

Sept. 21, 1971

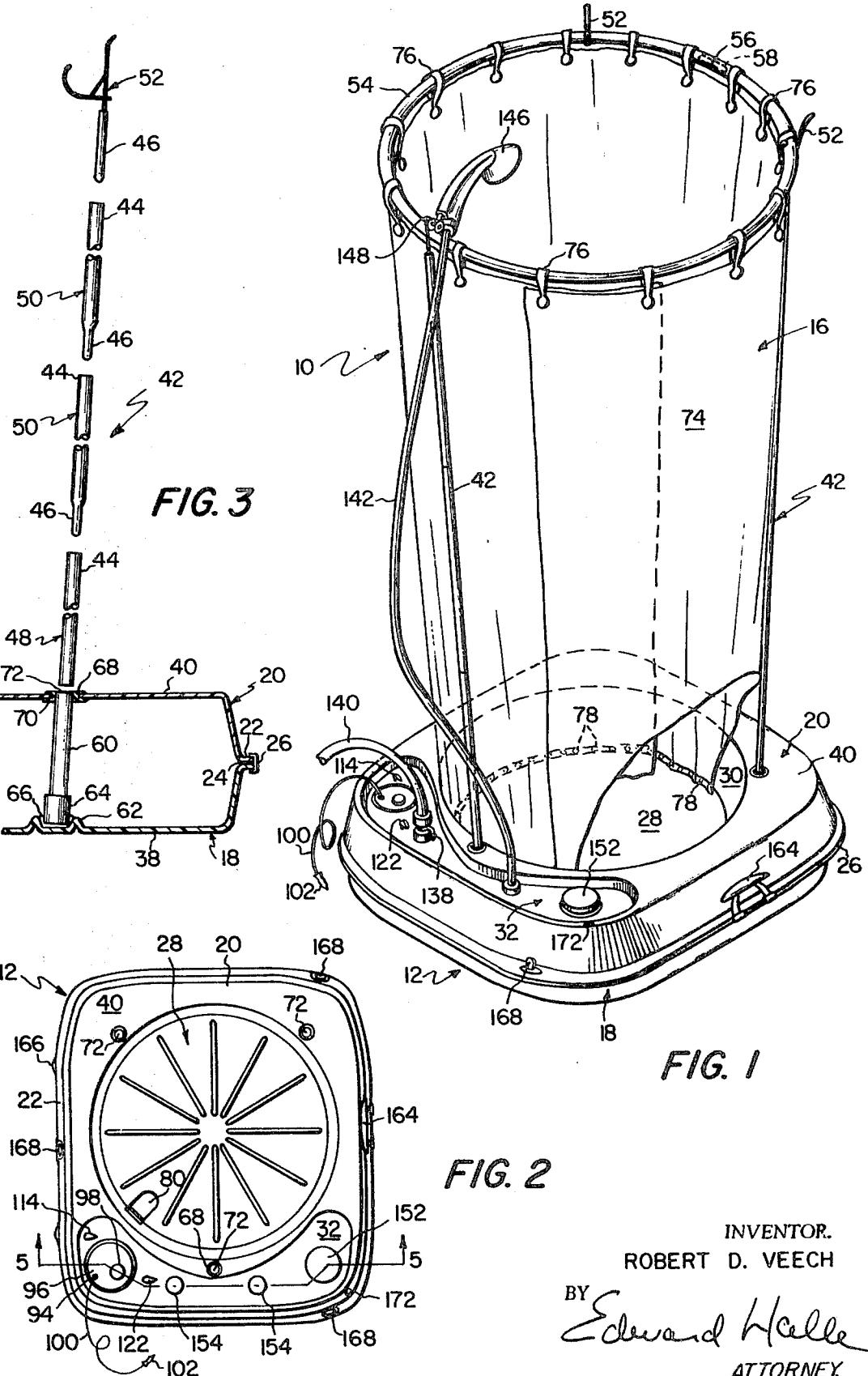
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3,606,618

PORTRABLE SHOWER BATH

Filed March 31, 1970

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

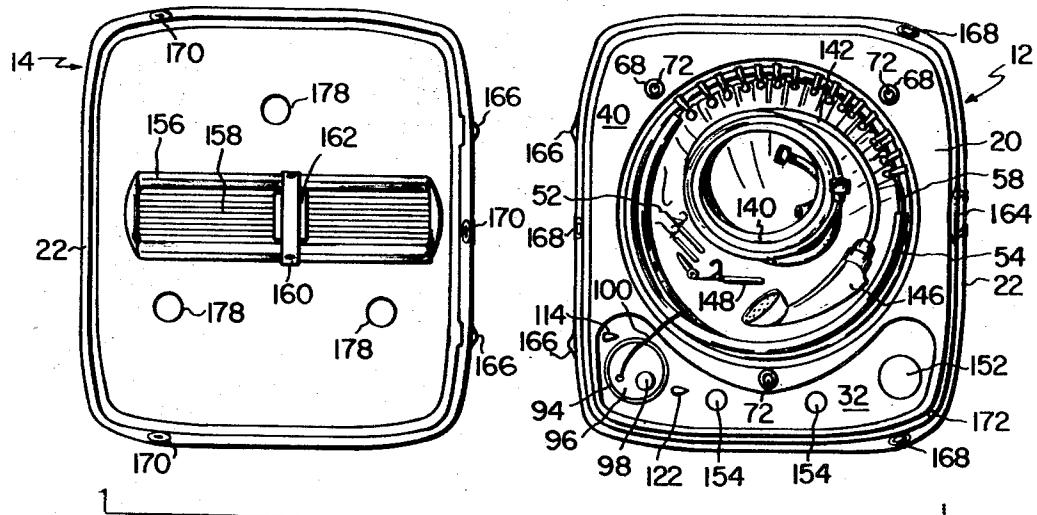


FIG. 4

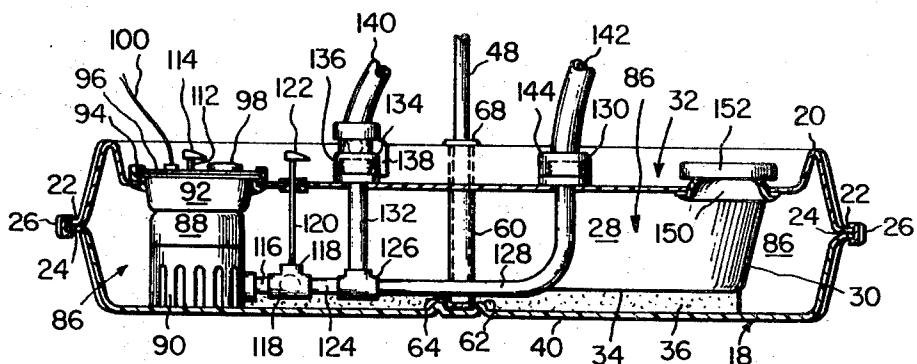


FIG. 5

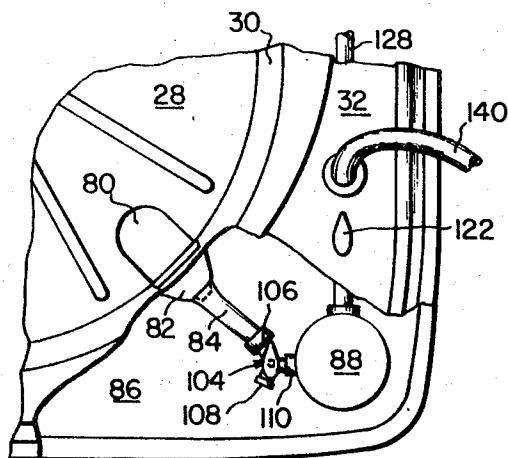


FIG. 6

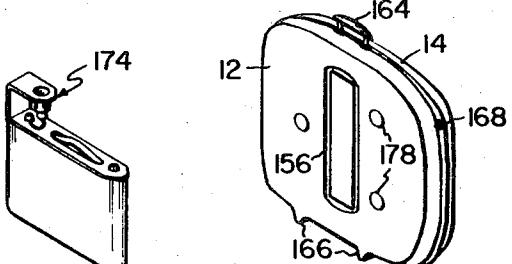


FIG. 8

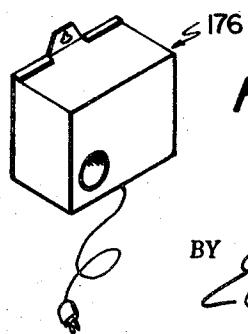


FIG. 9

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PORABLE SHOWER BATH

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U.S. CL. 4—147

25 Claims

ABSTRACT OF THE DISCLOSURE

A self-contained portable shower bath in which all of the component parts are packed in a suitcase sized, hand portable, compact unit, in which there is a main body portion comprising a fluid reservoir and a basin platform, shower curtain assembly, a showerhead and plumbing therefor, all of which are demountable for stowing in the basin or between the basin and the inside of a cover designed to fit over and enclose the body portion, in which there is a motor driven pump, fluid lines and valves adapted to be selectively arranged to pump fluid from the reservoir to the showerhead, to drain the basin, to recirculate water from the basin to the showerhead, and to provide a fluid supply to the showerhead from an outside water line.

This invention relates to a compact, self-contained portable shower bath which may be used principally by persons who are on camping trips or caravan and desire to have a compact demountable shower bath as a part of their equipment. The portable shower bath, however, can be used in many other situations where such a bath may be needed temporarily and permanent plumbing is not yet available, or in fact, in any situation where its usefulness could be appreciated.

The portable shower bath of the invention has been designed to accomplish a variety of functions. First of all, it has its self-contained fluid or water supply; secondly, it may be set up anywhere without plumbing connections; third, it has a shower curtain assembly with a wide upper ring so that a person may be accommodated comfortably within the curtain, yet the ring collapses to fit easily within the narrower basin of the shower; fourth, the collapsed shower curtain assembly as well as the showerhead and hose connection to the showerhead are all self-contained within the enclosed device underneath a cover in a unit small enough and light enough to be hand carried by any of the usual personnel who would be on a camping trip; fifth, the cover itself has provision to be used as a table when the shower is in use; sixth, there is a submersible "bilge pump" type motor driven pump to force water from the fluid reservoir up to the showerhead; seventh, there is also provision by way of valve and fluid line arrangements to recirculate the shower water in the basin back up to the showerhead if desired; eighth, there is further provision by valve arrangement, to use only the fresh fluid from the reservoir for the shower and retain the used water in the basin; ninth, there is also provision to drain the basin by means of the pump; and tenth, there is also a further selective arrangement of the valves of the device to provide for direct connection of the showerhead to an outside source of fluid, by-passing the reservoir and the pump.

The principal advantages of the invention are the provision of a compact, portable, highly versatile shower bath, easy to operate, and providing a comfortable luxury-type convenience under primitive circumstances.

Another advantage of the shower bath of the invention is that it may be quickly and conveniently demounted and packed into a compact unit for stowage.

Further advantages of the invention will become apparent from the description hereinbelow. The invention is illustrated in the accompanying drawings in which:

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FIG. 1 is a perspective view;

FIG. 2 is a top plan view of the main body portion 12 with the superstructure of the shower curtain assembly and the showerhead removed;

FIG. 3 is a detail of a shower curtain assembly and a portion of the main body portion in exploded relation with parts cut away and partly in section;

FIG. 4 is a top plan view of the main body portion and the cover portion in opened relationship with the cover removed;

FIG. 5 is an enlarged sectional view of the main body portion;

FIG. 6 is an enlarged top plan detail of the main body portion with parts cut away;

FIG. 7 is a reduced perspective view of the invention in package form;

FIG. 8 is a perspective of a battery pack accessory for the invention; and

FIG. 9 is a perspective of a current adapter accessory for the invention.

Similar numerals refer to similar parts throughout the several views.

25 In FIG. 1, the compact portable shower bath 10 is shown on its main body portion 12 with cover 14 removed and curtain assembly 16 in place ready for use. Reference to FIG. 5 will show details of construction of the main body portion 12. There is a lower shell 18 and an upper shell 20, each having peripheral flanges 22 between which is positioned a double faced adhesive tape 24 to seal the seam or joint between the shells 18 and 20. The seal is made fluid tight and completed by a metal channel strip 26. The preferred material for the body portion 12 and its shells 18 and 20 is a high impact lightweight plastic. However, any suitable material may be used.

26 The upper shell 20 is provided with a basin 28 having a basin wall 30. The floor of the basin 28 is a platform 40 for the person using the shower bath. A recessed portion 32 is provided for various connections and controls necessary to the device. The bottom 34 of the basin is spaced by means of a thickness of Styrofoam or other strengthening material from the lower skin 38 of the lower shell 18.

45 Reference to FIG. 3 will show details of the rod assemblies 42. In the preferred form of the invention illustrated, there are three rod assemblies 42. Each rod assembly is demountable with its sections having female portions 44 and male portions 46 for assembly. There is a lower section 48 and one or more intermediate sections 50 and a shower ring support 52. The shower ring supports are positioned to hold a hollow shower curtain ring 54 which is a non-continuous ring having a break or joint at reference numeral 56 normally held in closed relationship by means of a joint or plug connecting means 58. In the preferred form, the connecting means 58 is a wooden plug which is removably swedge fitted in the hollow portions of ring 58 at joint 56. For each rod assembly 42, there are rod receiving means in the form of a rod sleeve receiver 60 seated in a sleeve support recess 62 placed or molded in lower skin 38. The sleeve 60 is also provided with a cap, preferably a plastic cap 64 and glued by means of an adhesive 66 in its proper position. There is also a rubber washer or grommet 68 in the upper skin 40 of the upper shell in the main body portion which has a groove 70 to fit the skin 40 and an opening 72 for the sleeve 60. The grommet is of a type to provide a fluid tight seal.

65 70 The shower curtain assembly 16 is provided with a shower curtain 74 depending from curtain rings 76 from the shower curtain ring 58. Approximately one pound of

lead weights 78 are sewn or otherwise placed at the lower edge of the shower curtain 74 to counteract wind or other conditions which might disarrange the curtain.

The basin 28 has a drain recess 80 which can best be seen in FIGS. 2 and 6 of the drawings. At reference numeral 82, there is an inlet to a fluid communication means such as drain line 84. Drain line 84 is within the reservoir 86 formed by the shell portions 18 and 20 which comprise the complete shell of the main body portion 12. It is to be noted that the basin 28 and its wall 30 are centrally located in a space area between upper skin 40 and lower skin 38 of the main body portion 12, and that all of the other area between these two skins 38 and 40 (aside from the motor 88, the pump 90, the switch cup 92 and the other components illustrated between the skins) is reservoir area 86. Thus, the motor 88 and pump 90 must be of a type that will operate efficiently submerged in a fluid such as water. The usual type of motor driven bilge pump which is designed to operate in submerged or submersible condition has been found to be highly satisfactory. The motor 88 for such purpose is a sealed unit motor usually operated by electricity.

A switch cup 92 is provided for mounting on the recess control panel 32 by means of a waterproof grommet 94 which holds a plate 96. Control means such as an on-off switch button, preferably a foot operated type, is shown at reference numeral 98. The switch mechanism would be located in the switch cup 92 and would be of any type known to the art which would turn the motor 88 on and off by means of the button 98.

At reference numeral 100, an electric power cord is shown which is connected to an electric plug 102 of a type which is compatible with an electric cigarette lighter dashboard receptacle well known to the art. In other words, the plug 102 is adapted to be pressed into the usual cigarette lighter receptacle commonly installed on most trucks, automobiles or other vehicles such as boats so that the user of the shower bath can plug it into the vehicle receptacle and obtain a source of electric power from the vehicle to operate the motor 88. Reference to FIG. 5 will show that the motor 88, pump 90 and switch cup 92 may be provided as an assembly which is attached and held in place by the lower skin 38 and panel 32 of the shower bath main body portion 12 with the grommet 94 providing a good seal.

It is now understood that a fluid such as water is kept in reservoir 86 for purposes of providing shower water. The water is forced or pumped up by the pump 90 so that a shower bath may be taken by a person standing on the basin platform 28, and eventually the water from reservoir 86 will fill basin 28.

The mechanism provided to operate the water or fluid portion of the device comprises the motor and pump 88 and 90 respectively, and a system of fluid conduits and valves as follows: As shown in FIG. 6, a valve 104 having an inlet 106 connected to the drain line 84 and another inlet 108 communicating with reservoir 86 is provided to permit selection of the fluid to be pumped up to the shower head or to be drained from the device as will be more fully explained. Inlet valve 104 has an output or outlet into the input of pump 90 at the point designated by reference numeral 110. Valve 104 has a valve gate made in accordance with the usual valve art practice which is controlled by a rod 112 and having a manual operating portion 114. Valve 104 is constructed so that either of the inputs 106 or 108 can be selected from which to draw fluid into the intake portion of pump 90. A fluid communication line or pipe 116 connects the output of pump 90 to an on-off valve 118 controlled by rod 120 and manual operating portion 122. Valve 118 is connected by a fluid line 124 to a T connection 126 which in turn splits the fluid communicating line by means of a line 128 and a line 132 to threaded outlets 130 and 134 respectively. Element 136 is an on-off valve controlled by manual operating portion 138 which may be screwed onto threaded outlet 134.

While valve 136, which is an on-off valve, is shown as a separate element to be screwed on, it may be incorporated into the line 132 if desired. A fluid line 140 which is connected to port 134 through valve 136 may be used either as an external drain for the body portion or as a source of fresh fluid supply to be directed directly to the shower head as will be more fully explained later. Thus it can be seen that port 134 may be used either as an outlet port or an intake port.

Fluid line 142 is connected by a coupling 144 to outlet 130 and also to shower head 146 and acts as the fluid communication line to the shower head. Lines 140 and 142 are preferably of flexible material such as rubber or plastic garden type hose. Shower head 146 slides onto a bracket 148 which may be removably attached to shower curtain ring 54 thus rendering the shower head 146 readily adjustable and removable when necessary.

I have also provided a filler vent 150 with a filler cap 152 to fill the reservoir 86. It is to be noted that all connections can be removed from the threaded outlets 130 and 134 and replaced with caps 154 as shown in FIG. 4 so that the reservoir can be substantially closed during transportation of the device if it is desired to carry it around filled with water or other fluid.

Inside of the cover portion 14, I may provide a recess 156 which can be molded into the material of the cover and adapted to hold the knocked down support rods 48 and 50 as shown at reference numeral 158. These may be held in place by a strap 160 bearing against a sponge 162. The separable sponge 162 may be used for cleaning purposes and also as an anti-rattling device in the package as shown in FIG. 4. These is a carrying handle 164 as well as feet or footings 166 upon which to rest the closed device when it is in its suitcase form. Closure of the cover over the device may be made by grommet type fasteners 168 and 170. An air vent 172 communicating with the reservoir 86 is shown in FIG. 4. The purpose of this air vent is to prevent collapse of the body portion when the fluid in the body portion is being pumped up to the shower head 146.

It is to be noted that the air vent 172 is positioned on an upper part of the body portion 12. When the body portion is lifted by handle 164 to a vertical position and rested on feet 166, the air vent 172 will still be at an upper portion of the body portion and is purposely positioned thus to avoid excess spillage of fluid when the device is transported with fluid in the reservoir 86.

In FIG. 8 a battery pack 174 is shown with the reference numeral arrow pointing at a cigarette lighter type receptacle adapted to accomodate the plug such as plug 102. Thus, the device can be easily run from its separate battery pack. While any reasonable voltage may be used to run the device, I prefer to use a 12 volt system which is compatible with most common vehicles in use which would be used on a camping trip or the like.

In FIG. 9 an adapter 176 is shown which also has a cigarette lighter type receptacle for a plug such as plug 102. Thus, if the shower has a 12 volt system, it can be used with the adapter 176 on a 110 volt power line or with any other desired voltage which the adapter is made for.

I have also provided leg recesses 178 in the cover 14 so that rods similar to the support rods 42 can be used as legs and the cover 14 can be used as a table for the convenience of the bather.

The device is operated as follows: Let us assume that the device is set up for portable use as shown in FIG. 7. An operator would place it on the floor or on the ground and remove the cover which would place the device in position as shown in FIG. 4. Then the various accessories stored in the cover and in the basin of the main body portion can be removed and installed. The rod assemblies 42 are placed in the receiving sleeves 60, the shower curtain holder 54 is uncoiled from its open position and connected or closed at joint 56 by the connecting swedge 58, and then placed over the brackets 52. The curtain 74 is placed on the curtain holder 54 by means of curtain rings 76. Shower head 146, its fluid line 142 and bracket

148 are suspended from the shower curtain holder and line 142 is connected to outlet 130. Line 140 may then be connected to on-off valve 136 and to port 134. Plug 102 may then be placed into an appropriate cigarette lighter receptacle for a source of current. If there is no fluid in the reservoir 86, a quantity of water may be poured through vent 150 after removing filler cap 152. The operator who might then desire to have a shower bath with fresh water in reservoir 86 would adjust valve 104 by means of the manual operated portion 114 to close intake 106 and open intake 108. The operator would also close on-off valve 36 and open on-off valve 118. Then the operator would step on foot switch 98 which would start the motor and pump drive. With the device and its valves in the position described, the pump will pump fluid out of the reservoir 86 through valve intake 108, through the pump to line 116, through valve 118 to line 124, through line 128, thence up through line 142 to the shower head causing the fluid to flow from the shower head over the bather and onto the basin platform 28. A sufficient quantity of water, approximately 5 gallons, is contained in the reservoir 86 and the pump is operated to deliver the 5 gallons of water in approximately four minutes for a continuous shower.

After the water is exhausted from the reservoir 86, the operator turns the motor off by stepping on switch 96. The waste water in platform basin 28 may then be drained by turning manual portion 114 to close intake 108 and open intake 106 of valve 104. On-off valve 136 is opened to permit flow of water, and the motor is again started by switch 98. The pump will now drain the basin 28 through drain inlet 82 and drain line 84 pushing the water through line 116 and up line 132 into line 140. Line 140 may be directed toward any waste area such as a sewer or any other area where the waste water may be flowed. Since the exit from line 140 will be at a much lower level than shower head 146, the water will take the path through line 140 rather than through line 142. If it is desired to recirculate the waste water up through the shower head to continue the shower, then all that need be done is to close valve 136 to prevent the water from leaving through line 140. It will then be forced up through line 142 to the shower head 146 and the water will continue to recirculate so long as the motor is running. If desired, a filter (not shown) may be placed at the drain outlet 82 to purify the water if necessary. Drain line 84 can be eliminated thereby permitting basin 28 to communicate directly with the reservoir area 86 permitting the waste water to flow into area 86 for pumping up to the shower head. In such case, a plug (not shown) may be provided to close inlet 82 during the time when the device is used to pump fresh water from the reservoir up to the shower head.

When it is desired to flow fresh water directly through line 140 to the device to take advantage of a fresh water outlet which may be available or handy, on-off valve 118 is closed by means of manual operating portion 122. Valve 136 is placed in open or on position. The fresh water supply is connected to line 140 and turned on. Water will flow through line 140 through valve 136 down through line 132, and then through connection 126 through line 128 and up through fluid line 142 to the shower head 146, and will continue to flow as long as the outside source is kept on. This type of flow does not need the use of the motor and pump 88 and 90 respectively.

When it is desired to repack the device into its compact condition, it is dismantled by removing the shower curtain assembly and the shower head 146, the ring 54 is disconnected and partially coiled to reduce its diameter to fit within the basin 28, the lines 140 and 142 are coiled and placed within the basin 28, the rods 42 are dismantled and placed within the recess 156, and the other small components are placed in the basin together with the plug 102 and the electric line 100. The cover 14 is

replaced and held in place by fasteners 168 and 170 and the device is ready to be carried about.

The entire unit may be stored in a compact case 25 inches square, and the shower bath can be used indoors or outdoors regardless of whether there is a handy water supply since it may use its self-contained water reservoir or an outside supply of water.

While I have described my invention in its preferred form, there are other forms which it may take without departing from the spirit and scope of the invention, and I, therefore, desire to be protected for all forms coming within the claims hereinbelow.

Wherefore, I claim:

- 15 1. A self-contained portable shower bath unit comprising: a main body portion forming a structure including hollow fluid reservoir means for bathing fluid and basin platform means, a shower head, a pump including fluid intake means and fluid output means, fluid communication means between said basin platform and said pump intake means, fluid communication means from said reservoir to said pump intake means, and fluid communication means between said pump output means and said shower head.
- 20 2. The portable shower bath as claimed in claim 1, in which at least a portion of the pump and at least a portion of at least one of said fluid communication means are located within the fluid reservoir.
- 25 3. A self contained portable shower bath unit as claimed in claim 1, in which component parts are demountable for storage in a portable container comprising the main body portion.
- 30 4. The portable shower bath as defined in claim 1 which includes at least one valve means in at least one of the fluid communication means.
- 35 5. The portable shower bath as claimed in claim 1 which further comprises fluid port means at an exterior portion of the main body portion together with fluid communication means between said fluid port means, and said pump output means, and said fluid communication means to said shower head.
- 40 6. The portable shower bath as claimed in claim 5, in which at least a portion of the pump and at least a portion of at least one of said fluid communication means are located within the fluid reservoir.
- 45 7. The portable shower bath as claimed in claim 5 which includes power means to drive the pump means and control means for the power means.
- 50 8. The portable shower bath as claimed in claim 6, in which there is an electric motor in combination with the pump in the form of a submersible pump and motor unit positioned within the reservoir means.
- 55 9. The portable shower bath as claimed in claim 7 which includes at least one valve means in at least one of the fluid communication means.
- 60 10. The portable shower bath as defined in claim 9, in which the power means includes an electric motor and the control means includes a foot operated switch.
- 65 11. The portable shower bath as defined in claim 10, in which the electric motor and switch means are connected by conductors to a plug designed to fit a vehicle electric cigarette lighter receptacle outlet.
- 70 12. The portable shower bath as defined in claim 11, in combination with a battery pack means provided with a vehicle type electric cigarette lighter receptacle outlet.
- 75 13. The portable shower bath as defined in claim 12, in which the electric motor and pump are operated by means of a 12 volt electrical system.
14. The portable shower bath as defined in claim 13 in combination with adapter means to operate the 12 volt system on a power source of another voltage.
15. The portable shower bath as claimed in claim 1, including a demountable shower curtain assembly having at least one support rod detachably positioned within rod receiving means in said body portion.

16. The portable shower bath as claimed in claim 15, further comprising at least one removable shower curtain ring, said shower curtain ring being non-continuous and including connector means to selectively close and open said ring to permit said ring to be at least partially coiled to a smaller diameter when open than when normally closed.

17. The portable shower bath as defined in claim 16, which includes detachable cover means to complete a closed casing for the device, and in which said rod supports are made in sections to provide lengths shorter than an inside transverse measurement of said cover means.

18. The portable shower bath as claimed in claim 17, in which said cover means are provided with leg sockets to accommodate table legs.

19. The portable shower bath as claimed in claim 17 which includes a shower curtain.

20. The portable shower bath as claimed in claim 17, in which the shower curtain has a weighted portion.

21. The portable shower bath as claimed in claim 19, in which the shower head, the fluid communication means to the shower head, the shower curtain assembly, and the shower curtain are detached from the main body portion and stored in storage space formed between the cover and the basin platform when the cover is attached.

22. The portable shower bath as claimed in claim 21 comprising carrying handle means.

23. The portable shower bath as claimed in claim 22, in which the cover has an integral recess for the support rods.

24. The portable shower bath as claimed in claim 23, in which there is a strap and sponge combination positioned to hold the support rods in the integral recess.

25. A portable shower bath as claimed in claim 1 comprising a hollow main body portion forming a fluid reservoir and including a basin platform exterior of the hollow portion, a shower head, a pump including fluid intake means and fluid output means, fluid communication means between said basin platform and said pump intake means, fluid communication means from said reservoir to said pump intake means, at least one valve between said basin, reservoir and pump intake means; fluid communication means between said pump output

means and said shower head, fluid port means at an exterior portion of the main body portion comprising valve means, fluid communication means comprising valve means between said fluid port means and said pump output means, fluid communication means between said port means and said shower head, electric motor means in combination with said pump to form a submersible pump and motor unit positioned within the reservoir means, a demountable shower curtain assembly having at least one support rod detachably positioned within a rod receiving means in said body portion, at least one removable shower curtain ring, said shower curtain ring being non-continuous and including connector means to selectively close and open said ring to permit said ring to be at least partially coiled to a smaller diameter when open than when normally closed, and cover means to complete a closed casing for the device, and in which said rod supports are made in sections to provide lengths shorter than an inside transverse measurement of said cover means; in which the shower head, the fluid communication means to the shower head, the shower curtain assembly, and the shower curtain are detachable from the main body portion and storable in storage space formed between the cover and the basin platform when the cover is attached.

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U.S. Cl. X.R.

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