

April 3, 1962

H. BLAU ET AL

3,027,568

FOOT BATHING APPARATUS

Filed Dec. 31, 1959

2 Sheets-Sheet 1

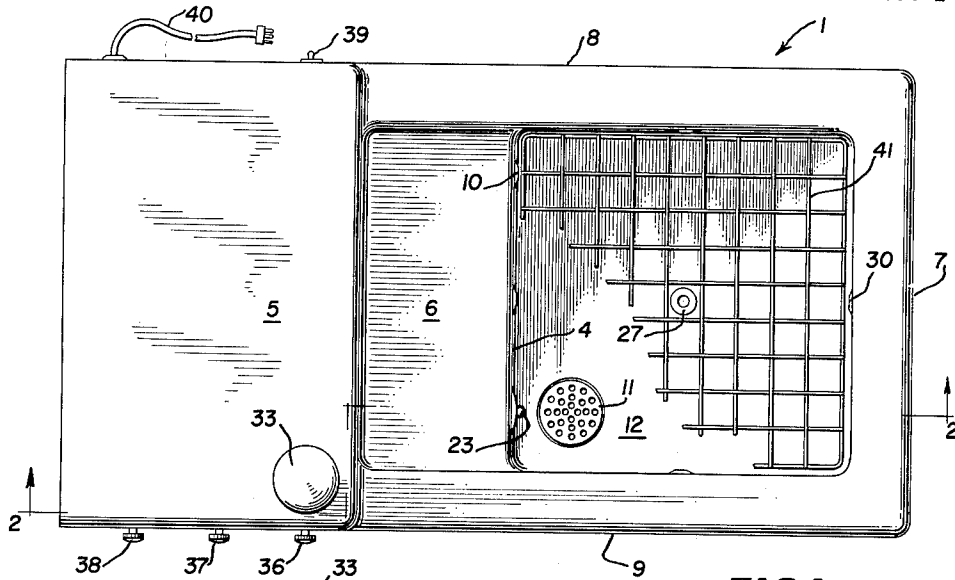


FIG. 1

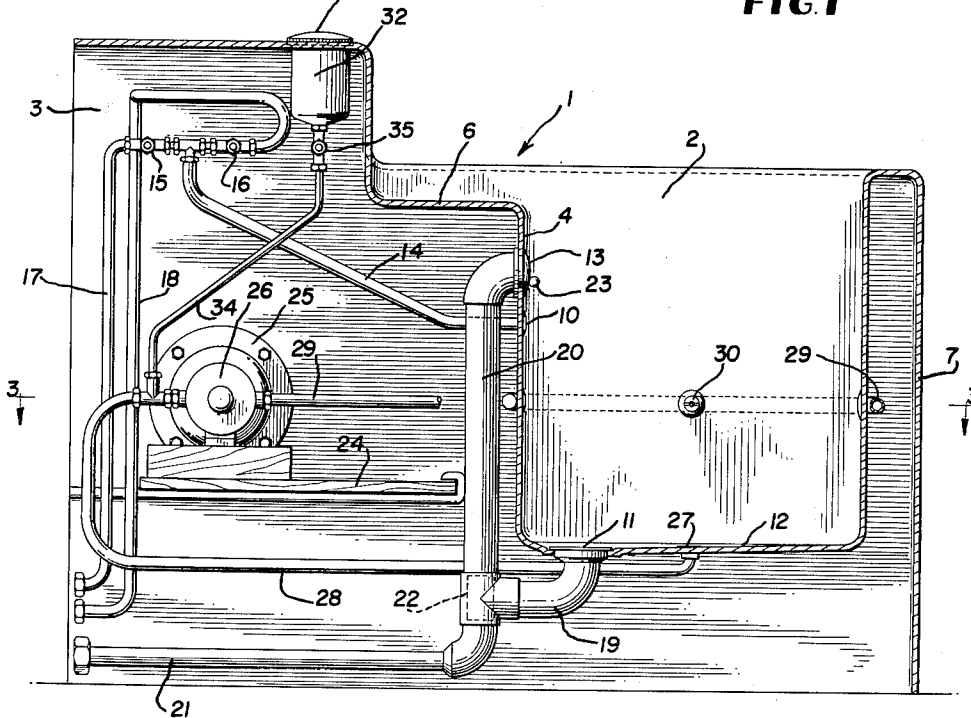


FIG. 2

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2 Sheets-Sheet 2

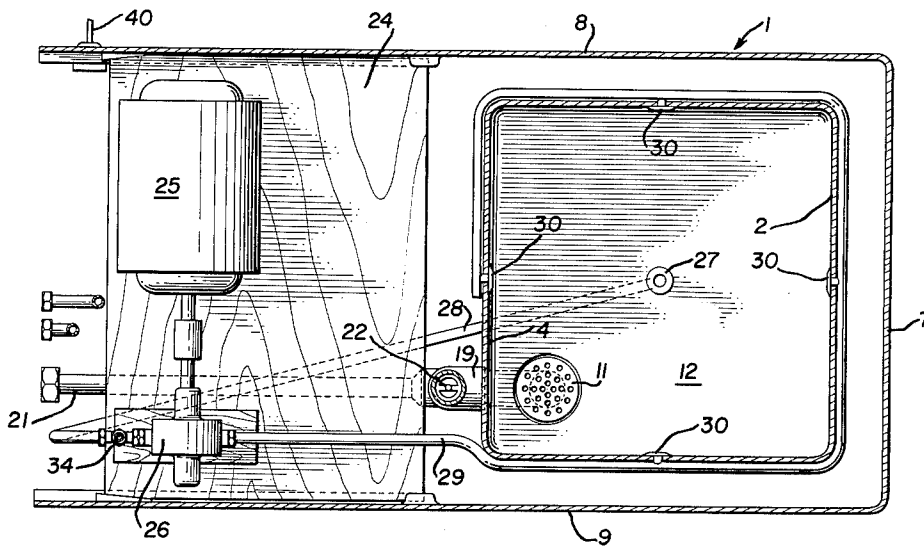


FIG. 3

FIG. 4

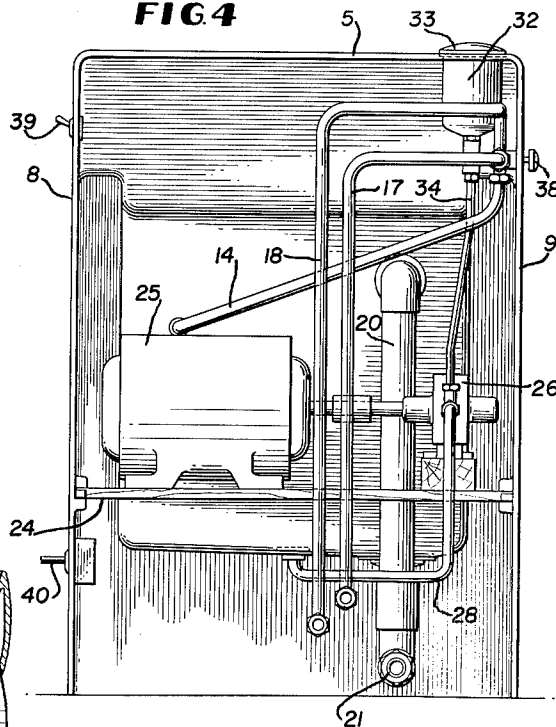


FIG. 6

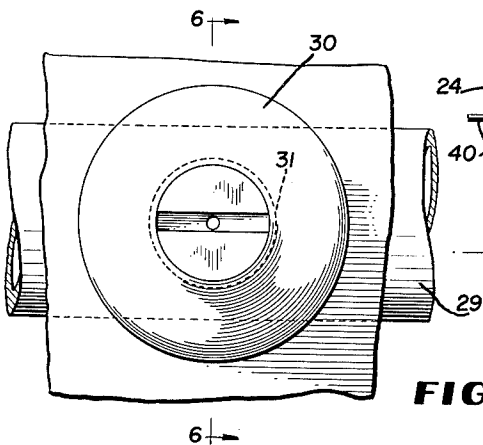
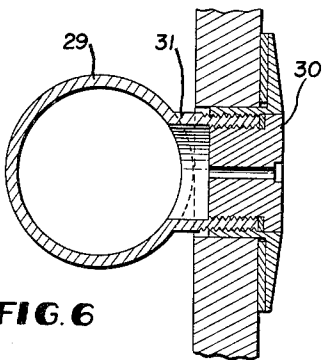


FIG. 5

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FOOT BATHING APPARATUS

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Filed Dec. 31, 1959, Ser. No. 863,237

4 Claims. (Cl. 4-182)

The present invention relates to foot bathing apparatus and more particularly provides a unitary, compact and efficient tub type receptacle adapted to be connected to household water supply pipes and electric wiring for use in cleansing the feet and legs and/or in administering mild therapeutic treatments thereto as in certain physiotherapy procedures and the like.

The structure provided by the invention comprises the combination of a basin or tub compartment for containing water and an adjoining housing providing on its top surface a seat for the person using the appliance and containing within its interior certain adjuncts of the water compartment, including a receptacle for supplying soap or some mild medicament solution and including also a power driven pump for circulating water in the compartment and agitating the same in the form of jets or streams directed against the subject's feet.

A principal object of the invention is to provide apparatus of the character indicated which will be useful, at the option of the user, in providing for simple bathing immersion of the feet and in subjecting the feet to rapid whirling action of turbulent streams of water, either plain fresh water of predetermined selected temperature or water containing soap in solution or having some mild skin or muscle treating medication dissolved or dispersed therein.

A very important object of the invention is to provide a tub type of container for immersing the feet in water which can be circulated at any predetermined degree of temperature, with considerable turbulence over the feet to produce quick cleansing action and a pronounced soothing and reviving effect particularly useful in the treatment of any tired, aching and/or swollen condition of the lower extremities.

With the foregoing and other related objects in view, a preferred embodiment of the invention is shown in the accompanying drawings in which

FIGURE 1 is a top plan view;

FIG. 2 is a longitudinal vertical cross sectional view taken on the line 2-2 of FIG. 1;

FIG. 3 is a horizontal cross sectional view taken on the line 3-3 of FIG. 2;

FIG. 4 is a rear end elevational view taken from the left hand end of FIG. 3;

FIG. 5 is a detail elevational view of one of the tub jet nozzles; and

FIG. 6 is a detail cross sectional view taken on the line 6-6 of FIG. 5.

In the illustrated embodiment of the invention, the reference numeral 1 designates generally a tub member of special shape providing a tub portion proper, basin or receptacle 2 at one end and a housing enclosure 3 at the other end. The housing enclosure is separated from the receptacle by a partition wall 4 which is directed rearwardly to form a pair of stepped top surfaces comprising a high rear horizontal cover portion 5 and an intermediate lower horizontal portion 6. The tub member may be made of sheet metal such as stainless steel, or it may be formed of cast iron finished with a surface coating of vitreous enamel, porcelain or the like in the manner commonly practiced in the manufacture of conventional bathtubs, wash basins, etc. The design preferably includes exterior downturned trimming walls like the front

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end wall 7 and the two side walls 8 and 9, all of which are hollow with the walls that define the tub being spaced inwardly from them. The rear is best left open so that the tub member can be installed with its back abutting a wall affording suitable plumbing connections as will be hereinafter described.

The tub portion proper or receptacle 2 is intended to contain water up to a limited high level, and for this purpose is provided with a water supply port 10 in the wall 4, a drain outlet 11 in the floor or bottom 12 of the receptacle, and an overflow opening 13 in the wall 4. The supply port 10 is the terminus of a mixed water supply pipe 14 that is contained in the housing enclosure 3 and leads from a pair of mixing valves 15 and 16 located respectively in cold and hot water inlet pipes 17 and 18. All of this piping is mounted in the enclosure 3, and the inlet pipes 17 and 18 terminate in the lower part of the enclosure, at the rear open end thereof, in unions that will be connected to household cold and hot water pipes issuing from the room wall against which the tub member is installed.

The drain outlet 11 in the tub bottom 12 tops a drain pipe 19, and the overflow opening 13 near the top of the tub is the terminus of an overflow drain pipe 20. The two pipes 19 and 20 are connected by a T-fitting in the housing 3 which is connected to a single discharge pipe 21 that terminates in a union in the plane of the open rear of the housing for coupling the discharge pipe to the household sanitary drain. It is convenient to equip the drain system constituted by the outlet 11 and the pipe 19 with a built-in plug, such as the hollow cylindrical sleeve 22 mounted in the overflow drain pipe 20 at the connection of the drain pipe 19. This hollow plug normally closes the pipe 19 but always permits drainage in the pipe 20 to flow through its bore. It can be elevated by manipulation of an actuating handle 23 connected to it by a linkage (not shown) and protruding at some convenient location, such as up adjacent the overflow opening 13. Thus the plug 22 can be raised to open the drain pipe 19 and so empty the tub 2, or it can be lowered to the position shown in FIG. 2 for closing the drain pipe and holding water in the tub, while in both positions of the plug the overflow pipe 20 is open for drainage of any overfilling of the tub.

The drain outlet 11 is best located in a rear corner region of the tub bottom 12, with the bottom sloping toward that corner so that all the water in the tub can be quickly discharged when the handle 23 is lifted.

It being understood that the tub 2 is filled to a level not exceeding the height of the drain opening 13 with water entering through the supply port 10, the manner in which the water is agitated and, if desired, admixed with a soap or other detergent solution or some mild medication will now be explained.

The housing enclosure 3 is provided with a platform or bed 24 at an appropriate level for mounting an electric motor 25 coupled to a pump 26. The pump inlet draws water from the tub 2 through a bottom outlet 27 and a pipe 28, and the pump discharges into a header 29 which extends around the four sides of the tub 2, in the space between the tub interior and the four walls 4, 7, 8 and 9, as best shown in FIG. 3. This header is positioned at a level about midway between the tub bottom 12 and the overflow opening 13 and it supplies four jet nozzles 30, each fixed in the approximate center portion of one of the four internal walls of the tub 2. The details of these nozzles are shown in FIGS. 5 and 6. As there depicted, each has a bore of small diameter, preferably about 1/32 inch, and comprises a plug having a face flush with the interior surface of the tub wall in which it is mounted and having a body that is screwed into a nipple 31 that

is tapped into or otherwise communicates with the header 29.

A solution reservoir 32 is mounted in the upper part of the housing enclosure 3, at one side thereof, just behind the intermediate wall 6 and protrudes through the rear cover portion 5 where it is capped by a removable cover 33 which is readily accessible for opening to fill the reservoir with soap solution, mild medication, detergent liquid or the like. The reservoir 32 is connected by a pipe 34 with the inlet side of the pump 24, and flow through this pipe is controlled by a valve 35 having a handle 36 extending through the side wall 9 of the housing enclosure.

Adjacent to the valve handle 36 are two similar handles 37, 38, operating respectively the hot and cold water valves 16 and 15. In the illustrated embodiment of the invention an electric switch 39 and cord 40 are mounted on the side wall 9 of the housing enclosure for controlling and energizing, respectively, the pump motor 25. This provides a desirable balance with the valves 36, 37, 38 which are mounted on the opposite side wall, and is preferred for installations permitting this design. However, for installations in a corner at the intersection of two room walls, where either the wall 8 or the wall 9, as well as the open rear of the tub member 1, would be engaged with a room wall, the tub member shell would be redesigned with all the elements 36, 37, 38, 39, 40, mounted on that one of the walls 8, 9 which would be outermost in the room.

The foregoing being the construction of the new device, its operation and use are as follows:

The person using the tub sits on the narrow horizontal surface 6 that connects the vertical portions of the partition wall 4 separating the housing enclosure 3 from the tub 2, with his feet in the tub. He operates the valve handles 37, 38 to fill the tub up to substantially the level of the overflow opening 13 with water of desired temperature, preferably of course, of relatively high temperature. The drain plug 22 being kept closed, the incoming water is turned off and the pump motor 25 is turned on by operation of the switch 39. Immediately the water in the tub is recirculated through the outlet 27, pipe 28 and header 29, and returns to the tub in the form of strong jet streams issuing from the four nozzles 30. These streams, being all below the water level in the tub, set up a great turbulence in the water, which soon assumes a whirling action formed by streams converging at about the center of the tub plan, where the streams impinge on the feet, ankles and legs. If desired, the valve 35 may be opened by the handle 36 to admit soap or other solution to the tub, in any quantity and proportion.

The pattern of the turbulence in the water is continuing and substantially constant inasmuch as the jets are fixed in direction and velocity. The arrangement is symmetrical, with one jet centered or substantially centered in each of the four walls that constitute the generally square enclosure of the tub. Hence all surfaces of the feet and ankles and the calves of the legs are continuously rubbed by moving water that is practically unchanging in direction, force and velocity. It is a simple matter to learn how to place the feet in the turbulent body of water to obtain the maximum comfort and best general effect by causing the fixed streams to impinge exactly where desired on the front, back or sides of the feet, ankles or legs. Of course the person taking the treatment may move his feet from time to time to alter the effect. This is easily accomplished because the turbulence pattern remains constant and all that is necessary is to shift the feet to obtain any desired placement of impingement and any desired force of impact (by moving the feet closer to or farther from one of the nozzles).

At any time when the temperature of the water in the tub cools to an undesired low degree, more or less of the water can be drained by opening the plug 22 for a time

and replenishing water of selected temperature by operation of the mixing valves 15, 16.

At the end of the treatment the pump is stopped, and the tub is emptied by lifting the sleeve 22 to open the drain pipe 19.

The foregoing being the principal elements and features of the preferred construction, it will be understood that numerous changes in details and additions of further adjuncts may be made within the spirit of the invention. Thus, for example, a floor grating as shown at 41 in FIG. 1 may be mounted in the tub bottom to prevent slippage of the feet on the smooth, wet bottom of the tub. It will be recognized that such additions have no bearing on or part in the invention broadly considered.

Furthermore, while dimensions of course form no part of the inventive concept, it may be helpful to an understanding of the invention to state that a preferred embodiment has overall dimensions of 36 inches in length, 19 inches in width, and heights of 21¾ inches at the end wall 7, 20¼ inches at the seat 6 and 26¾ inches at the rear cover portion 5. The tub 2 is square in plan, 14½ inches to a side, with a maximum depth of 16 inches at the end wall 7. The seat 6 is 6½ inches wide (front to back dimension) and 14 inches long (transverse dimension between walls 8 and 9). The width of the rear cover portion 5, from the back of the seat 6 to the plane of the open rear end of the housing enclosure 3, is 12½ inches, and the length of the rear cover portion, between side walls 8 and 9, is 19 inches, i.e., the full overall width of the structure.

A device made in these dimensions and proportions has been found to be entirely satisfactory and successful in use and hence these dimensions and proportions are recommended. Of course they may be varied without departing from the spirit of the invention.

We claim:

1. Foot bathing apparatus comprising a metallic structure having external wall means and a transverse partition dividing the structure into an open-topped tub enclosure and a contiguous covered housing, said partition comprising horizontally offset substantially vertical upper and lower walls connected by an intermediate substantially horizontal portion, the horizontal portion of said partition comprising a seat, the upper wall comprising a back for said seat, and the lower wall cooperating with the external walls of the structure to define the tub enclosure, water supply piping and pump means contained within the covered housing, jet nozzles mounted in the tub enclosure connected to said piping and pump means for delivering streams of water to the tub enclosure, an overflow opening in said lower wall below the seat and above the nozzles for maintaining the surface of a body of water in the tub enclosure above the nozzles so that the body of water is agitated by jets issuing from the nozzles, and pump-controlling switch means and water-controlling valve means mounted on said housing adjacent said seat back for ready access by a person seated on said seat with his feet in the tub enclosure.

2. Foot bathing apparatus as claimed in claim 1 including a drain in the bottom of the tub enclosure and an overflow pipe in the lower wall of said partition connected to said overflow opening and said drain in the lower portion of said housing.

3. Foot bathing apparatus as claimed in claim 1 including a drain in the bottom of the tub enclosure, an overflow pipe in the lower wall of said partition connected to said overflow opening, a connection between said drain and overflow pipe in the lower portion of said housing, a valve in said connection controlling said drain, and means for actuating said valve mounted on the partition adjacent the opening to the overflow pipe.

4. Foot bathing apparatus as claimed in claim 1 including a solution reservoir in the housing having a removable cover in the top of the housing, a pipe connecting the reservoir to the piping in the housing, and a valve

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controlling flow through said pipe mounted on said housing adjacent said seat back.

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