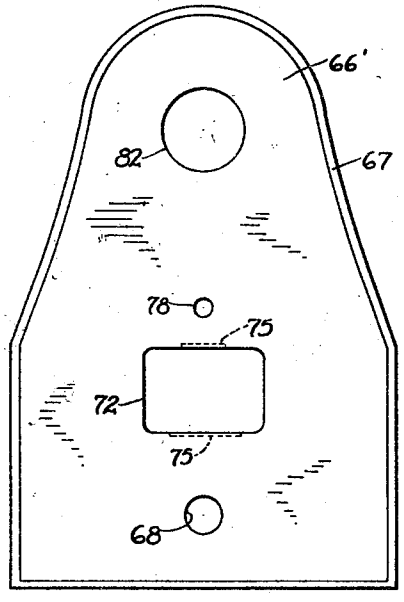


FIG. 7



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PLUMBING FIXTURE INSTALLATION

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FIG. 8

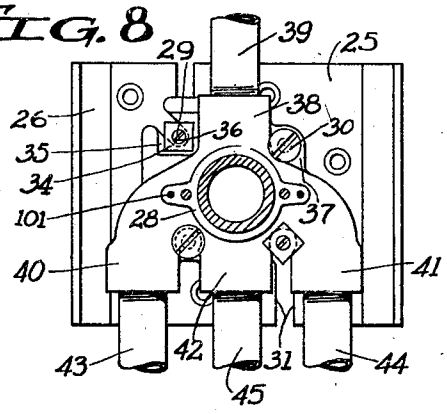


FIG. 12

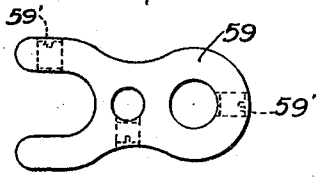


FIG. 9

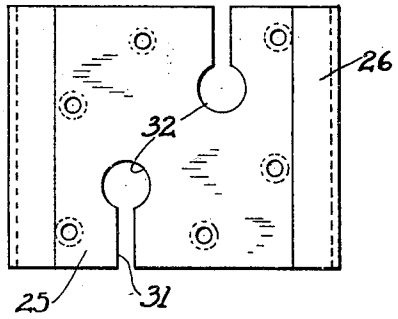


FIG. 11

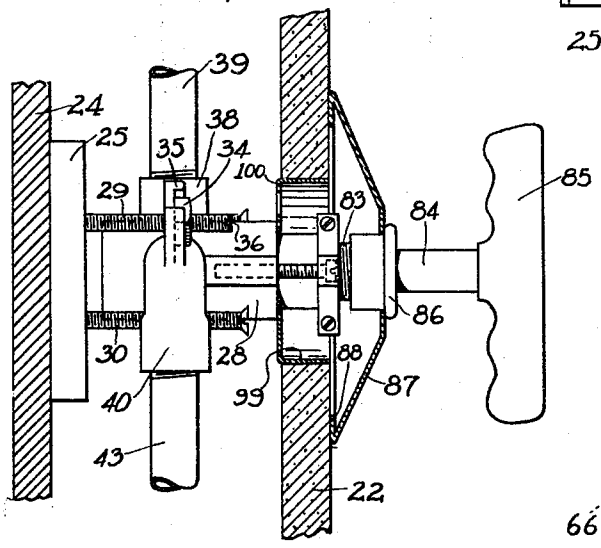
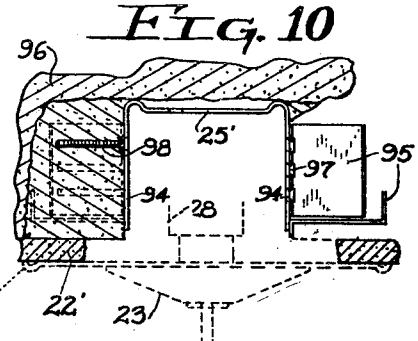


FIG. 10



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PLUMBING FIXTURE INSTALLATION

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FIG. 13

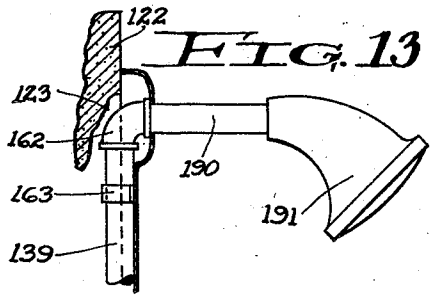


FIG. 15

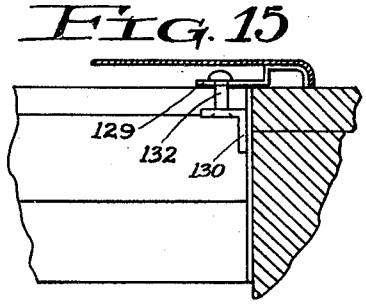
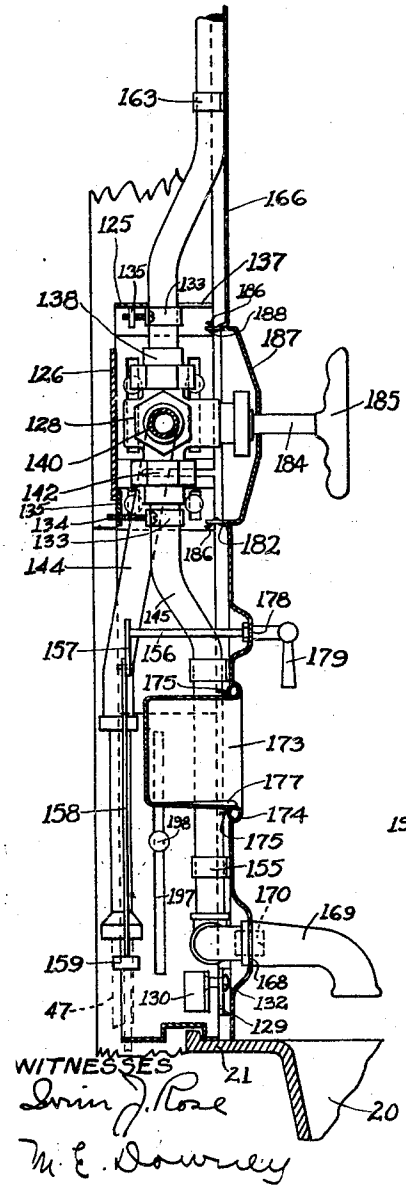
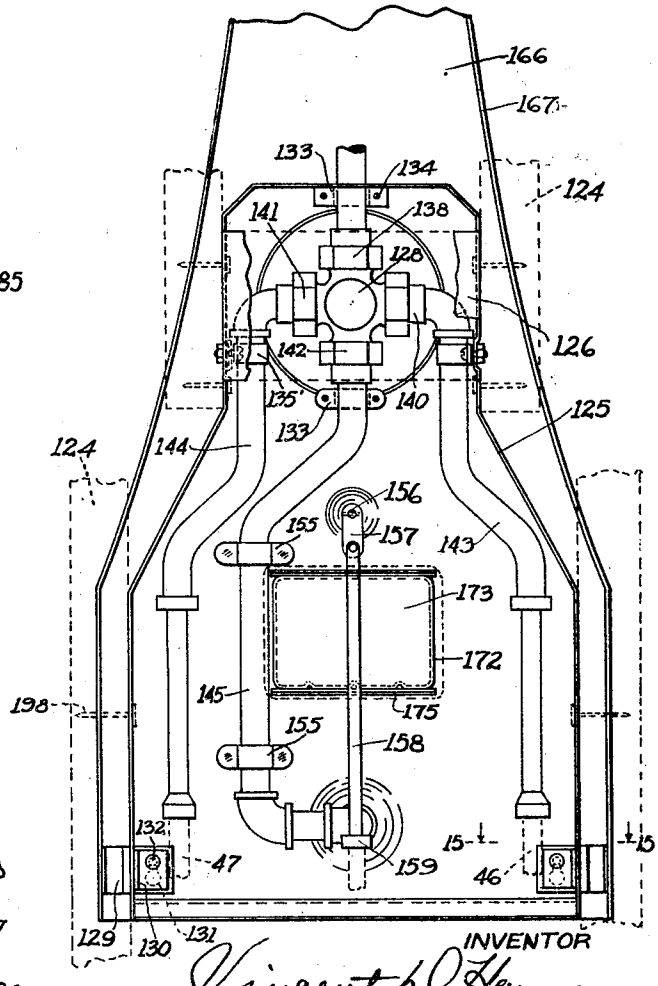


FIG. 14





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UNITED STATES PATENT OFFICE

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PLUMBING FIXTURE INSTALLATION

Application filed June 30, 1928. Serial No. 289,439.

The invention relates to plumbing fixture installations and has for an object the provision of means whereby plumbing fixtures can be expeditiously mounted in place in a wall of either an old or a new building.

Another object is to provide simple but effective means whereby the necessary piping and valve means can be securely but adjustably held in place within a wall to facilitate the placement of the various fixtures.

A further object is to facilitate the economical insertion of piping and valve means within a wall of either a new or an old building by providing an apertured panel for adequately covering a recess made in the wall for the piping and valve means, the panel obviating the necessity of finishing or refinishing the wall over and adjacent the wall recess.

A further object is to provide a plumbing fixture installation including a panel secured to a wall for concealing and affording access to a wall recess containing piping and valve means, the panel being apertured to receive therethrough the operating parts of the valve means.

Another object of the invention is to provide simple but effective means for mounting liquid-conveying fixtures on the wall.

A further object is to provide means for facilitating the plastering of the walls about projecting plumbing fixtures, particularly in new buildings.

A further object is to provide a simple and inexpensive soap container for the panel.

A further object is to provide a simple but effective valve mounting means which is secured to and within the wall independently of the liquid-receiving receptacle.

A further object is to facilitate the connection of the piping to a valve forming a part of the plumbing installation.

The invention further consists in the several features hereinafter set forth and more particularly defined by the annexed claims.

In the accompanying drawings, Fig. 1 is an elevation of a bath installation embodying the invention;

Fig. 2 is a sectional elevation through the installation taken on the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view through the shower head mounting taken along the line 3—3 of Fig. 1;

Fig. 4 is a rear elevation of the bath installation taken along the line 4—4 of Fig. 2;

Fig. 5 is a transverse sectional view through the installation taken along the line 5—5 of Fig. 1;

Fig. 6 is a sectional elevation similar to Fig. 2 but showing a modified form of bath installation;

Fig. 7 is a detail front elevation of a wall panel included in the installation of Fig. 6;

Fig. 8 is a sectional view of the mixing valve and its mounting taken along the line 8—8 of Fig. 5;

Fig. 9 is a detail rear elevation of a valve mounting plate;

Fig. 10 is a detail plan view of a modified form of mounting plate adapted for use in a tile or masonry wall and shown in position within a sectioned wall;

Fig. 11 is a detail side elevation, partly in section, of a modified form of valve mounting adapted for use in new buildings;

Fig. 12 is a detail view of a waste connector;

Fig. 13 is a sectional elevation similar to Fig. 2 but showing another modified form of bath installation;

Fig. 14 is a fragmentary rear elevation of the installation shown in Fig. 13; and

Fig. 15 is a detail sectional view taken along the line 15—15 of Fig. 14, showing a panel attaching means.

In these drawings, the numeral 20 designates a liquid-receiving receptacle, here indicated to be a bathtub of the built-in type, the tub being provided with upper flanged portions 21 permanently secured within a

hollow wall 22. The walls including the wall 22 may be of any suitable construction, usually of plaster or tile, a tile wall facing 22′ being indicated in a modified form of wall mounting shown in Fig. 10.

In that embodiment of the invention shown in Fig. 1 and related figures, the numeral 23 designates a niche or recess which is formed in the wall 22 above the tub, in which niche or recess the piping is placed. This niche includes a widened bottom portion extending near or to the tub flange 21 and a narrow vertically-extending slot-like upper portion which latter is adapted to receive a shower delivery pipe therein as hereinafter described. In the case of existing walls this niche 23 is formed to have the dotted line configuration shown in Fig. 1, although in some instances the upper slot-like portion of the niche may be omitted, as indicated in Fig. 6. In cases where the niche is formed in a plaster wall during the construction of the wall, the margin of the niche may be provided with plaster grounds as is customary with the other wall apertures.

Within the wall 22 is preferably secured a rigid back support 24 spaced rearwardly from the face of the wall and receiving thereon a valve-supporting plate 25, best seen in Figs. 5 and 9. The plate 25 is preferably formed of heavy sheet metal and has its opposite side portions provided with re-enforcing beads 26 which engage the support 24, the plate 25 being secured in place on the support by screws 27.

A mixing valve 28 of any suitable construction is adjustably mounted on the supporting plate 25, and in the present instance this is accomplished by means of screws 29 and 30, the former of which serve to draw the mixing valve body toward the supporting plate and the latter of which space the mixing valve body from the supporting plate. Vertical slots 31 are formed in the upper and lower edges of the supporting plate 25 in laterally offset relation and each slot terminates at its inner end in an enlarged aperture 32. The slots 31 form passages for entering the screws 29 into the enlarged apertures 32, and the head portions of these screws are disposed in a space left between the supporting plate 25 and its support 24. Large washers 33 are placed in engagement with the rear surface of the supporting plate about the enlarged apertures 32 and receive therethrough the screws 29, the heads of which engage the washers for preventing withdrawal of the screws through the apertures. The forwardly-extending portions of the screws 29 are threaded through nuts 34 which are retained in place against relative rotation in radially slotted pockets 35 disposed at diametrically opposite portions of the valve body. The forward end of each screw 29 is provided with a screw-driver-receiving slot 36 for facilitating the rotation of the screw by a workman. The screws 30 are arranged in parallel relation to the screws 29 to lie on substantially diametrically opposite sides of the valve body in intermediate positions with respect to the screws 29, and are threaded through lugs 37 formed integrally on the valve body. The rear ends of the screws 30 engage the plate 25 and the forwardly disposed heads of the screws are slotted for the reception of a screw-driver. By means of a mutual adjustment of the screws 29 and 30, the mixing valve can be located and locked in any suitable position to bring it in a predetermined location with respect to the face of the wall, and the enlarged apertures 32 permit the mixing valve to be laterally displaced a limited extent. The mutual adjustment of the screws 29 and 30 will further permit the valve and attached piping to assume angular positions with respect to the face of the wall.

The mixing valve is provided with a plurality of pipe-receiving bosses all preferably arranged in the same vertical plane. The upper boss 38 is arranged to receive the threaded end of a vertically-disposed shower delivery pipe 39, and three downwardly opening lower bosses 40, 41 and 42 receive respectively two supply pipes 43 and 44 and an intermediately disposed tub delivery pipe 45. The shower delivery pipe 39 is placed within the wall either by introducing it through the upper slot-like portion of the niche 23 as in the construction shown in Figs. 1 and 2, or by projecting it upwardly from below through the niche 23′, shown in Fig. 6.

Vertically arranged hot and cold water service pipes 46 and 47 are mounted in the wall in the usual manner, and in the case of an old building these pipes may have formed a part of a pre-existing bath installation. In order to make connections with these service pipes, the supply pipes 43 and 44 connected to and extending downwardly from the mixing valve are provided at their lower ends with slip unions 48 receiving therein the service pipes. The supply pipes 43 and 44 are also provided at intermediate portions with nipples 49 and 45° elbows 50 to diverge the lower ends of these pipes and to provide a degree of swinging adjustment. Each slip union 48 consists of a sleeve 51 which is interiorly threaded at its upper end for the reception of one of the pipes 43 and 44 and is exteriorly threaded at its lower end for the reception of a gland nut 52 which contains a packing bushing 53, preferably of soft metal, adapted to engage about the incoming service pipe. A washer 52′ is interposed between the bushing and the gland nut to prevent the bushing from turning when the nut is being tightened. The upper end of the bushing 53 is conically formed to engage within a conical recess 54 formed in the end

of the sleeve 51, so that the compression of the bushing by the gland nut 52 will result in the contraction of the bushing about the supply pipe to provide a liquid-tight seal. In the case of a pre-existing bath installation requiring the cutting of the supply pipes, which are subsequently to be connected to the pipes leading to the mixing valve, the use of the slip unions 48 obviates the necessity for accuracy in the cutting of the supply pipes and for threading the cut ends of the latter pipes.

The tub delivery pipe 45 extending downwardly from the mixing valve is joined by a fitting 55 with a pipe 45′ which is provided with a forwardly projecting threaded lower end. The fitting 55 forms a bearing for a rock shaft 56, which passes through the fitting and has a crank 57 at its rear end receiving a connecting rod 58, the latter being provided with a coupling member 59 at its lower end attached to a waste operating rod 60. The coupling member 59 is apertured to receive the connecting rod 58 and waste operating rod 60, the rods being secured in place by set screws 59′. A stop pin 61 carried by the fitting 55 permits the crank to remain in its elevated position when swung to such position.

An elbow 62 is threaded onto the upper end of the shower delivery pipe 39 and is provided with threaded ears 63 receiving adjusting screws 64 having laterally-extending ends 65. The laterally-extending ends of the screws 64 are engageable with the inner surface of the wall and serve to retain the elbow 62 in position within the wall against forward displacement.

In order to cover the niche 23, a panel 66 is provided preferably having the general configuration seen in Fig. 1. The opposite edges of the panel 66 preferably overlap the edges of the niche a sufficient amount so that all irregularities in the edges of the niche will be concealed. The base portion of the panel 66 is relatively wide and the panel tapers to a narrow upper end portion. The edges of the panel are provided with beads 67 both for the purpose of re-enforcement and appearance. Near its lower end the panel is provided with an opening 68 which receives therethrough the forwardly projecting lower end of the tub delivery pipe 45′. A spout 69 preferably of large size and having a nozzle slightly canted to discharge water against the wall of the tub is threaded onto the delivery pipe 45′, and the rear end of the spout is also exteriorly threaded to receive a flanged collar nut 70. A bell-shaped escutcheon 71 surrounds the spout and is interposed between the panel and the flanged portion of the collar nut to conceal the opening 68, the escutcheon being clamped against the panel by the nut.

Another opening 72 is formed in the panel above the spout 69 and receives therein a soap receptacle 73, preferably of general rectangular shape, extending rearwardly into the wall niche 23. The soap receptacle 73 is provided with a peripheral front flange 74 engageable with the panel around the edges of the opening 72, and flanges 75 are bent inwardly from the panel at the upper and lower edges of the opening to receive screws 76 which secure the soap receptacle in place within the opening. The bottom surface of the soap receptacle preferably slopes toward the face of the wall and has formed thereon a number of spaced ribs 77 sloping rearwardly to retain a bar of soap in the receptacle and to permit the drainage of soapy water.

Above the opening 72 is formed another opening 78 receiving therethrough the waste operating crank shaft 56. An operating handle 79 is secured by means of a screw 80 to the forward end of the shaft 56 and includes a flange 81 which bears against the panel to conceal the opening 78.

Immediately in front of the valve-supporting plate 25, the panel 66 is provided with an opening 82 receiving therethrough the forward portions of the mixing valve 28. The mixing valve includes at its forward end an exteriorly threaded boss 83 which receives therethrough a valve stem 84 provided with a handle 85 at its forward end. A flanged collar nut 86 is threaded onto the threaded boss 83 and serves to clamp in position a dial plate 87 engageable with the panel 66 to conceal the opening 82. The dial plate is provided with suitable indicia as seen in Fig. 1 directing the movements of the valve stem 84 and is preferably formed of porcelain enamelled sheet metal, a reversely inturned flange 88 being provided at the periphery of the dial plate to engage the panel 66.

At the narrow upper end of the panel 66 is formed an opening 89 in register with the horizontal portion of the elbow 62, and through this opening is received a horizontally-extending pipe 90 which is threaded at its rear end into the elbow 62 and carries a shower head 91 at its forward end. A bell-shaped escutcheon 92 surrounds the pipe 90 and is secured in place thereon by a collar 90′ held in position on the pipe 90 by a set screw 93. When securing the escutcheon 92, the pipe 90 is urged forwardly against the reaction of the screw 65 behind the wall and the escutcheon is then urged rearwardly to firmly clamp the panel 66 against the wall. The shower head is thus held firmly in position.

In the modified form of the invention shown in Fig. 6, the panel 66′, shown in detail in Fig. 7, extends only slightly above the mixing valve since the niche 23′ terminates shortly above the mixing valve. The shower delivery pipe 39 is introduced upwardly behind the wall through a niche 23′ and the shower head pipe 90 passes through an opening 89′ in the wall. An escutcheon 92′ gen-

erally similar to the escutcheon 92 of Fig. 2 surrounds the pipe 90 and engages the surface of the wall 22 to conceal the opening 89′.

When the mixing valve is to be installed in a solid wall, as indicated in Fig. 10, a modified form of valve supporting plate 25′ is provided. This plate includes forwardly-extending parallel flanges 94 at opposite sides to provide a space about the mixing valve, and thin sheet metal bendable plates 95 are secured to the flanges 94, as by welding, for anchorage within a plastic wall material 96, which upon hardening will secure the valve supporting plate 25′ firmly in place. The flanges 94 of the valve supporting plate may also be provided with threaded bosses 97 receiving therein machine screws 98 which provide an additional anchoring means. The mixing valve may thereafter be secured to the plate 25′ in the manner heretofore described.

In cases where the mixing valve and piping are to be installed and placed within a wall to be later completed, a modified form of wall mounting may be used as indicated in Fig. 11. In this modification, the supporting plate 25 supports the mixing valve 28 by means of the screws 29 and 30, as heretofore described. The forward face of the valve body has mounted thereon a sheet metal cup 99, which includes an apertured inturned flanged portion 100 secured to the valve body in any suitable manner, as by means of screws 101 driven into the valve body, the apertures in the flanged portion 100 affording access to the screws 29 and 30. The forward edge of the sheet metal cup 99 forms a plaster ground, and this edge may be readily brought to its proper plane by adjusting the mixing valve in or out, as heretofore described. The cup 99 is preferably so mounted on the valve body that it will not interfere with the removal of interior parts of the valve for repairs or replacement. The cup may be permanently secured to the valve body and may also be included in the installation without using it as a plaster ground, as shown in Figs. 2 and 5.

In the modified form of installation shown in Figs. 13 to 15 inclusive, the supporting means for the mixing valve and its piping is formed by a sheet metal box 125 having an open back with exception of one or more reenforcing bands 126. The box 125 is let into a niche or recess 123 formed in the wall 122 and is preferably secured to suitable laterally-adjacent wall supports 124. The attachment of the box to the wall supports is accomplished in the present instance by providing the side walls of the box with vertical slots 197 through which nails or other fastening elements 198 are driven into the supports 124. A wall panel 166, which is generally similar to the wall panel 66 of the Fig. 1 device, serves to conceal the wall niche 123. In the present case, the panel also serves as a support for the mixing valve and piping. The upper end of the panel 166 has secured thereto a horizontally-disposed pipe 190 for supporting the shower head 191, and an elbow 162 within the panel connects this pipe with a shower delivery pipe 139, which latter is permanently secured to the panel in any suitable manner, as by means of straps 163 welded to the panel. The lower end portion of the shower delivery pipe 139 is provided with a union fitting 138, by means of which it is detachably secured to a mixing valve 128. The side portions of the mixing valve are connected by similar unions 140 and 141 to hot and cold water supply pipes 143 and 144, respectively, which have slip joint connections with the service pipes 46 and 47. A tub delivery pipe 145 is detachably connected to the lower portion of the mixing valve by a union 142 and is permanently secured to the back of the panel 166 in any suitable manner as by welded straps 155. The lower end of the pipe 145 is provided with a short nipple 170 extending through an aperture 168 in the panel to receive thereon a spout 169.

The pipe 145 has its intermediate portion disposed at one side of the vertical median plane of the panel to provide room for a soap receptacle 173 which is inserted through an opening 172 formed in the panel. The soap receptacle may be made of sheet metal and the forward portions thereof are provided with a bead or flange 174 engageable with the forward face of the panel and concealing the opening 172. Spring clips 175 are provided at the upper and lower edges of the opening 172 to engage the soap receptacle and retain it in position. The soap receptacle may be provided with ribs 177 on its lower edge, similar to the ribs 77 of the Fig. 1 device.

Above the soap receptacle 173 an opening 178 is formed in an embossed portion of the panel to receive therethrough a waste operating cam shaft 156 provided with an operating handle 179 in its forward end. The rear end of the shaft 156 is provided with a crank 157 connected to a rod 158 having a waste rod coupling member 159 at its lower end.

Immediately in front of the mixing valve 128, the panel is provided with a large opening 182 which receives therein a dial plate 187. At the upper and lower portions of the opening 182 are provided spring clips 186 engageable with apertured ears 188 formed on the dial plate to retain the latter in position.

Near its lower end the panel is provided at opposite sides with brackets 129 secured as by welding to the rear face of the panel, and each bracket is provided with a vertically-arranged keyhole slot 131 having an enlarged lower end. Angle brackets 130 are secured as by welding to the opposite side faces of the box near its lower end and are

provided with forwardly projecting headed pins 132, adapted to enter the keyhole slots 131, thereby retaining the lower portion of the panel 166 against the wall 122.

In order to position the mixing valve 128 within the box 125 to thereby draw the attached panel 166 into close engagement with the wall 122, the pipes 139 and 145 are each provided near the mixing valve with permanently-attached straps 133, and these are provided with screws 134 which are threaded into lugs 135 projecting from the box 125 and the back plate 126. The pipes 143 and 144 may have their upper end portions adjustably secured to the side walls of the box 125 in a similar manner by means including clamping straps 135′. The upper wall of the box 125 is provided with a notch-like aperture 137 receiving therethrough the shower delivery pipe 139.

In assembling the device of Fig. 13, the supply pipes 143 and 144 are secured by their slip joint connections to the service pipes 46 and 47. The unions 140 and 141 at the upper ends of the supply pipes are in position to subsequently receive the mixing valve 128, which latter is attached by other piping to the panel 166. Before the panel 166 is mounted in position, the dial plate 187 and the soap container 173 are removed from their spring clips, so as to present openings sufficiently large to admit tools. In setting the panel in place, the headed pins 132 secured to the box 125 are admitted through the keyhole slots 131 on the panel, which latter is then dropped a slight amount to engage the pins 132 for confining the panel against the wall. The shower delivery pipe 139 is then introduced into the notch 137 and the screws 134 are then screwed into the lugs 135 to draw the panel against the wall. In this position of the panel the mixing valve 128 is now so disposed that the supply pipe unions 140 and 141 can be attached thereto by means of tools entering the opening 182. The waste operating connections can be completed by entering tools through the opening 172.

The panel 166 is provided with a marginal flange 167, which is engageable with the wall surface, and the main portion of the panel is spaced outwardly from the wall. The shower delivery pipe 139 has most of its length arranged closely adjacent the inner surface of the panel, so that the upper portion of the niche admitting this pipe can be formed as a shallow groove, as indicated in Fig. 13.

When the soap container is not desired, the panel, especially that form shown in Figs. 1 and 6, can be constructed without the opening 72, and when the waste operating means is not to be included, the panel opening 78 may also be omitted. When the tub spout is mounted in the tub the panel opening 68 may also be omitted.

The invention provides means by which the installation of plumbing fixtures in both old and new walls, and especially the former, may be accomplished in a simple and expeditious manner, and whereby the necessary wall apertures may be covered without requiring additional plastering or tile work. While the invention relates more particularly to bath installations, it is also applicable to other plumbing installations, such as those including lavatories, sinks and the like.

What I claim as new and desire to secure by Letters Patent is:

1. The combination, with a wall having a recess therein above a liquid-receiving receptacle, of valve means and piping within said wall recess, said valve means including operating parts projecting forwardly from the face of the wall, a panel for covering said recess to conceal said valve means and piping and to afford access thereto and said panel including marginal portions overlying the edge portions of said recess in abutment with the face of the wall, said panel being apertured to receive therethrough the operating parts of said valve means, and means for securing the panel to said wall including a collar member secured to said valve means and surrounding said projecting operating parts.

2. The combination of a supporting member adapted to be secured to interior portions of a wall, a valve within the wall in front of said supporting member, and forwardly projecting screws distinct from said valve and connecting said valve and supporting member and by their mutual adjustment permitting the valve to be adjustably displaced forwardly and rearwardly in the wall.

3. The combination of a supporting member adapted to be secured within a wall in rearwardly spaced relation to the face of the wall, a valve disposed in front of said supporting member and including parts projecting forwardly beyond the face of the wall, and a plurality of forwardly projecting threaded members adjustably connecting said valve to said supporting members for effecting the forward and rearward displacement of said valve within the wall.

4. The combination of a supporting member adapted to be secured within a wall in rearwardly spaced relation to the face of the wall, said supporting member having screw-receiving apertures therein, a valve disposed in front of said supporting member and including parts projecting forwardly beyond the face of the wall, and a plurality of screws adjustably connecting said valve to said supporting member and each being manipulated at its forward portions for effecting the displacement of said valve within the wall, some of said screws being received within

said apertures and adapted for drawing said valve toward said supporting member and others of said screws bearing against said supporting member and adapted to urge said valve forwardly away from said supporting member.

5. The combination of valve supporting means adapted to be secured within a wall, a valve within the wall including operating parts projecting forwardly beyond the face of the wall, means for adjustably securing said valve to said supporting means and permitting a forward and rearward displacement of said valve with respect to the plane of the wall, and a collar member secured to said valve including an annular edge forming a plaster ground about portions of said valve extending through the plane of the wall, the in-and-out adjustment of said valve determining the placement of said ground-forming edge of said collar.

6. Plumbing apparatus comprising valve means and a delivery pipe extending therefrom and arranged within a wall, the wall having an aperture to receive therethrough the discharge portions of said delivery pipe, and means carried by the end portion of said delivery pipe engageable with the inner portions of the wall adjacent said aperture for limiting the projection of the discharge portions of the pipe from the wall.

7. Plumbing apparatus comprising valve means and a delivery pipe extending therefrom arranged within a wall, the wall having an aperture to receive therethrough the discharge portions of said delivery pipe, and a member adjustably carried adjacent the end portion of said delivery pipe engageable at its forward parts with the inner portions of the wall adjacent said aperture for limiting the forward projection of said discharge portions of the pipe from the wall.

8. The combination, with a valve, of supporting means therefor comprising a U-shaped plate adapted for disposition within a wall and having bendable metal wing members secured thereto for facility in securing said supporting plate within said wall.

9. The combination of a supporting member adapted to be secured within a wall in rearwardly spaced relation to the face of the wall, a valve disposed in front of said supporting member and including parts projecting forwardly beyond the face of the wall, and adjustable means for securing said valve to said supporting member and having tool-receiving abutments forward of said valve for effecting a forward and rearward displacement of said valve to vary the position of the valve with respect to the face of the wall.

10. The combination, with a wall having a recess therein, of valve means and piping disposed within said recess, said valve means including operating parts projecting forwardly beyond the face of the wall, a panel receiving said valve operating parts therethrough and covering said recess to afford access to said valve means and piping, said panel having marginal portions abutting against the face of the wall about said recess to overlie the edge portions of said recess, and means for securing said panel in abutment with the face of the wall about said recess, said last means including a member carried on said valve means and surrounding said projecting operating parts.

In testimony whereof I affix my signature.

VINCENT D. HENNESSEY