Sept. 11, 1951 L. R. BOWMAN 2,567,506

PORTABLE SHOWER

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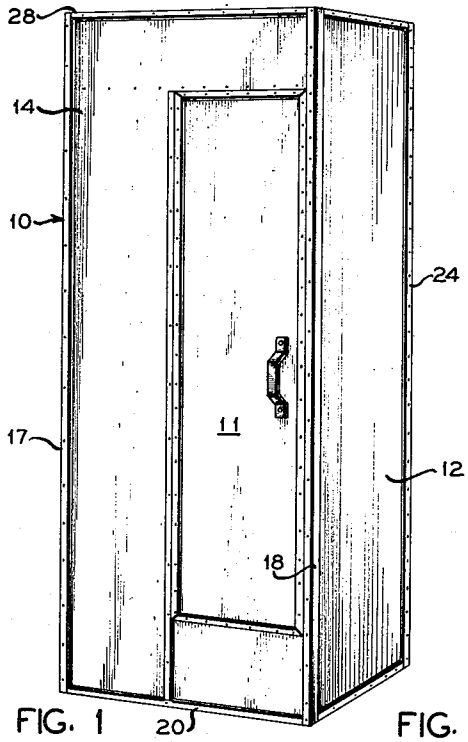


FIG. 1

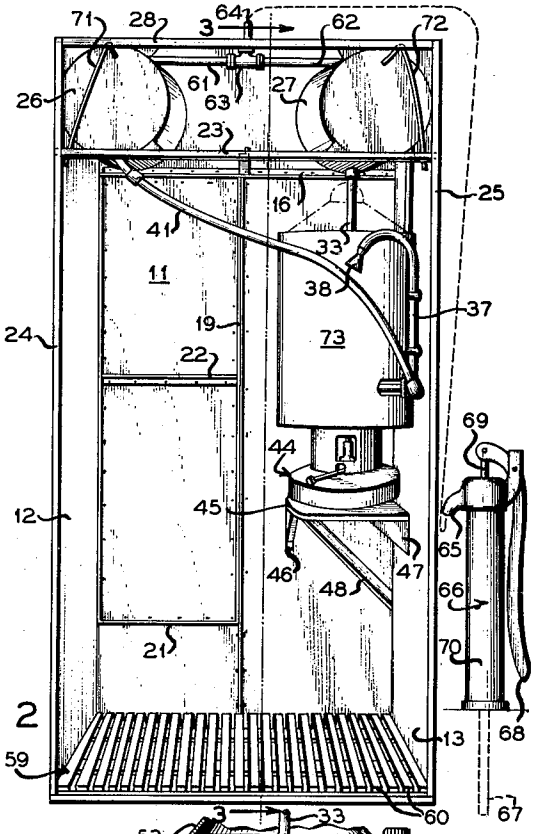


FIG. 2

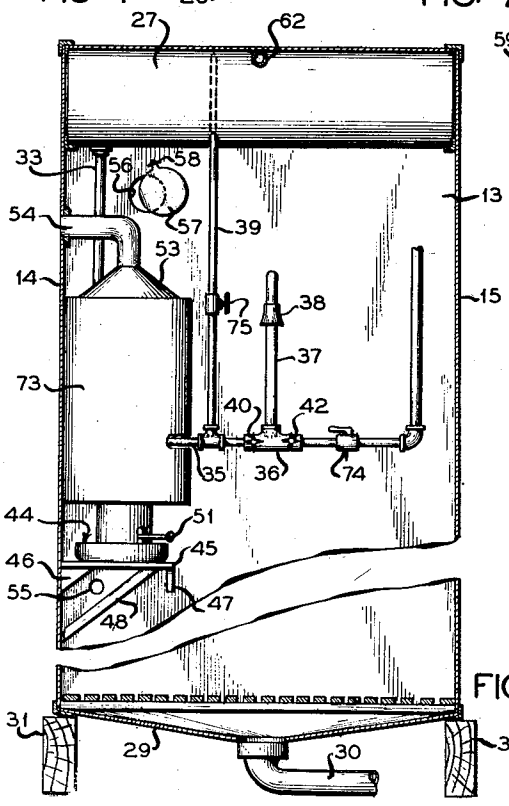


FIG. 3

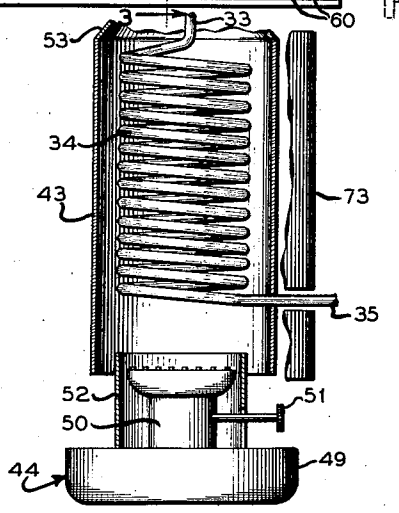


FIG. 4

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PORTABLE SHOWER

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3 Claims. (Cl. 4—147)

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This invention relates to improvements in bath apparatus and particularly to a portable shower bath especially adapted for use in locations such as at camps or on farms where a continuous supply of water under pressure is not available.

Portable bathing devices have been previously proposed and some of these have been in the nature of shower baths. Such previously proposed devices have not, however, been sufficiently satisfactory to obtain any important degree of commercial success as they have been complicated and expensive in construction and necessitated assembly at the location of use; have not been provided with adequate water storage and drainage facilities nor with satisfactory water heating apparatus and have not provided a sufficiently tight enclosure to prevent disagreeably cold temperatures and drafts when used in cold weather.

It is among the objects of the present invention to provide a unitary portable shower bath device which is completely assembled at the factory and requires no installation labor beyond uncrating it and setting its bottom supports firmly on a comparatively level surface, which may be earth or a floor as may be convenient or desired, which has ample storage capacity for bathing water, a satisfactory and safe water heating apparatus and a cabinet which can be tightly closed to render its interior warm and comfortable even if the apparatus is used out of doors in cold weather.

A further object resides in the provision of adequate drainage facilities for the apparatus and a simplified plumbing system through which the storage facilities can be filled and both hot and cold water led through separate conduits to a suitable mixing valve with which the shower head is connected.

A still further object resides in the provision of a portable shower bath device which is simple in construction, inexpensive to manufacture, is light in weight to reduce shipping costs and facilitate assembly, which can be completely assembled at the factory and delivered to a customer as a complete and operative device, which is of adequate size for comfortable bathing, which is fully weather resistant, and durable in use.

Other objects and advantages will become apparent from a consideration of the following description in conjunction with the accompanying drawing, wherein:

Fig. 1 is an elevational view of the exterior of a bath cabinet illustrative of the invention;

Fig. 2, a perspective view of the shower bath apparatus with the rear wall or cover removed therefrom;

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Fig. 3, a sectional view on the line 3—3 of Fig. 2, looking in the direction of the arrows; and,

Fig. 4, a longitudinal sectional view of the water heating apparatus shown in Figs. 2 and 3.

With continued reference to the drawings, the cabinet, generally indicated at 10, comprises a frame which may be conveniently constructed of channel iron members or bars to which are secured side panels as indicated at 12 and 13, front panels 14 and a rear panel 15. The frame comprises four corner members, the ends of which are joined by transverse members and the side and back members may conveniently be provided from rectangular sheets of thin metal, such as sheet iron. This metal may be provided with a weather resisting coating and may also, if desired, be provided with a layer of insulating material. The front panel 14 has a door opening therein surrounded by suitable frame members. The frame member 16 extending across the top of the door opening extends entirely across the width of the cabinet, as is clearly illustrated in Fig. 2, and is secured at its ends to the front corner members 17 and 18 of the cabinet frame. From this member, a frame member 19 extends vertically downward to the front lower transverse frame member 20 and is secured at its ends to the frame members 16 and 20 and constitutes the frame at one side of the door opening, the door 11 being preferably hinged to this member as is indicated in Fig. 1. At the bottom of the door opening a relatively short frame member 21 extends between the members 18 and 19 and is secured at its ends to these members. Preferably the edges of the front panel 14 surrounding the door opening are bent over the frame members to provide a smooth finish around the door opening. The door has a light rectangular frame along its edges and a transverse reinforcing member 22 at a substantially mid height location. The bottom of the door opening is spaced above the bottom of the cabinet, as is clearly shown in Figs. 1 and 2, so that water will not leak out of the cabinet beneath the door.

A transverse frame member 23 extends across the upper part of the cabinet on the same level as the frame member 16 and is secured at its ends to the rear corner frame members 24 and 25.

Two water storage tanks 26 and 27 are supported on the frame members 16 and 23 preferably in position such that their outer sides are in contact with or closely adjacent to the inner surfaces of the corresponding side panels 12 and 13 and the diameter of these tanks is sub-

stantially equal to the vertical distance between the frame members 16 and 23 and the corresponding cabinet top frame members, one of which is indicated at 28. The tanks 26 and 27 are fixed in the upper part of the cabinet frame by suitable means such as by brackets or plates secured to the frame and bearing against the tanks. These tanks are of such size that plenty of water is available.

The top of the cabinet may be formed from a flat sheet metal panel secured to the top frame members while the bottom of the cabinet is in the form of a dished plate 29 having portions sloping down from each of the four sides of the cabinet toward the center of the plate. The center of the plate is provided with an aperture and a drain conduit 30 is secured to the under surface of the floor plate surrounding the central aperture.

The drain conduit 30 is removable for storage or shipment of the cabinet and is attached by a simple screw or lock connection when the cabinet is erected in operative position. When the cabinet is erected for use it is supported upon corner blocks, as indicated at 31 and 32 in Fig. 3, which support the cabinet at a height above the supporting surface sufficient to provide adequate space for the drain conduit 30.

In the arrangement illustrated, the tank 27 is the hot water tank and from the bottom of this tank a conduit 33 extends downwardly to the upper end of a water heating coil 34. The lower end of this coil is connected through a conduit 35 with a suitable flow control and mixing valve 36 from which a conduit 37 extends upwardly to a shower head 38, the upper portion of the conduit 37 being curved over to support the shower head in the conventional inverted position. An auxiliary or by-pass conduit 39 leads from the conduit 35 back to the upper portion of the tank 27 to provide thermal circulation through the heating coil in case the hand valve 40 controlling the hot water supply to the shower head is closed while heat is being applied to the heating coil.

A conduit 41 leads from the cold water tank 26 to the mixing valve and the flow of water through this conduit may be controlled by the hand valve 42.

The heating coil 34 is surrounded by a casing 43 of cylindrical shape having a diameter somewhat greater than the diameter of the coil and a length such that it extends slightly above the coil and materially below the heating coil, as is clearly illustrated in Fig. 4. A burner, generally indicated at 44, is supported in operative position below the coil 34 by a shelf 45 attached to the interior of the cabinet in the corner of the cabinet between the fixed portion of the front wall and the adjacent side panel. This shelf 45 is supported on the wall panel by suitable brackets 46 and 47 and its outer portion is supported by a diagonal brace 48.

The burner 44 has a fuel reservoir 49 from the upper surface of which extends a burner 50, from one side of which extends a wick adjusting shaft 51. This burner is preferably enclosed in a cylindrical chimney 52, the upper end of which extends into the lower end of the cylindrical coil casing 43, the diameter of the chimney 51 being less than the diameter of the casing 43 to provide an annular open space around the top of the chimney.

If desired, the casing 43 may be provided with a cap 53 from which a conduit 54 extends through an opening in the side wall of the cabinet to vent fumes of the heater to the exterior of the cabinet and air for combustion may be supplied through a small aperture 55 in the back wall of the cabinet below the level of shelf 45. Also, if desired, a ventilating opening 56 may be provided in one wall of the cabinet such as the back wall and this opening may be controlled by movable plate 57 pivotally secured to the wall at one side of the opening 56 by frictional pivot 58 so that the cover plate 57 will be retained in adjusted position.

The cabinet is provided with an open-work floor, generally indicated at 59, which may be conveniently provided by securing a plurality of wooden slats 60 in spaced parallel position to a supporting frame. This floor rests at its edges on the edge portion of the bottom plate 29 which are in turn supported by the lower flanges of the bottom angle iron frame members, as is clearly illustrated in Fig. 3.

Conduits 61 and 62 lead from the top portions of tanks 26 and 27 respectively to a T joint 63 located between the tanks and from which a conduit 64 extends to the outlet 65 of a manually operable pump, generally indicated at 66. A supply conduit 67 leads to the pump 66 from a source of water supply, such as a well, cistern, or other reservoir. This pump is preferably supported at its lower end firmly on the ground or other supporting surface and is provided with an elongated handle 68 for moving the pump rod 69 and its attached piston up and down in the pump cylinder 70 to force water from the supply conduit 67 through the conduit 64 into both of the tanks 26 and 27.

The tanks are provided with respective air vents 71 and 72 comprising tubes extending upwardly from the upper portions thereof and then downwardly adjacent the side panels 12 and 13 to vent air from the tanks when they are being filled to permit any overflow from the tanks to flow downwardly inside the cabinet to the drain conduit 30.

In using the improved bath apparatus the desired quantity of water is pumped into the tanks 26 and 27 by the pump 66. If hot water is desired, the heater 44 is then lighted and left burning until the water in hot water tank 27 has become sufficiently heated. The hand valves 40 and 42 may then be operated to supply water at the desired temperature from the tanks to the shower head 38.

The shower head 38 is located at a height above the cabinet floor 39 convenient for the average adult person and the tanks 26 and 27 are located a sufficient distance above the shower head to provide an adequate gravity induced flow of water from the tanks to the shower head. The cabinet is of ample height to support the tanks at the level necessary to provide an adequate flow of water for bathing purposes.

A guard 73 is provided surrounding and spaced from the heater casing 43 to prevent a bather from being accidentally burned by the water heater. This guard may be provided by securing the edges of a curved piece of sheet metal to the fixed portion of the front wall and to the joining side wall 13 in position such that it is slightly spaced from the outside of the casing 43.

A drain valve 74 is provided in the conduit 41 so that the two water tanks 26 and 27, the coil 34 and all of the water conduits may be completely drained whenever it is desired to place the apparatus in dry condition. This drain valve may be combined with the mixing valve to pro-

vide a unitary valve arrangement to control both the flow to the spray head and the drainage. Also, a valve 75 may be placed in the conduit 39 to close off this by-pass conduit when desired.

Water flowing from the shower head 38 passes through the open-work floor 59 and is guided by the dished bottom plate 28 into the drain conduit 39 so that all of the water issuing from the shower head is rapidly discharged from the cabinet. This permits the surface of the floor 59 to become sufficiently dry in a short time so that the cabinet may also be used as a dressing room if desired.

It will be obvious to those skilled in the art that various changes may be made in the described embodiment of the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawings and described in the specification not only as indicated in the appended claims.

What is claimed is:

1. Portable bath apparatus comprising a cabinet having a frame, frame supported panels, and a door in one of said panels; two water tanks supported by said frame in the top portion of said cabinet; a shower head in said cabinet; a mixing valve for said shower head; water heating means in said cabinet including a heating coil; conduit means connecting the upper end of said coil to the lower portion of one of said tanks; by-pass conduit means connecting the lower end of said coil to said mixing valve and to the upper portion of said one tank to provide the thermal circulation for said coil when said mixing valve is closed; a valve adapted to close said by-pass conduit; means adjacent said coil for applying heat thereto; a conduit leading from the other of said tanks to said mixing valve; a pump connected to a source of water supply for forcing water into said tanks; and conduit means connecting said pump with both of said tanks.

2. Portable bath apparatus as defined in claim 1 including a casing surrounding said heating coil and a guard supported on said cabinet and overlying said casing to avoid the danger of a bather being burned by said water heating means.

3. Portable bath apparatus comprising a cabinet having a frame and frame supported panels, water tanks supported at the top of said cabinet by said frame, a water heater within said cabinet supported thereby and operatively connected with one of said tanks, a shower head in said cabinet connected with said tanks and said water heater; said water heater comprising a heating coil, a casing surrounding and spaced from said coil and a heating unit supported immediately below said coil; and a guard comprising a metal plate secured to said cabinet overlying and spaced from said heater casing.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
553,046	Wenger	Jan. 14, 1896
706,069	Knickerbocker	Aug. 5, 1902
1,095,633	Hildeton	May 5, 1914
1,341,485	Stimpson	May 25, 1920