

[54] **PORTABLE SHOWER UNIT**

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[58] Field of Search.....4/145, 146, 147, 152, 156, 4/159

[56] **References Cited**

UNITED STATES PATENTS

1,844,038 2/1932 Hooker.....4/151

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|-----------|---------|------------------|----------|
| 2,148,926 | 2/1939 | Bullington | 4/145 |
| 2,781,766 | 2/1957 | Krieger | 4/154 UX |
| 2,852,784 | 9/1958 | Winkler | 4/154 |
| 3,293,664 | 12/1966 | Coons | 4/145 X |
| 3,391,409 | 7/1968 | Gatley | 4/154 X |
| 3,431,565 | 3/1969 | Nelson | 4/154 |
| 3,590,398 | 7/1971 | Jetter | 4/154 |

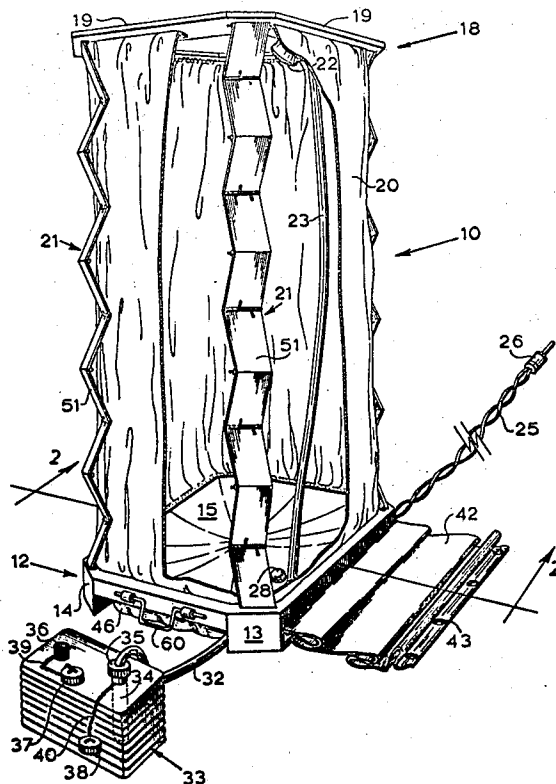
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[57] **ABSTRACT**

A portable shower unit for campers includes a water-collecting tray and a curtain-supporting frame carried at the upper ends of collapsible corner posts. The posts are urged into extended elevated positions by spring means such as spiral springs or elastic bands associated with pivots interconnecting individual linkages forming the extendable corner posts. The unit is held in its collapsed configuration by a pliable wrapper which usefully also served to contain a collapsible water-supply container and a collapsible waste water-receiving bladder.

12 Claims, 7 Drawing Figures



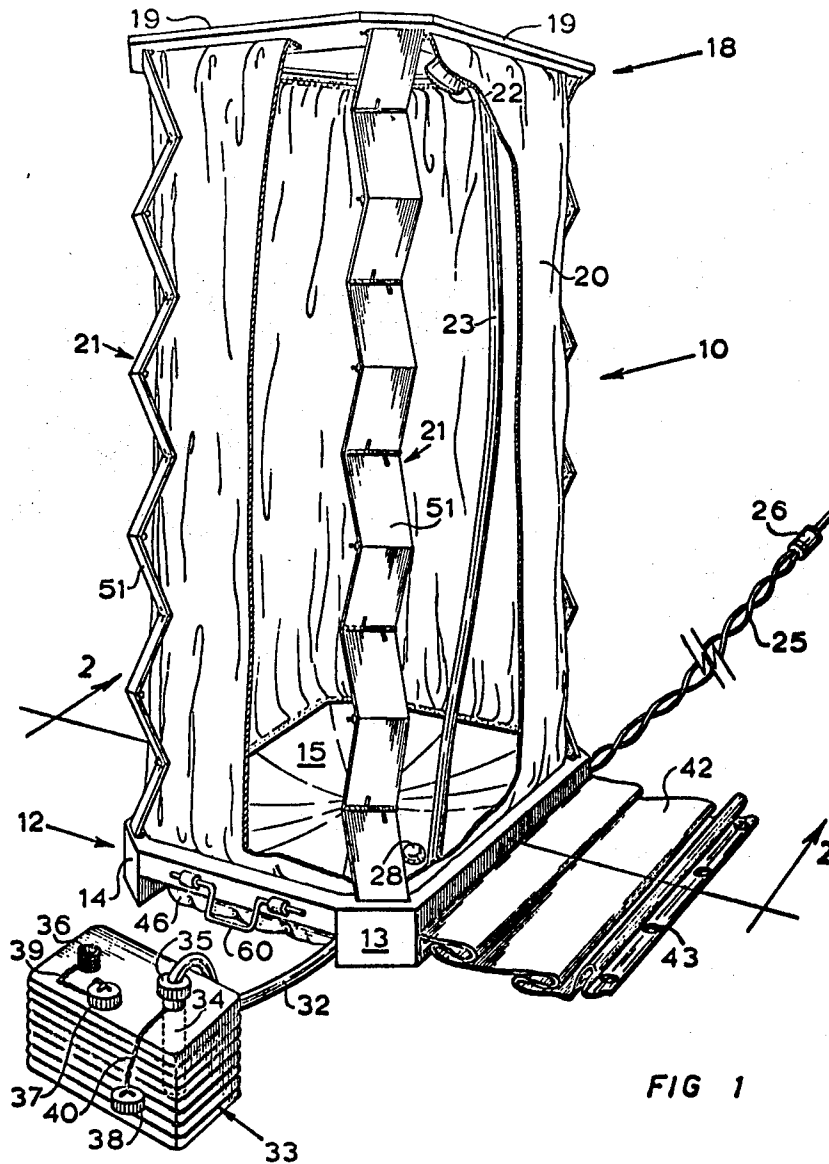


FIG 1

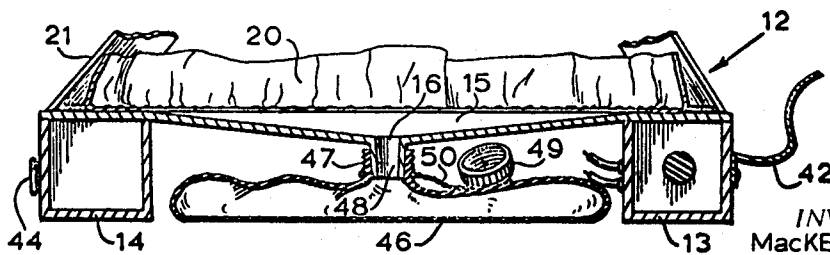


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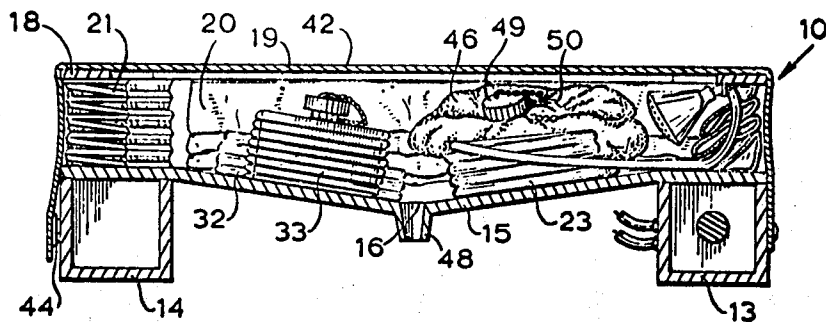


FIG 2

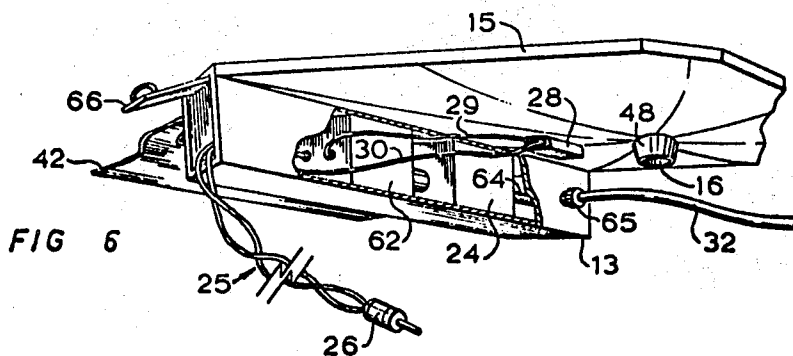


FIG 6

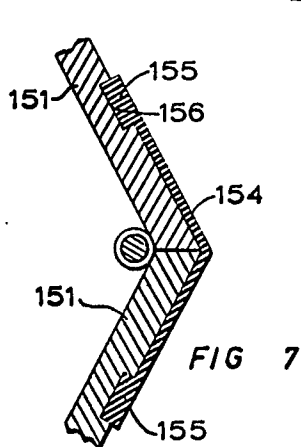


FIG 7

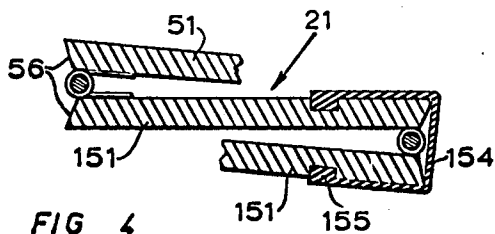


FIG 4

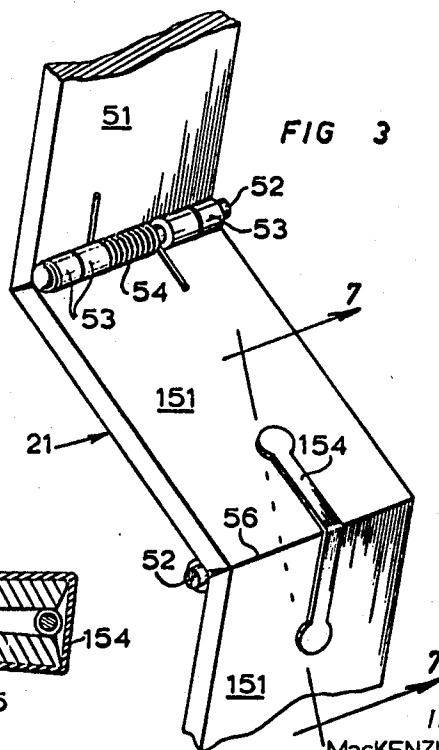


FIG 3

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PORTABLE SHOWER UNIT

BACKGROUND OF THE INVENTION

The present invention relates to a portable shower unit and more particularly to a portable shower unit intended for use by campers as well as in trailers, summer cottages and small boats.

Although many portable shower units have already been proposed, many such units have presented certain serious practical disadvantages. Some such units were of doubtful portability in being very large and cumbersome or of too great a weight, even when collapsed, folded or otherwise converted into their 'portable' configurations. Others of the previously known units, although relatively compact and relatively lightweight when disassembled for carrying, were relatively complex in their construction and considerable effort was called for in converting such units between their collapsed and operative configurations. Merely by way of illustration, it may be mentioned that many of the previously suggested units involved the use of complex telescopic supporting rods, each of which required the loosening and re-tightening of several wing-nuts to extend it from its fully collapsed position into its extended position for supporting a shower curtain or other structural component of a 'portable' shower unit.

Yet others of the previously proposed shower units have been complex and costly in their construction involving the provision of cumbersome and expensive water-heating units and even water-pressurizing sub-assemblies.

It is an important object of the present invention to provide a portable shower unit which is especially characterized by its low weight and by its compactness when in its dis-assembled configuration.

Yet another object of the present invention is to provide a portable shower unit which can be converted from its collapsed configuration into its operative one with the minimum of effort and very rapidly.

A further object of the present invention is to provide a portable shower unit which can be constructed so as to be operable from the electrical system of an automobile.

Other objects of the invention will become apparent as the description herein proceeds.

SUMMARY OF THE INVENTION

In its broadest scope, the present invention provides a portable shower unit which comprises a base including a waste water-collecting tray, a water-discharge opening in said waste water-collecting tray, a curtain-supporting frame, a plurality of collapsible arms interconnecting and extending between said base and said curtain-supporting frame and adapted to be moved between collapsed positions in which said curtain-supporting frame is disposed in a collapsed position generally immediately above said base and extended positions in which said curtain-supporting frame is disposed in an operative position elevated above said base, a pliable curtain secured to said curtain-supporting frame and depending downwardly therefrom to define a shower enclosure when said curtain-supporting frame is disposed in said operative position, means for releasably retaining said collapsible arms in their collapsed positions, means for releasably retaining said collapsible arms in their extended positions, a shower head for disposition above said shower enclosure, a water pump on said base, a flexible hose interconnecting said water pump and said shower head for the supply of water to said shower head, a water supply means for the supply of water to said water pump, and a manually controllable pump-actuating means for controlling operation of said water pump.

A portable shower unit in accordance with the present invention usefully comprises, in addition to the essential structural components hereinbefore specified, a water supply container and a flexible water supply hose extending from that container to the aforementioned water pump. As will be explained hereinafter in greater detail, such a water supply container may usefully have a collapsible structure and a capacity of less than about 2 gallons.

Other features and advantages of the invention will become apparent as the description herein proceeds.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described merely by way of illustration with reference to the accompanying drawings in which:

FIG. 1 is a perspective view of a particularly useful embodiment of a portable shower unit in accordance with the invention showing the unit in its operative configuration and with part of the pliable curtain thereof cut away to reveal certain internal structural components;

FIG. 2 is a vertical sectional view through the portable shower unit of FIG. 1 taken along the line 2—2 of that figure and showing the unit in its collapsed and portable configuration;

FIG. 3 is a fragmentary perspective view of one of the collapsible arms of the portable shower unit of FIG. 1 showing such an arm substantially in its extended position and also showing an alternative construction of the means usefully provided for urging such an arm to move into its extended position;

FIG. 4 is a fragmentary sectional view through the collapsible arm of FIG. 3 but showing that arm in its fully collapsed position;

FIG. 5 is a fragmentary vertical sectional view through the portable shower unit of FIG. 1 taken along the line 2—2 of that figure and showing a waste water-collecting bladder disposed therebelow in accordance with a particularly valuable feature of the invention;

FIG. 6 is a fragmentary perspective view from below of the portable shower unit of FIG. 1 with certain parts cut away to reveal an electrically operated water pump and other components usefully incorporated in such a unit; and

FIG. 7 is a fragmentary vertical sectional view through the collapsible arm of FIG. 3 when viewed as indicated by the arrows 7—7 of that figure.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The portable shower unit generally indicated at 10 in FIG. 1 of the accompanying drawings comprises a base generally indicated at 12 and itself formed from a pair of spaced apart side channel members 13 and 14 and a slightly elevated waste water-collecting tray 15, the latter being sufficiently strong to support the weight of a person standing inside the unit 10. The upper surface of the collecting tray 15 slopes downwardly to a generally central water discharge opening 16.

The portable shower unit 10 also comprises a curtain-supporting frame generally indicated at 18 and formed from four side members 19. A pliable curtain 20, for example, of a plastic sheet material such as waterproof nylon, is secured in any appropriate manner, to the curtain-supporting frame 18 and depends downwardly therefrom to the base 12. The curtain-supporting frame 18 is mounted at each of its corners on the upper ends of four collapsible arms each of which is generally indicated at 21 and each of which is usefully formed from a number of pivotally interconnected linkages which will be described hereinafter in greater detail. The collapsible arms 21 are adapted releasably to support the curtain-supporting frame 18 in its elevated operative position as actually shown in FIG. 1 and to be collapsed into the collapsed position shown in FIGS. 2 and 4 for transportation of the unit 10.

The shower unit 10 also comprises a shower head 22 which is connected by a flexible hose 23 to a water pump 24 mounted within the base 12 as will best be seen by reference to FIG. 6. The shower head 22 may be permanently mounted on one of the side members 19 of the curtain-supporting frame 18 or may be removably supported on a hook or other projection extending inwardly from such a side member 19.

In the particular unit 10 shown in the accompanying drawings, the pump 24 is electrically operated and is provided with an electrical supply cord 25 having a connector-adaptor 26 for inserting into the cigarette lighter socket of an automobile for operation of the pump 24 from the electrical supply system of the automobile.

Operation of the pump 24 is manually controllable by a foot-actuated switch 28 mounted on the water-collecting tray 15 and having electrical connections 29 and 30 as shown in FIG. 6. Since the electrical circuitry is conventional, it will not be described herein in greater detail.

Another important component of the shower unit 10 shown in the accompanying drawings is a water supply hose 32 for supplying water from a relatively small water supply container generally indicated at 33 to the aforementioned water pump 24. In the particular embodiment illustrated, the water supply container 33 has a collapsible structure and includes a dip tube 34 to which the hose 32 can be releasably coupled by a coupling 35. The container 33 has a filling hole 36 and both the hole 36 and the dip tube 34 can be closed by screw caps 37 and 38 respectively which are secured to the body of the container 33 by keeper chains 39 and 40 respectively to prevent their being lost.

As already indicated, the water supply container 33 shown in the accompanying drawings has a relatively small capacity and, to permit such a container conveniently to be stowed on the base 12 when the unit 10 is collapsed as shown in FIG. 2, container capacities as low as 2 gallons or even less are considered to be acceptable for the purposes envisioned for the unit 10. It should perhaps be explained at this juncture that the unit 10 is not normally intended to provide a continuous spray of water from the shower head 22. Instead, the intention is that brief operation of the pump 24 will allow a user to wet his body with water. Having rubbed his body with soap, further brief operation of the pump 24 will serve to rinse away the soap suds. Such a method of use permits the design and construction of a shower unit of exceptionally low weight and high portability. This does not mean, however, that, under circumstances in which larger quantities of water are locally available, the unit 10 cannot be used to provide a continuous shower spray.

The means provided in the shower unit 10 shown in the accompanying drawings for retaining the curtain-supporting frame 18 in its collapsed or lowered position will now be described. In the particular unit 10, this means comprises a pliable sheet 42 permanently secured along the outer edge of the side channel member 13 of the base 12 and having dome fastener sockets 43 along its opposite edge. These dome fastener sockets 43 engage correspondingly placed dome members 44 mounted along the outer edge of the other side channel member 14 as will best be seen by reference to FIGS. 2 and 5. This pliable sheet 42 also serves to retain the collapsible water supply container 33 and the water supply hose 32 as well as the flexible hose 23 and a collapsible bladder 46 in position on the base 12 when the unit 10 is being carried. The collapsible bladder 46 is used for collecting waste water and, of course, is not required in the event that the unit 10 is being used outdoors under circumstances where water drainage from the unit would cause no inconvenience.

When the unit 10 is being used in a trailer or cottage or at a crowded camping site, use of the bladder 46 will generally be desired and, for such use, a neck 47 of this bladder 46 slips on to a downwardly projecting waste pipe 48 provided on the undersurface of the waste water-collecting tray 15. A closure cap 49 is secured to the bladder 46 by a keeper chain 50 to allow the neck 47 to be closed while the bladder 46 is being carried to a place where it can be emptied.

Referring further to the collapsible arms 21, it will be seen that, in the actual embodiment illustrated in FIGS. 1 and 2, each of these arms 21 is formed from a plurality of generally rectangular linkage members 51 pivotally interconnected by pivot pins 52 extending through pivot sleeves 53 integrally formed with the members 51. A spiral expansion spring 54 is disposed around each of the pins 52 and each such spring 54 acts to urge adjacent linkage members 51 to pivot apart as will best be understood by reference to FIGS. 3 and 4 in turn to urge the collapsible arms 21 constituted by these members into their extended positions. Referring further to FIGS. 3 and 4, it will be seen that each such member 51 is formed with sloping transverse edges 56 for mutual abutment of adjacent

ones thereof to prevent straightening of the arms 21 substantially beyond the positions actually shown in FIG. 3.

Referring further to FIGS. 3, 4 and 7, it will be noted that there is shown therein an alternative arrangement within the scope of the invention for urging the linkages of the collapsible arms 21 to move into their extended operative positions.

Such alternative arrangement is illustrated in FIGS. 3, 4 and 7 for linkages 151 generally similar to the aforementioned linkages 51 and similarly pivoted about pivot pins 52 extending through integrally formed pivot sleeves 53. In this alternative arrangement, resiliently stretchable bands 154 are terminally secured to adjacent ones of the linkages 151 so as to be stretched when the curtain-supporting frame 18 is moved into its lowered position as will readily be understood by reference to FIG. 4. Such stretching of the bands 154 will then serve to urge the collapsible arm 21 to move into its extended position as will best be seen by reference to FIG. 7.

The bands 154 may be secured to the linkages 151 in any appropriate manner and are shown by way of illustration in FIGS. 3, 4 and 7 as being held in position by the provision of integrally formed end enlargements 155 which are releasably received within corresponding recesses 156 provided for this purpose in the faces of the linkages 151. This particular structure is advantageous in that the bands themselves can be formed at a very low cost from rubber or other elastomer and can be easily replaced if and when required.

Normally, the springs 54 will be selected so as to provide only slightly more arm-straightening force than the minimum required, allowance being made for the frictional forces involved at the several pivots between the linkages 51. In this way, movement of the arms 21 between their collapsed and extended positions can be effected very easily by hand and no significant stress is exerted on the pliable sheet 42 when the latter is serving to hold the arms 21 in their collapsed positions as shown in FIG. 2.

It will also be noted that the shower unit 10 actually shown in the accompanying drawings is provided with a carrying handle 60 pivotally mounted on the front edge of the base 12 between the side channel members 13 and 14. It will also be seen from FIG. 6 that the aforementioned water pump 24 and an electric motor 62 for driving the pump 24 are conveniently mounted inside the side channel member 13.

Referring further to FIG. 6, it will be seen that the water supply hose 32 is detachably connected to a water outlet hose 64 from the water pump 24 by a coupling 65 mounted on the inner face of the side channel member 13. The aforementioned supply cord 25 and its associated connector-adaptor 26 can also be stored inside the channel member 13 and, to retain these components therein, the channel member 13 is usefully provided at its rearward end with a spring-loaded closure flap 66.

In accordance with a preferred feature of this invention, the pliable curtain 20 is peripherally secured around the base 12 to prevent leakage of water therearound.

Having described the structure of the portable shower unit 10, its manner of use will now be briefly summarized. Assuming that the unit 10 is in its collapsed configuration as illustrated in FIG. 2 of the accompanying drawings and as it will be for transportation, for example, in an automobile trunk, it is used as follows:

To use the unit 10, the pliable sheet cover 42 is first released by unfastening the dome fastener elements 43 and 44 and the appropriate end of the water supply hose 32 is connected to the coupling 65 on the channel member 13 of the base 12. If the collapsible bladder 46 is to be used for collecting the waste water from the unit 10, the neck 47 of the bladder 46 is next pushed upwardly over the water pipe 48 of the water-collecting tray 15. The unit 10 is now positioned on the ground with the bladder 46 suitably positioned therebelow.

The water supply container 33 is next filled with water at a desired or available temperature and the water supply hose 32 is connected to the upper end of the dip tube 34 by means of the coupling 35 as actually shown in FIG. 1. Finally, the

spring-loaded closure flap 66 at the rearward end of the side channel member 13 is opened and the supply cord 25 and its connector-adaptor 26 are removed from within this channel member. The connector-adaptor 26 is then inserted into the cigarette lighter socket of an automobile. The portable shower unit 10 is now essentially ready for use. The simplicity of this 'assembling' operation will now be appreciated.

After disrobing, the user steps onto the water-collecting tray 15 and pulls gently upwardly on the curtain-supporting frame 18 to move the latter into its elevated position as shown in FIG. 1, the unit 10 being retained in this configuration by the action of the springs 54 or alternatively by the bands 154 as already explained. If the shower head 22 is not permanently mounted on the curtain-supporting frame 18, the user holds this shower head in his hand and briefly presses the foot-actuated switch 28 to energize the motor 62 to drive the water supply pump 24 in turn to pump water from the container 33 through the hose 32 and the hose 23 to the shower head 22. Having wet his body, the user releases the foot switch 28 and soaps himself. With this complete, a few brief pushes with his foot on the switch 28 enables the user to rinse his body.

Waste water collecting in the tray 15 drains through the opening 16 and pipe 48 into the collapsible bladder 46 for subsequent disposal at a convenient location. Since the disassembly and collapsing of the unit 10 are the reverse of the assembly already described, such operations will not be considered in further detail herein.

Having described the particular shower unit 10 illustrated in the accompanying drawings and its operation, it should be stressed that numerous modifications may be made to such a unit without departing from the scope of the invention as defined by the claims appended hereto. Merely by way of illustration, it may be mentioned that the collapsible arms 21 may be constructed in different ways as, for example, already indicated with reference to the use of stretchable bands 154, and, if desired, the unit 10 may be provided with a foot-operated water pump in addition to or instead of the electrically operated pump hereinbefore described. It is equally within the scope of the present invention to replace the aforementioned waste water-collecting bladder 46 and the water supply container 33 by separate water containers removably or permanently disposed within the base 12. Other modifications and variations in the structure already described and within the scope of the invention will occur to those considering the commercial utility of the novel units herein disclosed.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. A portable shower unit which comprises a base including a waste water-collecting tray, a water-discharge opening in said waste water-collecting tray, a curtain-supporting frame, a plurality of collapsible arms each interconnecting and extending between said base and said curtain-supporting frame and being movable between a collapsed position in which said curtain-supporting frame is disposed generally adjacent said base and an extended self-supporting position in which said curtain-supporting frame is disposed in an operative position elevated above said base, each of said arms comprising a plurality of linkages pivotally interconnected together, means at each pivotal interconnection adapted to releasably retain said linkages in a substantially linear relation with one another in said extended self-supporting position of each said arm and said means permitting automatic collapse of said linkages into a stacked relation with one another between said frame and said base in said collapsed position of said arms upon the application of pressure to said frame in a direction normal to and

towards said base, a pliable curtain secured to said curtain-supporting frame and depending downwardly therefrom to define a shower enclosure when said curtain supporting frame is disposed in said operative position, a shower head for disposition above said shower enclosure, a water pump, a flexible hose interconnecting said water pump and said shower head for the supply of water to said shower head, a water supply means for the supply of water to said water pump, and a manually controllable pump-actuating means for controlling operation of said water pump.

2. A portable shower unit as claimed in claim 1 which unit additionally comprises a water supply container and a flexible water supply hose extending between said water supply container and said water pump.

3. A portable shower unit as claimed in claim 2 in which said water supply container has a collapsible structure and a capacity of less than about 2 gallons.

4. A portable shower unit as claimed in claim 1 in which said water pump is electrically operated and which unit additionally comprises electrical connecting means adapted to supply electrical energy to said pump.

5. A portable shower unit as claimed in claim 4 in which said water pump is adapted to be operated from an automobile electrical system.

6. A portable shower unit as claimed in claim 1 in which said manually controllable pump-actuating means is disposed on said waste water-collecting tray for foot actuation.

7. A portable shower unit as claimed in claim 1 in which said means for releasably retaining said collapsible arms in their extended positions comprises resiliently deformable members associated with said linkages of said collapsible arms for urging said arms into said extended positions, and in which means are provided for releasably retaining said collapsible arms in their collapsed positions comprising a cover adapted to be secured to said base to hold said curtain-supporting frame thereagainst.

8. A portable shower unit as claimed in claim 7 in which each said resiliently deformable member comprises a spring member operatively associated with a respective one of said pivot pins for engaging adjacent ones of said linkages to urge a respective one of said collapsible arms into its extended position.

9. A portable shower unit as claimed in claim 7 in which each said resiliently deformable member interconnects adjacent linkages of one of said collapsible arms and is adapted resiliently to be stretched when said linkages are moved into the collapsed position of said arm so as to urge said linkages to move said arm into its extended position.

10. A portable shower unit as claimed in claim 9 in which each said resiliently deformable member comprises an elongated elastomeric member terminally adapted detachably to be retained within openings provided in adjacent ones of said linkages.

11. A portable shower unit as claimed in claim 1 which unit additionally includes a collapsible bladder adapted to be disposed below said base in fluid communication with said water-discharge opening for receiving waste water from said waste water-collecting tray, and a water supply container, said collapsible bladder and said water supply container being adapted to be stored on said base within said curtain-supporting frame when said collapsible arms are disposed in their collapsed position.

12. A portable shower unit as claimed in claim 1 in which said pliable curtain is secured to said base peripherally therearound.

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