

March 11, 1958

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2,825,909

MULTIPERSON SHOWER CONSTRUCTION

Filed Feb. 25, 1955

3 Sheets-Sheet 1

Fig. 1.

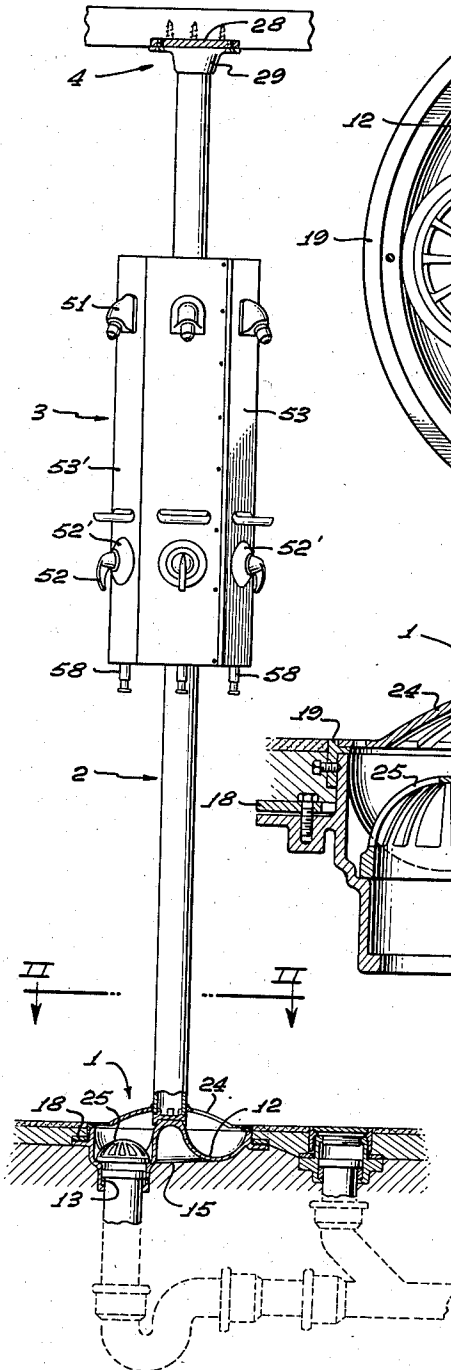


Fig. 2.

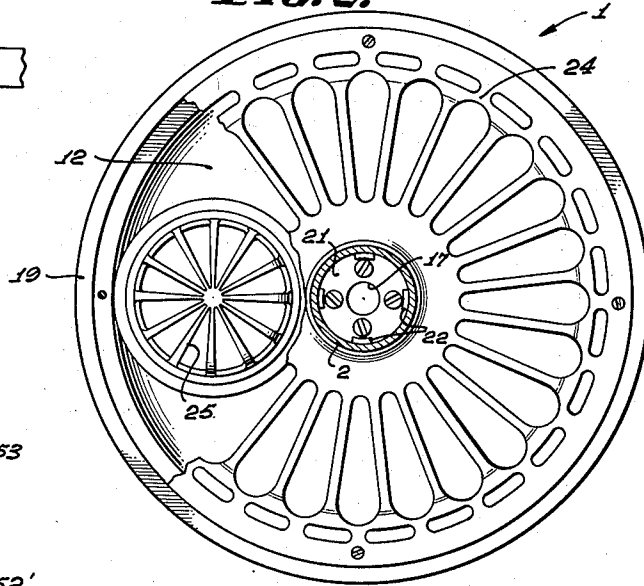
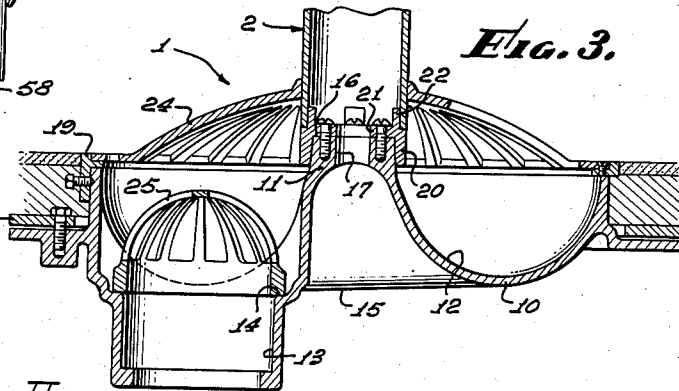


Fig. 3.



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Fig. 5.

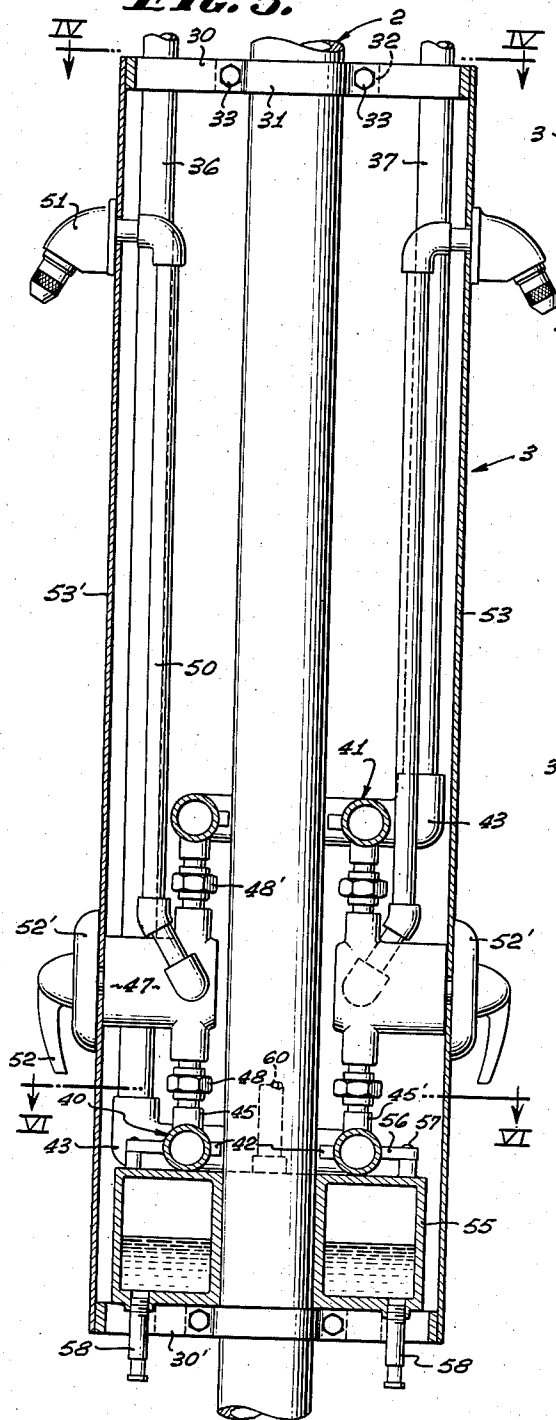


Fig. 4.

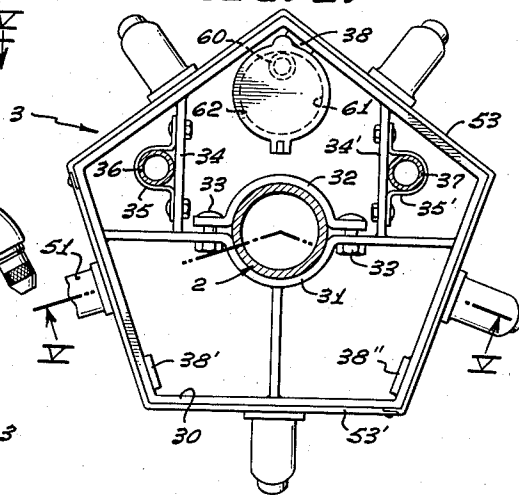
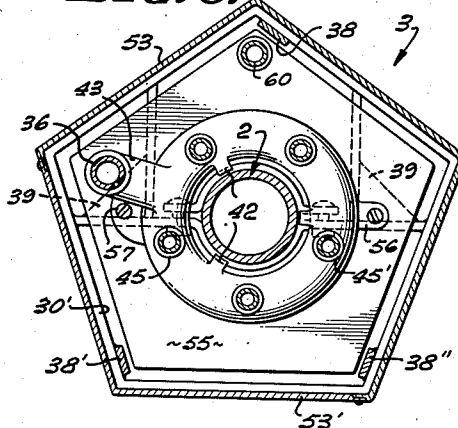


Fig. 6.



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3 Sheets-Sheet 3

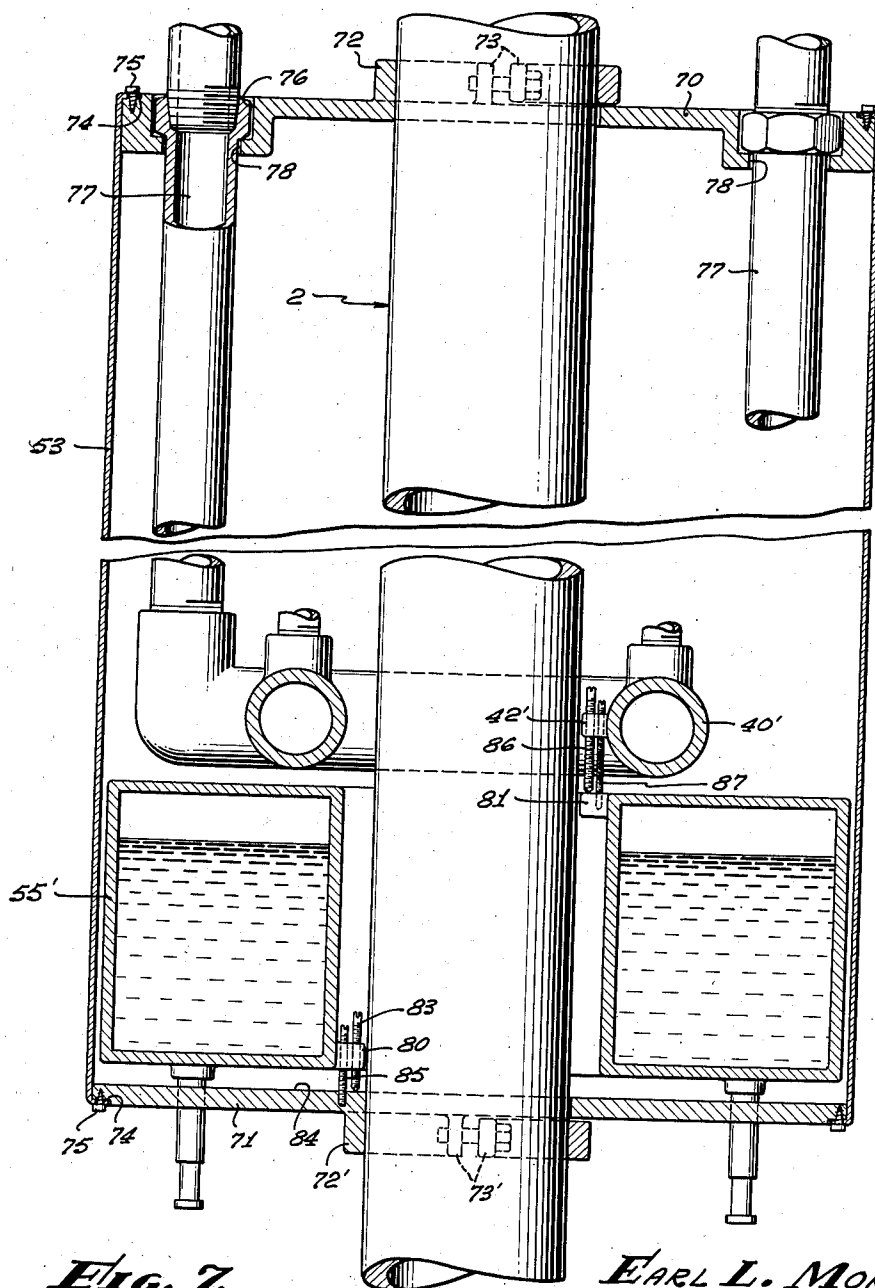


Fig. 7.

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2,825,909

MULTIPERSON SHOWER CONSTRUCTION

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2 Claims. (Cl. 4-145)

This invention relates to a novel multiperson shower construction particularly adapted for use in gymnasias, clubs, schools, prisons, institutions and wherever large numbers of persons desire to avail themselves of shower facilities at the same time.

Heretofore wherever there has been need for shower facilities available simultaneously for a large number of people, the shower room was provided with a plurality of separate stalls or with spaced shower head installations extending from a wall of sufficient breadth to permit six or more of such spaced showers. These prior installations are not satisfactory in schools, gymnasias and institutions for a number of reasons. In the first place, individual stalls are condemned by most authorities since the interiors are not visible to the attendant or supervisor of the department. Individual stalls in substantially parallel arrays against a wall constitute very expensive installations and give rise to numerous problems in cleaning, drainage and the like. Furthermore, previously used multiperson shower installations were subject to vandalism and in the event repairs were necessary to one or two units, the entire system was disrupted and all of the shower facilities rendered useless until repairs were completed.

The present invention is directed to a multiperson shower construction which is economical, utilizes a minimum amount of piping, conserves heat, permits disposition of shower units to the best and most efficient utilization of available space, renders the entire shower room subject to inspection and supervision by an attendant, eliminates drainage problems and in one form, permits remote control of units, thereby controlling and conserving the use of water.

An object of the present invention, therefore, is to disclose and provide a multiperson shower construction having the various advantages hereinabove referred to.

For purposes of illustration, reference will be had to the appended drawings illustrating one embodiment of the invention, it being understood that numerous changes, modifications and adaptations may be made therein and not all of the inventive concepts contained in such embodiment need be utilized at the same time.

In the appended drawings:

Fig. 1 is a side elevation of a complete multiperson unit;

Fig. 2 is a horizontal section taken along the plane II-II of Fig. 1;

Fig. 3 is an enlarged vertical section of the combined drain and base standard;

Fig. 4 is a horizontal section and plan view of the shower unit taken along plane IV-IV of Fig. 5.

Fig. 5 is an enlarged side elevation, partly in vertical section along plane V-V of Fig. 4.

Fig. 6 is another section on line VI-VI of Fig. 5.

Fig. 7 is an enlarged vertical section of top and bottom portions of a modified shower unit.

The multiperson shower units of the present invention may be positioned at any desired point or spaced points

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of a room or area devoted to shower and locker facilities. As indicated in Fig. 1, the principal portions of a multiperson unit embodying the present inventions comprises a combined drain and standard support 1, a vertical standard 2, a shower unit 3 carried by such standard, and a ceiling connection or anchor 4. It will be noted that the shower unit 3 is compact and consists of a five-sided enlargement carried by the standard 2, the shower unit illustrated being capable of providing showers to five persons clustered around the standard. Four person units are not as economical and six person units are best adapted for use by children. It will be evident that multiperson shower units of this character may be placed in any desired location and at any desired spacing throughout all or a portion of an enclosure or room, thereby accommodating a very large number of people at the same time in a given floor space. Unless partitions, curtains or other obstructing elements are built around these units, the entire shower area is open and all activities in the shower room are readily visible to the superintendent or attendant, such visibility being an important consideration in penal and mental institutions.

The various novel features of construction will be described. The standard 2 is preferably a hollow pipe of stainless or chromium plated steel so as to have an attractive appearance and be easily cleaned. This standard 2 and its appurtenances are supported upon a combined drain and standard support 1 consisting of a circular cast metal drain 10 provided with an upstanding central boss 11, the internal surface 12 of such drain being preferably enameled and smoothly curved so as to form an upwardly concave, annular or semi-toroidal surface. One portion of such annular drain surface is provided with a downwardly extending outlet 13 which presents an upwardly directed circular shoulder 14, such shoulder being somewhat below the level of the lowermost portion of the annular drain 12, the bottom of the annular drain 12 being inclined, as indicated at 15, toward the outlet port 13. The lower end of outlet 13 is connected to suitable traps and soil pipe.

The upper end surface portions 16 of the boss 11 are not enameled. Boss 11 may be provided with an axial opening 17 through which water supply lines may extend, if desired. It is to be understood that the entire drain and standard support 1 are rigidly and firmly embedded in and supported by a floor, a concrete floor being indicated in the drawing. An anchor ring 18 may be used in positioning the drain and support and a rim ring 19 may be clamped to the upper edge of the combined drain and support 1.

The lower end of the standard or stanchion 2 rests upon a circular cap 20 which includes a downwardly extending skirt portion which encircles the upper end of boss 11 and an inwardly extending flange portion 21 rests upon the unenameled end surface 16 of the boss 11. This inwardly extending flange of the cap 20 is provided with a series of openings permitting attachment of the cap to the boss by means of machine screws. The inwardly extending flange 21 of the cap 20 also carries a plurality of circularly spaced lugs 22, these lugs being spaced from the outer edge of the cap 20. The stanchion or standard 2 rests upon the cap 20, lugs 22 extending inwardly into and centering the lower end of the standard. Set screws or the like extending through the lower portion of the standard may be used to connect the lower end of the standard to the lugs 22. The weight of the standard and its appurtenances is thus distributed over boss 11 and not localized, preventing damage to the enameled surfaces of standard support 1.

Surrounding the lower end of the standard is a domed, slotted strainer 24 which extends from the standard 2

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downwardly toward the outer lip of drain 10. This domed strainer 24 is preferably made in two sections, edge areas of the strainer being connected by means of screws or the like to the rim ring 19 or outer edge areas of the drain 10.

Below the strainer 24 is a one-piece, slotted secondary strainer 25 resting upon the inwardly directed shoulder 14 surrounding the drain outlet port 13. It may be noted at this point that the dome construction of the strainer 24 and the radially extending slots in such strainer permit large quantities of water to pass therethrough and users of the multiperson shower cannot block all of the passages or openings in the strainer dome with their feet. The secondary strainer 25 is particularly useful in preventing small articles of jewelry, hair, and the like from passing into the outlet port even though such articles have passed through the larger openings of the domed strainer 24. As shown in the drawing (Fig. 3), the secondary strainer has a continuous, unperforated lower edge portion which prevents small objects from freely passing from the bottom 12 of the annular drain into outlet 13.

In order to facilitate installation, the upper end of the standard of the multiperson shower unit is retained within the central opening of a ceiling flange 29 which is in the form of a hollow, truncated cone. This ceiling flange is readily attachable to and removable from a ceiling anchoring plate 28 provided with two sets of holes, one set of holes being used for lag screws, expansion bolts, or the like, by means of which the ceiling anchoring plate 28 is attached to the ceiling as a permanent fixture and another set of tapped holes in alignment with holes formed in edge portions of the ceiling flange 29 for the reception of screws or the like by means of which the ceiling flange is attached to the anchoring plate 28. In order to prevent looseness, a small set screw carried by the ceiling flange adjacent its central stanchion-receiving aperture may be used to position the stanchion 2 within the ceiling flange. The conical form of the ceiling flange permits the use of a stanchion which is shorter than total floor-ceiling distance, and the lower end of the stanchion can be raised vertically to clear boss 11 or cap 20 in the event the unit is dismantled.

Rigidly mounted upon the standard 2 is a hollow frame adapted to support water supply lines, manifolds, valves, housing, soap reservoir, and other elements of the shower unit 3. This frame may comprise an upper and lower assembly connected by a series of vertical bars. As illustrated in Figs. 4 and 5, the upper assembly may comprise an external girdle 30 pentagonal in plan made of bar stock and provided with a transverse member 31 having a central, semicircular portion, this transverse member being welded to opposing sides of the girdle. Another semicircular clamping element 32 is carried by the transverse member 31 in cooperative relation thereto to clamp around the standard 2 and hold the standard within the semicircular portion of member 31, screws or bolts 33 being used to impart clamping pressure. Additional transverse members, such as 34 and 34', may connect the transverse member 31 to the sides of the girdle, these shorter members 34 and 34' being used as anchors to which clamps or pipe straps 35 and 35' hold incoming hot water line 36 and cold water line 37. The lower frame assembly 30' may be identical to that described and may be held in spaced relation to the upper assembly by means of vertically disposed connecting bars 38, 38' and 38''. It may be noted that in the lower assembly triangular fish plates 39 may be welded into the corners between transverse member 31 and members 34 and 34' in order to furnish an adequate base for the support and connection of valves and manifolds.

Positioned within the frame described hereinabove and surrounding the standard 2 are torus-like manifolds or headers 40 and 41. Each of these hollow manifolds is provided with a plurality of inwardly projecting lugs,

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such as 42, adapted to space the manifold from the centrally disposed standard 2. Each of these manifolds is also provided with a radial extension 43 terminating in an upwardly directed elbow. Extension 43 of header 40 may be connected to the hot water supply line 36 while extension 43 of header 41 may be connected to cold water supply line 37. Moreover, each of the manifolds is provided with five circumferentially spaced, ported bosses, such as 45, 45' and the like, such bosses being equally spaced 72° apart. It is to be understood that the ported bosses of the lower manifold 40 are upwardly directed, whereas identical ports of the upper manifold 41 are downwardly directed. Between the two manifolds 40 and 41 are five suitable mixing valves. Each mixing valve, such as for example, the valve 47, is directly connected by means of suitable connectors 48 and 48' to vertically aligned ports in bosses 45 of the lower and upper manifolds. Each valve is provided with a side outlet 49 and such side outlet is connected as by means of copper tubing 50 to the shower head 51, located immediately above the operating handle 52 of mixing valve 47.

The entire shower unit is preferably enclosed in a two-piece metal housing firmly connected to the upper and lower girdles 30 and 30'. One part of the housing indicated at 53 may cover three sides of the entire unit and be provided with rabbeted vertical edges adapted to receive portion 53' of the housing, this latter portion covering the remaining two sides of the shower unit. The two portions of the housing are connected together in any suitable manner at the rabbeted edges, such two-part removable housing permitting ready access to the valves and connections in the event repairs are necessary. Cover plates such as 52' may cover suitable openings made in the housing through which the valve stems extend, thereby permitting the complete exterior to be smooth and water-proof.

In some instances the exterior housing of each shower unit may carry a soap dish or tray beneath each operating handle. In other instances it is desirable to use liquid soap dispensers. The form of invention illustrated shows a manifold 55 for liquid soap resting on the lower girdle 30', the lower header 40 being firmly connected to the soap manifold as by means of wings 56 and screws 57. The soap manifold 55 may be cast with downwardly extending spaced bosses and with radially directed spaced bosses so as to permit either set of bosses to be bored and threaded for the reception of piston type dispensing valves. As shown in Fig. 5, the downwardly directed bosses of the soap manifold 55 have been ported and provided with the dispensing devices 58, one of such devices being substantially centrally positioned with respect to each of the five sides of the shower unit.

In order to facilitate filling of the soap manifold 55, such manifold is provided with an upstanding ported boss capable of being connected as by means of conduit 60 to a smaller funnel-shaped reservoir 61 provided with a hinged cover 62, such funnel-shaped reservoir being attached to the upper girdle 30. It will be evident that the liquid soap manifold 55 can be readily filled periodically from such upper funnel-like reservoir 61.

It is to be understood that the invention is not limited to the use of mixing valves whereby the user of each shower head may personally select the shower temperature desired and control the length of time that the shower is in operation. Each of the shower units may be provided with manually operable mono-mix control valves whereby the individual user may control the temperature and start and stop the shower at will; the units may be provided with limiter control valves whereby a tempered water of a predetermined temperature is supplied for a predetermined length of time only each time a button is pressed; the units may be provided with valves which automatically shut off on failure of either

cold or hot water supply, thereby preventing scalding or excessive drop in temperature; or with any other desired type of valve. In the event tempered or cold water only is to be supplied to the shower units, only one water supply line and one toroidal header (such as 40) need be employed.

Moreover, although in Figs. 1 and 5 the water supply lines are shown coming downwardly from the ceiling adjacent the stanchion 2, such water supply lines could be brought from beneath floor level through the axial port 17 in the combined drain and standard support 1. Moreover, for institutional purposes the supply lines to the showers may be controlled from a remote control board, suitable solenoid or electrically actuated valves being installed in the supply line leading to each multiperson shower unit, such valves being under the control of a supervisor or attendant located at a desired remote point so as to permit such operator to initiate and terminate the supply of water to each shower unit in accordance with conditions observed by him.

In public shower rooms and in institutions it is desirable to use solid top and bottom end plates for the shower unit 3 in order to prevent users from hanging onto the top with their hands, throwing debris into the unit and otherwise maltreating or misusing the equipment. Moreover, the assembly of the shower units can be expedited and facilitated by the use of the constructional details illustrated, in exemplary form, in Fig. 7.

As there shown, instead of employing the open, grill-like girdles 30 and 30' illustrated in Figs. 4 and 6, the shower unit may be provided with solid top and bottom end plates 70 and 71, preferably cast from light metal such as aluminum alloy. Each end plate may be provided with means for connecting it to the standard 2, as for example, an integral, upstanding, semicircular collar 72 provided with oppositely directed wings 73 provided with counterbored passageways for the reception of socket head machine screws whereby a clamping member may be attached thereto and firmly hold the end plate to the standard.

The peripheral outer edges of such end plate may be recessed as at 74 so as to receive end portions of the housing 53 and be connected thereto as by Allen head screws 75. The top plate 70 may also be provided with recesses such as 76, such recesses being of polygonal (preferably hexagonal) transverse section adapted to receive a polygonal or hexagonal end of a female, internally threaded, pipe adapter 77, such pipe adapter being carried by a pipe or conduit through which water is supplied to one of the toroidal headers or manifolds. The bottom of the recess 76 is preferably provided with a circular port 78 through which the pipe may pass. Two or even three of such recesses may be formed in the top closure or end plate 70, two of such recesses being employed to receive and position the supply lines, such as 36 and 37 illustrated in Fig. 5, while the third may be employed as an end receptacle for the conduit 60 through which liquid soap may be fed to the annular soap receptacle, if one is employed. In the event one or more of the recesses is not needed, a plug may be dropped into the unused recess and held therein by means of a set screw or in any other desired manner.

End plates such as 70 permit the entire unit to be readily mounted upon a standard and supply lines from a suitable overhead main may be readily threaded into the female adapters 77 without in any way straining or dislocating the various elements contained within the shower unit.

The bottom closure or end plate 71 may also be provided with integral means for clamping to a standard (such as the semicircular collar 72' and oppositely directed wings 73') but need not have the recesses hereinbefore mentioned.

It is to be understood that the walls 53 of the housing

are provided with suitable ports through which project the handles of the various valves contained within the unit. It has been found desirable to provide means for adjustably positioning a soap receptacle or at least the bottom manifold with respect to the bottom closure or bottom of the housing so as to align the valves connected to such manifold with respect to the ports in the housing through which the valve stems or handles are to extend. Fig. 7 illustrates one form of such means and as there shown, the annular, hollow soap receptacle 55' is shown provided with a plurality of inwardly extending lugs 81 and 80 adjacent the upper and lower surfaces of such receptacle. Preferably the lugs 80 and 81 are spaced approximately 120° apart, the upper row being staggered with respect to the lower row. The lower series of lugs 80 may be provided with two spaced, tapped bores, each adapted to receive a relatively long set screw. One of such set screws, such as 83, may bear against the inner face 84 of the bottom closure 71 and by adjusting such set screw 83 on each of the lugs 80, the entire soap receptacle may be raised, lowered or leveled. The other set screws 85 extend into threaded bores formed in the end closure 71 and are used for anchoring the soap receptacle 55' in adjusted position. Similarly, the annular or toroidal manifold 40' is provided with a series of inwardly extending lugs 42', a number of such lugs bearing two adjusting and connecting set screws, such adjusting and connecting set screws 86 and 87 cooperating with the lugs 81 carried adjacent the upper edge of the soap receptacle 55'. In this manner the valves carried by and connected to the manifold 40' may be raised or lowered so as to align the valve stems with ports formed in the housing 53.

It is to be understood that shower units embodying one or more aspects of the present invention need not contain liquid soap dispensers, since in some instances it is desired to use external soap trays such as are illustrated in Fig. 1. In such instances, the lower toroidal manifold may be connected to and adjusted with respect to the lower end closure 71. It will be evident that by the use of the constructions illustrated in Fig. 7 a rigid and very compact shower head construction is attained which can be readily assembled and installed about a stanchion or standard.

Various other changes and modifications may be made. For example, the anchor ring 18 (illustrated in Fig. 3) is normally employed to grasp a waterproofing membrane separating the floor-surfacing layer from the concrete or other subfloor construction, and in some instances it need not be employed. Although specific reference has been made to elongated slots in the strainer 24, such strainer may be provided with apertures of any desired size, shape or contour. All changes and modifications coming within the scope of the appended claims are embraced thereby.

I claim:

1. A vertically disposed, multiperson shower bath/ accessible from all directions thereabout, comprising: a vertical hollow standard; means cooperating with the bottom of the standard to support the latter; a housing carried by and surrounding the standard in a zone spaced above the standard supporting means, said housing being polygonal in horizontal section and provided with substantially planar, vertical sides spaced from the standard, means for removably mounting certain of said sides; a pair of horizontally disposed, vertically spaced, toroidal manifolds surrounding the standard within and enclosed by said housing, each manifold being provided with a plurality of circumferentially spaced, ported bosses extending in directions parallel to the axis of the manifold, and an inlet port; a plurality of mixing valves positioned between said manifolds and enclosed by said housing, each valve being connected to a ported boss of one manifold and a ported boss of the other manifold; conduit means extending within said housing for supplying water

to each of said inlet ports; a plurality of radially extending and downwardly inclined shower heads carried by the housing; pipe means within the housing connecting each of said shower heads with one of said valves; a plurality of radially directed ports in said housing below said shower heads; a valve stem carried by the housing and extending radially from each of said ports and connected to a mixing valve, whereby each planar vertical side of said housing carries a downwardly directed shower head and a radially directed mixing valve stem therebelow and spaced therefrom.

2. A multiperson shower bath as stated in claim 1, including means carried by a manifold for adjustably positioning said manifold and said valves with respect to the housing and standard to align the valve stems with respect to the ports in the housing.

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