July 23, 1963 R. J. BOOKER ETAL 3,098,241

MODULAR SHOWER UNIT

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Fig. 1

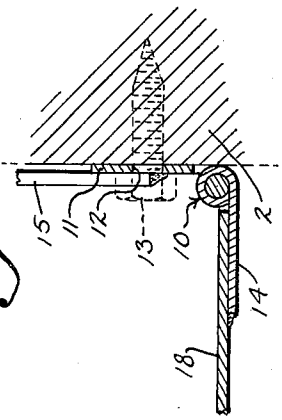


Fig. 7

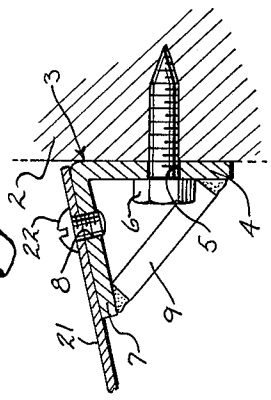


Fig. 6

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Fig. 2

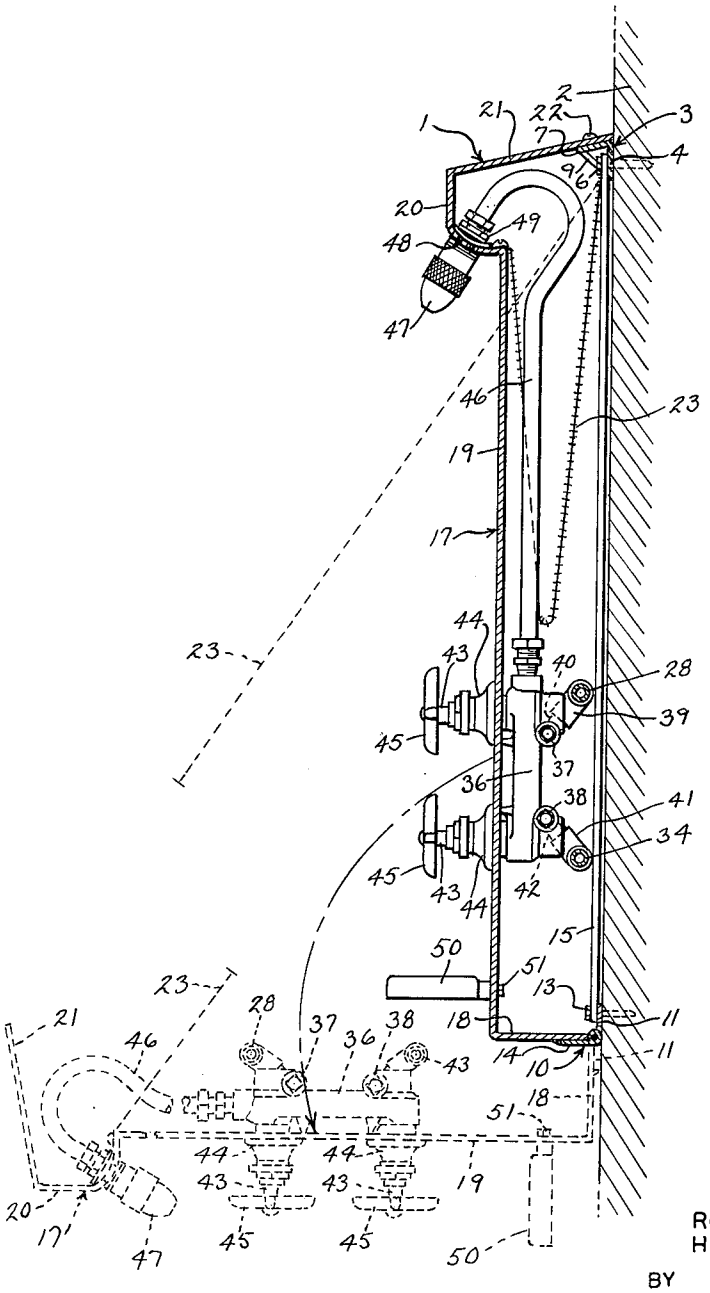
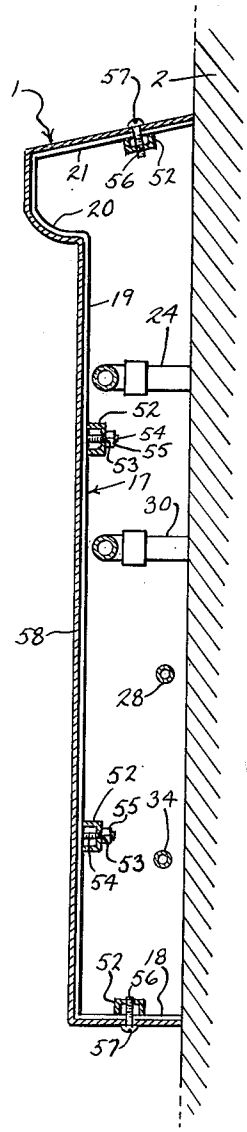


Fig. 3



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Fig. 4

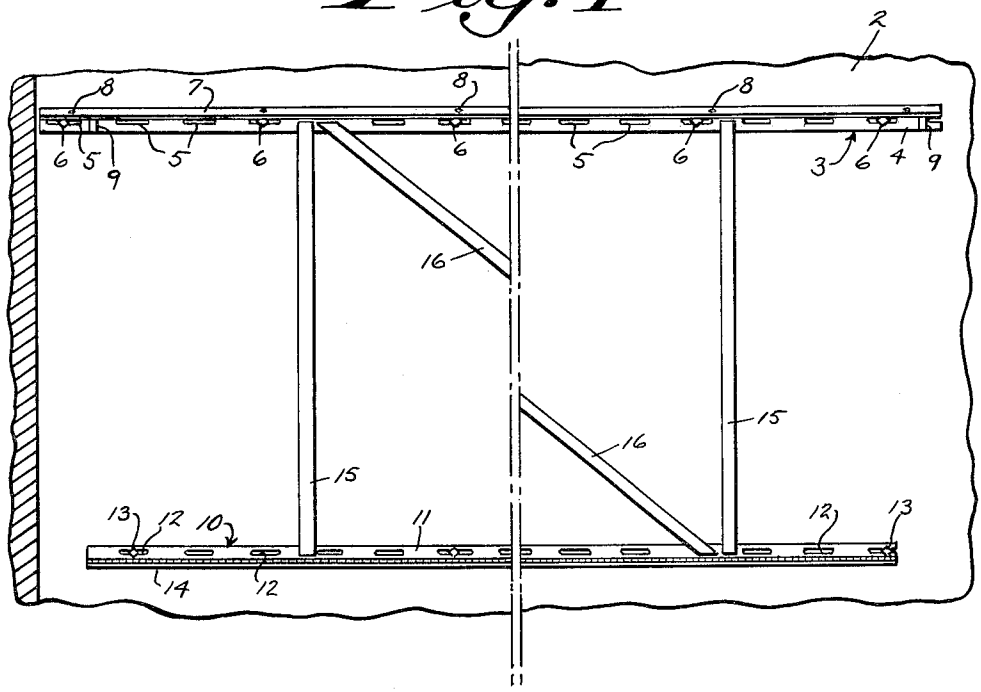
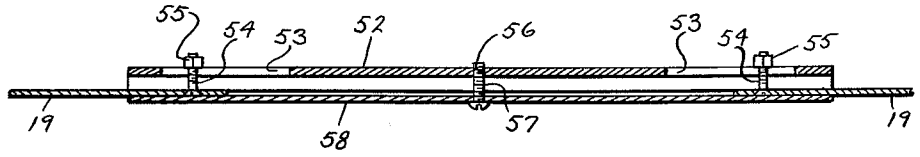


Fig. 5



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3,098,241

MODULAR SHOWER UNIT

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Filed May 11, 1962, Ser. No. 193,994
7 Claims. (Cl. 4—192)

This invention relates to a multiple shower unit for mounting on a wall or other structure which has a panel like housing that encloses and mounts suitable water lines and valves.

Wall mounted group shower installations are commonly used for shower rooms and the like. Such installations are generally independent units that include a wall mounted protective and decorative housing and a water supply system enclosed between the housing and the supporting wall with shower heads and the like projecting through the housing. One of the main advantages of such a unit is that it can be installed after construction of the supporting wall has been completed.

Most previously devised wall mounted installations are not, however, fully satisfactory in themselves and in their adaptability for use in various situations. For example, in most such units the housing is mounted directly on the supporting wall and it is difficult, because of the unit's weight and size to mount it securely and in proper alignment. Once mounted, it is usually difficult to gain access to the area behind the housing for inspection, adjustment or repair.

Most older wall shower units are also deficient in that they are independent units designed to serve a fixed number of bathers. Since purchasers may desire installations for varying numbers of bathers it becomes necessary for a manufacturer either to produce and stock a wide variety of units of differing sizes or to produce some units on a custom basis, both of which alternatives are unduly costly and inconvenient. It is of course possible to mount a number of small units side by side to create a large installation, but this usually results in an unattractive installation with dirt catching, unsanitary pockets between the individual units. Further complications arise when it is desired to provide an installation for the entire length of a supporting wall since, because of inaccuracies in measurement or construction of the building wall, a pre-planned unit may not fit within or fill the length of the wall.

It is an object of this invention to provide a multiple shower unit adapted to be mounted on a wall or similar supporting surface in connection with similar units to provide a continuous, attractive installation of any desired size.

It is another object of this invention to provide a multiple shower unit having a relatively light, integrally interconnected supporting framework, with the framework being adapted to be readily and securely mounted on a supporting surface in proper alignment while the remainder of the unit is held in a non-interfering position.

It is a further object of this invention to provide a shower unit having a housing that is releasably connected to the framework at one point and hingedly connected at another so that, after installation, the housing is easily movable for purposes of access.

It is still another object of this invention to provide a shower unit having its own water supply system, which system is adapted for ready, releasable connection with a water source and the water supply systems of adjacent units and is attached to and movable with the housing for simplified installation and easy access.

It is a still further object of this invention to provide a shower installation comprising adjacent modular units with connecting means therefor, wherein the units are

securely connected while being adapted for relative movement so that the length of the installation can be varied to compensate for irregularities in the supporting surface and the like.

It is still another object of this invention to provide a shower installation comprising spaced modular units wherein releasable water supply connections are disposed in the area between the units and that area is normally enclosed by a cover plate to maintain the continuity of the installation, which cover plate is mounted by the connecting means between the units and is readily removable therefrom.

It is a still further object of this invention to provide an installation wherein the water supply systems of adjacent units are releasably interconnected so that a simple, effective supply system for the installation can be provided while ready access may still be had to each modular unit.

It is still another object of this invention to provide a modular unit and an installation made therefrom that are attractive, sanitary, tamper-proof, easily accessible to authorized persons, may be easily and securely mounted and are relatively simple and inexpensive to manufacture.

Other objects and advantages will become apparent from the description to follow. In the description, reference is made to the accompanying drawings, forming a part hereof, in which there is shown by way of illustration and not of limitation a preferred embodiment of this invention.

In the drawings:

FIG. 1 is a contracted front view in elevation, with parts broken away and in section and other, unexposed, parts shown in broken lines, showing a completed group shower installation formed according to this invention,

FIG. 2 is an enlarged view in cross section taken along the plane 2—2 shown in FIG. 1 and wherein an alternative position of the housing, and attached water supply system, of a modular unit is shown in broken lines,

FIG. 3 is an enlarged view in cross section taken along the plane 3—3 shown in FIG. 1,

FIG. 4 is a contracted front view in elevation of the supporting framework for one of the modular units in the embodiment of FIG. 1,

FIG. 5 is an enlarged fragmentary view in cross section taken along the plane 5—5 shown in FIG. 1,

FIG. 6 is an enlarged fragmentary view in cross section taken along the plane 6—6 shown in FIG. 1, and

FIG. 7 is an enlarged fragmentary view in cross section taken along the plane 7—7 shown in FIG. 1.

Referring again to FIG. 1, it can be seen that the embodiment of the invention disclosed herein includes two substantially identical two-station modular shower units 1 mounted on a supporting wall 2 and connected together in a manner that will be hereinafter described. As the description proceeds, it will become apparent that any desired number of units 1 may be connected together and, therefore, the specific embodiment shown is not intended to limit the scope of the invention.

A supporting framework, the details of construction of which are best seen in FIGS. 4, 6 and 7, is mounted on the wall 2 at any convenient height behind each unit 1 and includes a horizontally disposed upper support or angle member 3 formed of a suitable structural material and having a vertically disposed flange 4 resting against the surface of the wall 2. The flange 4 is provided along its entire length with mounting slots 5, and mounting screws 6 extend through the slots 5 and serve to mount the angle member 3 on the wall 2. Any desired number of screws 6 may be used, and the fact that there are slots 5 along the entire length of the angle member 3 enables the screws 6 to be located so as to take advantage of wall studs and

the like and thus to provide a secure mounting. The other flange 7 of the angle member 3 extends downwardly and outwardly from the wall 2 and is provided with a series of threaded openings 8 which serve as means to mount a housing in a manner that will be described. Supporting braces 9, seen most clearly in FIG. 6, are welded or otherwise securely affixed between the flanges 4 and 7 and serve to help the angle member 3 retain its shape under load conditions.

The framework also includes a horizontally disposed lower support member in the form of a continuous hinge member 10 that is affixed to the wall 2 below and parallel with the angle member 3. The hinge member 10 includes a vertically disposed leaf 11 provided along its entire length with mounting slots 12, and mounting screws 13 extend through the slots 12 and serve to mount the hinge member 10 on the wall 2 in the same manner as the angle member 3. The other leaf 14 of the hinge member 10 is freely swingable and serves as a support for the bottom portion of a housing as will be described. The hinge member 10 is somewhat shorter than the angle member 3, and its center is approximately aligned with that of the angle, or upper support member 3. Vertical braces 15 and a diagonal brace 16 formed of steel or other suitable materials, are welded or otherwise securely affixed to and extend between the angle member 3 and the hinge member 10. In addition to serving as load braces, the braces 15 and 16 serve to tie the members 3 and 10 together to provide an integrally interconnected framework which simplifies mounting of the installation as will be described.

Referring now to FIGS. 1 through 3, 6 and 7, it can be seen that each unit 1 also includes a housing 17 formed of stainless steel or any other suitable material. The housing 17 includes a horizontally disposed bottom wall 18, a vertically disposed front wall 19, an arcuate, outwardly extending, overhanging portion 20 and an upwardly inclined top wall 21. The bottom wall 18, forming the lower edge of the housing 17, is welded or otherwise securely affixed to the free leaf 14 of the hinge member 10 to provide a hinged connection between the framework and the housing 17, and the top wall 21, forming the upper edge of the housing 17, is releasably attached to the flange 7 of the angle member 3 by means of mounting screws 22 which are received in the threaded openings 8. The housing 17 is thus normally held in the position shown in FIGS. 1 through 3. By removing the screws 22, however, it is possible to release the housing 17 so that it may swing about the hinge member 10 to the position shown in dotted lines in FIG. 2. At each end of the housing 17, a chain 23 of suitable strength is mounted at one of its ends on the angle member 3 and on its other end on the housing 17 and serves to limit the downward swinging movement of the housing 17 and to hold it in a convenient horizontal position for repair work.

The water supply systems of the units 1 and their connections can be seen in FIGS. 1 through 3. With particular reference to FIG. 1, it can be seen that the units 1 are horizontally spaced from one another and that a hot water supply conduit 24 formed, like the remainder of the water supply lines shown herein, of copper tubing extends outwardly through the wall 2 at a point near the right side of the left unit 1 and thence extends to the right to terminate at a conventional releasable compression coupling 25 located between the units 1. From the coupling 25, a main hot water supply line 26 for both units 1 extends to the right and downwardly to terminate in a T connection 27, and from the T connection 27 a branch hot water supply line 28 extends to the right to serve the right-hand unit 1 and to the left to serve the left-hand unit 1, as seen in FIG. 1. A second compression coupling 29 is provided in the branch line 28 at a point between the units 1.

Similarly, a cold water supply conduit 30 extends from the wall 2 at a point below the conduit 24 and thence extends to the right, as seen in FIG. 1, to terminate at a third compression coupling 31 located between the units 1. From the coupling 31 a main cold water supply line 32 extends to the right and downwardly to terminate at a T connection 33. From the T connection 33 a branch cold water supply line 34 extends to the right and to the left to service the right and left-hand units 1, as seen in FIG. 1, and is provided with a fourth compression coupling 35 at a point between the units 1.

Referring now to FIG. 2 and to the right-hand unit 1 as seen in FIG. 1, it can be seen that the supply lines 28 and 34 are each connected to a vertically disposed manifold unit 36, formed of a suitable cast material, which represents a shower station. The unit 36 is of the type more fully described in the co-pending application of Robert J. Booker and Howard G. Mullett, Serial No. 57,-037, now U.S. Patent No. 3,045,250, issued July 24, 1962, and for this reason is not shown or described in great detail here. For the purposes of this invention it is sufficient to note that the manifold unit 36 includes an elongated vertically disposed mixing chamber (not shown), an upper hot water supply chamber (not shown) with inlet and outlet ports 37, and a lower cold water supply chamber (not shown) with inlet and outlet ports 38. Suitable valves (not shown) serve to control and regulate the flow of hot and cold water from the hot and cold water supply chambers into the mixing chamber and thus to control the temperature of the water issuing therefrom.

Referring again to FIGS. 1 and 2, it can be seen that the hot water branch supply line 28 is provided with a T connection 39 and a reduction elbow 40 by means of which it is connected to the left-hand hot water supply chamber port 37 of the exposed left-hand manifold unit 36 of the right-hand unit 1 as seen in FIG. 1. In the particular supply system shown herein, the opposite port 37 is plugged, although the water supply line 28 could be directly connected into one port 37 of the manifold unit 36 and out the opposite port 37 to provide a through connection. The above described connection, however, permits the use of a supply line 28 of larger diameter than the ports 37 to achieve better water distribution for further removed shower stations. Similarly the cold water supply line 34 is connected to the cold water supply chamber of the manifold 36 by means of a T connection 41 and a reducing elbow 42.

Although only the connections of the branch lines 28 and 34 to the exposed left manifold 36 of the right-hand unit 1 as seen in FIG. 1 have been shown and described herein, it can readily be seen that each unit 1 includes two shower stations each having a manifold 36. It will be appreciated by those skilled in the art, however, that similar connections of the lines 28 and 34 to the remaining manifolds 36 can be made and a complete showing and description of each set of connections would be redundant.

Referring again to FIG. 2 and the exposed shower station in FIG. 1, it can be seen that upper and lower operating stems 43 extend from the unit 36 through the front wall 19 of the housing 17. These serve as operating means for the water supply system and operate the valves in the unit 36 to establish and control the rate and temperature of the flow of water issuing therefrom. Escutcheons 44 are disposed about the stems 43 and serve to clamp the front housing wall 19 between themselves and the unit 36. Operating handles 45 are provided at the outer ends of the stems 43.

A shower conduit 46 is connected to the mixing chamber of the unit 36 and extends upwardly therefrom. The conduit 46 is angled backward near its top and then bent forwardly through substantially a semicircle so that it extends forwardly and downwardly toward the overhanging portion 20 of the housing 17.

A conventional shower head 47 is attached to the conduit 46 and extends through an arcuately elongated slot 48 formed in the over-hanging housing portion 20. The tube

46 is preferably formed of annealed copper and may thus be bent, and this coupled with the provision of the elongated slot 48 enables the shower heads 47 to be adjusted along a vertically arcuate line to vary the direction of the spray issuing therefrom. The shower head 47 is locked in any desired position by means of a nut 49 disposed on the inside of the housing 17. Thus, while adjustment can easily be made by an authorized person, by lowering the housing 17, tampering by bathers is prevented. In addition, the shower head 47 and nut 49 serve to clamp the housing 17 between them to attach the water supply system to the housing 17. Although other shower head connections might be used with this invention, the connection shown is particularly suitable because of its wide range of adjustment and tamper-proof properties, and is shown and described more fully in U.S. Patent No. 2,991,943, issued July 11, 1961, to Howard G. Mullett and James L. Sevedge.

Again, although only one shower station has been shown and described herein, it will readily be appreciated that the remaining stations are similarly constructed and connected.

From the foregoing, it can be seen that each unit 1 has a water supply system comprising the branch lines 28 and 34, the manifolds 36, the conduits 46, and their associated elements. The water supply system for each unit 1 includes operating means, the stems 43, and outlets, the shower heads 47, which project through and outwardly of the housing 17. The escutcheons 43 and manifolds 36 and the shower heads 47 and nuts 49 constitute means, associated with the operating means and outlets, to attach the water supply system to the housing 17, although other means such as straps could be used for this purpose.

The right-hand unit 1, as seen in FIG. 1, includes as part of its water supply system the main supply lines 26 ad 32, and the couplings 25 and 31 constitute releasable connections between the water supply systems and the supply conduits 24 and 30. It will be readily appreciated that separate supply conduits 24 and 30, each with releasable connections, could if desired be provided for each unit 1, although the specific construction shown herein is particularly advantageous because of its simplicity.

The water supply system of the units 1 are releasably connected by means of the couplings 29 and 35 thus affording a simple system to serve both units 1 which may easily be disconnected.

The water supply systems shown herein utilize separate hot and cold supply lines and manually operable mixing means. In some cases, it may be desirable to provide a conventional tampered water installation where the temperature of the water is established and not subject to individual control. In such cases, the water supply systems may be correspondingly simplified.

Soap trays 50 are provided for each shower station and are connected to the front housing wall 19 by assembly screws 51.

As mentioned, the units 1 shown in FIG. 1 are horizontally spaced from one another and it is through this space that access may be had to the compression couplings 25, 29, 31 and 35. Referring to FIGS. 1, 3 and 5, it can be seen that the opening between the units 1 is spanned by a set of four, vertically spaced, horizontally disposed connecting members in the form of outwardly facing channel members 52 formed of a suitable material such as steel. Each channel member 52 is provided at each of its ends with a horizontal slot 53. Assembly screws 54 pass through openings formed in the housing 17 and through the slots 53 and are provided interiorly of the housing 17 with nuts 55 or other suitable fastening means. By virtue of the horizontally adjustable connection between the members 52 and the housings 17 afforded by the slots 53, the channel members 52 can span the distance between the units 1 even though that distance may vary by as much as the sum total of the length of the slots 53. Thus, in effect, the space between the units 1 can be varied to vary the size of the completed installation or to compensate for irregularities in the length of the wall 2, for irregularities in the water supply systems, and the like.

Each channel member 52 is provided near its center with a threaded opening 56 and assembly screws 57 engaged with the openings 56 serve to mount a cover plate 58, of the same material and cross sectional configuration as the housing 17, which spans the opening between the units 1. The cover plate 58 serves not only to enclose and protect the open area between the units 1 but also has decorative and sanitary functions in that it maintains the continuity of the completed installation. The ocevr plate 58 is of sufficient width so that it will cover the entire area between the units 1 regardless of their adjusted positions as allowed by the slots 53.

The outside ends of each unit 1, as seen in FIG. 1 may be closed off or attached to a side wall in any suitable manner. When the ends of the units 1 abut side walls, however, any connections to the side wall should be releasable and there should be sufficient clearance to allow the units 1 to be swung downwardly.

The mounting of the shower installation of FIG. 1 is readily accomplished. Each modular unit 1 is set upon sawhorses or similar supports at the desired height, facing downward with its bottom wall 18 abutting the wall 2 so that the hinge member 10 rests against the wall 2 where it will be installed. Then, the supporting framework may be pivoted up against the wall 2, so that the angle member 3 and the leaf 11 of the hinge 12 which is to be vertically disposed will be in their predetermined position, where they may be secured to the wall 2. The integral interconnection of the framework due to the braces 15 and 17 makes mounting simple by keeping the members 3 and 10 in proper alignment. Then the housing 17, with the attached water supply system, may be pivoted up to its normal position and the top wall or edge 21 fastened to the flange 7 of the angle member 3 by means of the screws 22.

When the units 1 are mounted in their predetermined positions, only the couplings 25, 29, 31 and 35 need be put in place to connect the water supply systems of the units 1 to each other and to the conduits 24 and 30. Then the channel members 52 may be installed, spanning the spaces between the units 1, and finally, the cover plate 58 may be attached.

To gain access to the interior of either unit 1 for any purpose, it is only necessary to remove the cover plate 58 and channels 52 and to disconnect the couplings 25, 29, 31 and 35, although the couplings 25 and 31 need not be disconnected if the left-hand unit 1, as seen in FIG. 1, is to be removed. Then the screws 22 through the top 21 of the housing 17 may be removed, releasing the housing 17 to be pivoted down to its lowered position carrying with it and exposing the entire water system in the inside of the housing 17 as seen in FIG. 3. When the work is completed, the unit 1 may be replaced in its normal position and reconnected to the rest of the facility. Alternatively, both units 1 may be lowered at the same time and then the couplings 29 and 35 need not be disconnected and the channel members 52 need not be removed.

Although the particular installation shown herein utilizes two units 1 it should be readily apparent that any desired number of units 1 may be interconnected in the same manner to provide a continuous shower installation of any desired length. Also, although the units 1 shown herein each have two shower stations, it should be apparent that units having one or three or other desired numbers of shower stations may be used and interconnected in the same manner. Further, the units 1 could be mounted on a vertical supporting structure other than a wall, such as a metal framework extending across a shower room. Since these and other variations may be made within the scope of the invention it is not intended

that this invention be limited except insofar as such limitations appear in the following claims.

We claim:

1. A modular shower unit comprising: a framework adapted to be securely mounted on a vertical supporting structure and including an upper support member and a lower support member; a housing having an upper edge releasably attached to the upper support member and a lower edge hingedly attached to the lower support member; a water supply system disposed within the housing that is releasably attached to a water supply; and means to attach the water supply system to the housing, whereby upon release of the upper edge of the housing and the connection of the water supply system to the water source the housing and water supply system may be pivoted together about the lower support member.

2. A modular shower unit comprising: a framework adapted to be securely mounted on a vertical supporting structure and including an elongated, horizontally disposed upper support member, an elongated hinge member disposed below and substantially parallel to the upper support member, and brace members secured to and extending between the upper support member and the hinge member; an elongated housing including a front wall and rearwardly extending top and bottom walls, said top wall being releasably secured to the upper support member and said bottom wall being secured to the hinge member; a water supply system disposed within the housing that is releasably connected to a water supply and has an outlet and operating means projecting through the housing; and means associated with the outlet and operating means to secure the water supply system to the housing.

3. A group shower installation comprising: a pair of horizontally spaced modular shower units, each of said units comprising a framework adapted to be securely attached to a vertical supporting structure and including an upper support member and a lower support member, a housing having an upper edge releasably secured to the upper support member and a lower edge hingedly secured to the lower support member, and a water supply system; a horizontally disposed connecting member spanning the space between the units, there being a horizontally adjustable connection between the connecting member and at least one of the units to allow relative movement therebetween.

4. A group shower installation comprising: a pair of horizontally spaced modular shower units each of which includes a housing having an upper edge adapted to be releasably secured to a vertical supporting structure and a bottom edge adapted to be hingedly mounted on the same supporting structure, the facing side edges of said units each having an opening therethrough; a horizontally disposed connecting member spanning the space between the units and having a horizontal slot therethrough at each of its ends, each of said slots being opposite a corresponding one of said housing openings; a pair of releasable connecting means, one extending through each of said housing openings and its associated slot; and a cover plate releasably secured to said connecting member and enclosing the space between the units.

5. A group shower installation comprising: a pair of horizontally spaced modular shower units each of which comprises a housing adapted to be hingedly attached to a vertical supporting structure along its lower edge and to be releasably attached to the same supporting structure along its upper edge; a water supply system for each unit that is attached thereto; a releasable connection between the water system that is disposed in the space between the units; and a releasable connection between the water systems and a water supply conduit that is located in the space between the units.

6. In a multiple shower the combination comprising: a housing having a front wall that may be swung into a substantially vertical position and a pair of turned walls at opposite edges of the front wall; shower mixing valves and shower heads supported by said housing with portions extending therethrough; conduits behind the housing between the shower heads and mixing valves; water supply lines connected to said mixing valves which are mounted behind said housing; a first support member adapted for fastening to a structure and having a pivot connection with one of said turned housing walls whereby the housing together with the mixing valves, shower heads, conduits and water lines swings about said pivot connection; a second support member adapted for fastening to a structure that is secured to said first support member and which has connection means spaced a predetermined distance from the pivot connection for securing the opposite turned housing wall when the housing front wall is in said vertical position; and couplings for said water supply lines for connecting the same to a water source when said housing is secured to said connection means of said second support.

7. A shower unit adapted to be mounted on a vertical supporting structure and comprising: a framework comprising an elongated, horizontally disposed upper support member adapted to be securely mounted on the supporting structure, an elongated hinge member disposed below and substantially parallel to the upper support member and adapted to be securely mounted to the supporting structure, and brace members secured to and extending between the upper support member and the hinge member; and an elongated housing, said housing including a front wall and rearwardly extending top and bottom walls, said top wall being releasably secured to the upper support member and said bottom wall being secured to the hinge member.

References Cited in the file of this patent

UNITED STATES PATENTS

1,159,357	Burmeister	Nov. 9, 1915
1,835,813	Schaub	Dec. 8, 1931
2,334,141	Zierden	Nov. 9, 1943
2,992,438	Nelson et al.	July 18, 1961
3,011,177	Haughey	Dec. 5, 1961

FOREIGN PATENTS

15,416	Switzerland	Oct. 11, 1897