March 15, 1966 J. H. EVERSTON 3,240,208

THERAPEUTIC APPARATUS FOR BATHTUB USE

Filed July 3, 1963

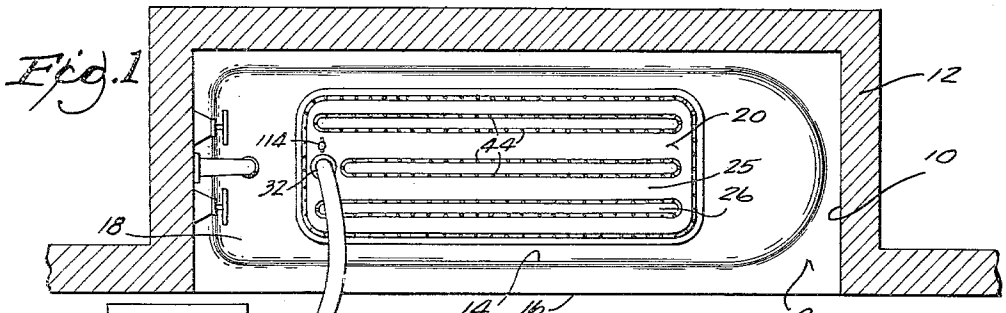


Fig. 1

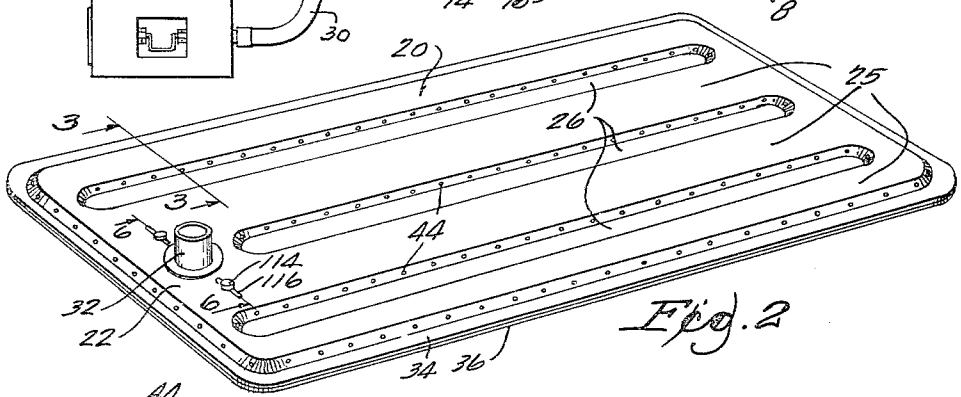


Fig. 2

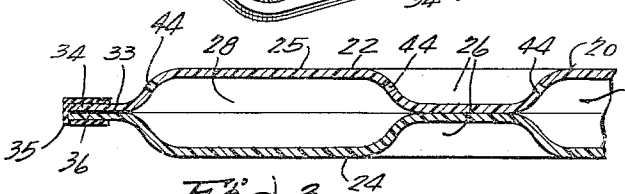


Fig. 3

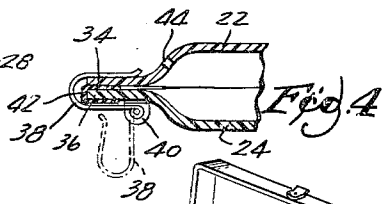


Fig. 4

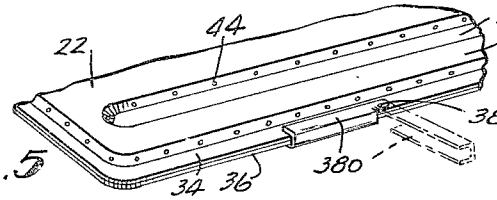


Fig. 5

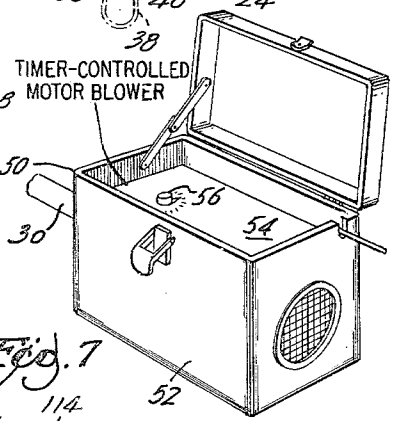


Fig. 7

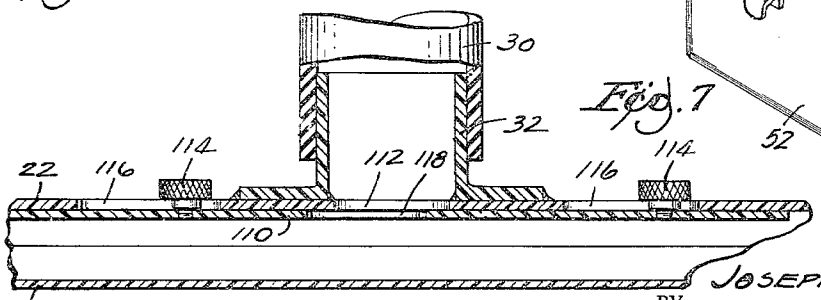


Fig. 6

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THERAPEUTIC APPARATUS FOR BATHTUB USE

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18 Claims. (Cl. 128—66)

The present application is a continuation-in-part of my application Serial No. 238,221, filed November 16, 1962 and now abandoned.

This invention relates to a therapeutic apparatus for bathtub use.

The invention seeks to make available relatively low-expense equipment which will enable the average home owner to obtain in his own bathtub the therapeutic advantages of air and water in motion. A panel upon which the user can sit or lie is introduced into the tub and desirably provided with means for anchoring it, notwithstanding the buoyancy produced by the introduction of air into passages with which the panel is provided.

In a preferred embodmient, this panel includes similar top and bottom walls having complementary spacing means for separating the walls from each other and registering channels to form interior passages, the top wall having ports of any desired form opening from the passages for the escape of air. The panel may have bosses upon which the user can be seated. Desirably the ports for the escape of air are located in the sides of these bosses to open within the respective channels. Means is provided for delivering air under pressure to the passages in the interior of the panel.

The upper and lower panel walls have registering marginal flanges either cemented together or otherwise connected. These flanges may be, and desirably are, embraced by a binding which is substantially continuous about the panel.

In one embodiment, clips are used for connecting the elements of the panel so that the upper and lower panel walls are separable with ease to facilitate cleaning. The motor blower which supplies air to the passages within the panel may be permanently mounted on the wall or disposed in a case which the user may place on the floor near the tub in which the panel is used. In either event, it is preferred that the motor be controlled by a timer, making it unnecessary for the user to manipulate a switch to terminate the operation of the device. In the preferred construction, all of the electrical connections are completely enclosed beneath a partition on which the length of hose required to reach the panel can be stored when the panel is not in use. No control is required to pass through this partition excepting only the setting knob for the timer which starts the motor blower and determines the period of operation thereof.

In the drawings:

FIG. 1 is a view diagrammatically showing my therapeutic apparatus installed in a conventional bathtub of the alcove type, the wall forming the alcove being illustrated in section, the tub and therapeutic apparatus being shown in plan and the timer controlled motor blower unit being shown in perspective.

FIG. 2 is an enlarged view in perspective illustrating the perforated panel per se.

FIG. 3 is an enlarged fragmentary detail view in cross section on the line 3—3 of FIG. 2 showing the preferred connection between the marginal flanges of the upper and lower wall portions of the panel of FIG. 2.

FIG. 4 is a view similer to FIG. 3 showing the clip used to provide a detachable connection between the upper and lower walls.

FIG. 5 is a fragmentary detail view in perspective showing a modified fastener embodiment substituted for the fastener illustrated in FIG. 4.

FIG. 6 is an enlarged detail view taken in section on the line 6—6 of FIG. 2.

FIG. 7 is a fragmentary detail view of a case for the timer controlled motor blower.

The bathtub **8** is generally conventional, being illustrated merely to exemplify the use of the panel. This tub is mounted in an alcove **10** provided by the building wall **12**. The invention is not concerned specifically with the type of tub since the apparatus is designed for use in a wide variety of bathtub installations. The tub shown has an interior wall **14** and an exterior apron or finishing wall **16** and a bottom wall **18**, all as illustrated in FIG.1.

The panel generically designated by reference character **20** is made of plastic or semi-flexible synthetic rubber material, or the like, sufficiently stiff to hold its form and sufficiently soft so that the user will find it comfortable to sit upon, notwithstanding the ribs which, in this embodiment, provide passages for air. The panel **20** shown in FIGS. 1, 2 and 3 comprises a top wall **22** and a bottom wall **24** made on the same molds, the two walls being generally identical in form but assembled in relatively inverted positions. Each of these walls has raised bosses **25**, forming channels **26** which mate as shown in FIG. 3 to provide support for the top wall from the bottom wall while providing air passages **28** which communicate around the ends of the channels and to which air may be supplied from any appropriate source through a supply line represented by an air supply hose **30** connected to the panel by a separately fabricated coupling **32** cemented or otherwise fastened to top wall **22**.

The air admitted to the passages **28** must be confined by means which connects the upper and lower walls **22** and **24**. The connection may be permanent or it may be readily releasable in order to enable the interior surfaces to be cleaned. In the preferred arrangement shown in FIGS. 2 and 3, cement **33** connects the flanges **34** and **36** at the margins of the upper and lower wall. The margins may conveniently be finished by embracing them in a channel **35** of rubber or plastic as best shown in FIG. 3. A variety of releasable connecting devices are also suitable, two different devices being illustrated in FIGS. 4 and 5.

In the construction shown in FIG. 4, spring clips **38** are pivoted to fittings **40** connected with the lower wall **24**, the clips being movable between the open position shown in dotted lines and the closed position shown in full lines in FIG. 3. In the closed position, the clip holds the flange portion **34** of the upper wall tightly engaged with a seal **42** disposed on the flange portion **36** of the lower wall. As many of these clips are used as are required. In the construction shown in FIG. 5, the clip **380** is a channel pivoted at **381** to either of the walls for movement to and from the clamping position shown in full lines.

Regardless of the manner in which the upper and lower components **22** and **24** are connected, the assembled walls confine air in the passages **28**, the lateral surfaces of the upper wall **22** adjacent the depressed areas **26** and flange **34** being provided at appropriate intervals with orifices **44** through which the air can escape in the form of bubbles into the water of the tub **8**. These openings are preferably in the sides rather than the tops of the

relatively broad bosses **25** upon which the user is lying or seated.

It is frequently desirable to control the amount of turbulence produced in the water of the tub in which the panel is used. Instead of varying the rate of operation of the blower or using a variable shutoff valve in the supply line as a means of varying the air pressure and the jetting effect of the bubbles issuing from the orifices, it is desirable that the user have means at hand within the tub for such control.

FIG. 6 shows a desirable control arrangement operable from within the tub and usable with any embodiment of the invention. A slide valve **110** is disposed beneath the top wall **22** to open and close port **112** through which the hose fitting **32** communicates with the interior of the panel. As an example of one convenient means for guiding the slide valve, the valve may have headed studs **114** guided in the slots **116** of the wall **22** and one of these may serve as a handle for manipulating the slide to cause its port **118** to register to a greater or lesser degree (or not at all) with the port **112** through which the air is admitted. The heads of the studs **114** serve as handles in the manipulation of the valve. In the normal use of the device, the slide valve **110** and the controls **114** thereof are well below water level and the water tends, therefore, to seal the valve.

It will be observed that the upper and lower wall portions of the panel can be made on a single mold or matrix to provide abutting surfaces and intervening channels which register when the wall elements are assembled, the arrangement being such that the resulting passages are in full communication with each other and with the air inlet. The flow of air can readily be controlled by the user from within the tub and the distribution of the air bubbles throughout the tub cannot be interfered with by the disposition of the user's body on the panel, the orifices being located in lateral surfaces below the level of the surfaces which support the user's weight.

Moreover, neither for the purpose of controlling the air or for the purpose of terminating the treatment is it necessary for the user to leave the tub or to manipulate any external connection or expose himself to the possibility of electrical shock.

The preferred air supply is a timer-controlled motor blower **50** in a case **52** which contains a horizontal partition **54** above which is located the timer control knob **56** (FIG. 7).

I claim:

1. In a therapeutic appliance, a panel for bathtub use comprising like upper and lower wall portions adapted to be made on the same mold and assembled in mutually having complementary marginal flanges in abutment and having complementary channels in abutment serving as inverted position, the said upper and lower wall portions spacers, means for holding the margin flanges together, other areas of said wall portions constituting mutually spaced bosses providing air passages within the panel between the abutting flanges and channels and constituting a system of communicating passages within the panel, the surfaces of the bosses of the lower wall portion being adapted to rest upon the bottom of the tub in which the panel is used and the surfaces of the bosses of the upper wall portion serving to support the user, the upper wall portion having distributed air escape orifices, and one of said wall portions having a connection for the introduction of air into one of said passages for escape through said orifices.

2. A therapeutic appliance according to claim **1** in which the said orifices are located in the sides of the boss portions of the upper wall.

3. A therapeutic appliance according to claim **1** in which the upper and lower wall portion flanges are continuous about the margins of the panel, and means for cementitiously connecting the flanges of the upper wall portions with those of the lower wall portion.

4. A therapeutic appliance according to claim **1** in which a channel continuous about said panel confines the flanges of the upper and lower wall portions.

5. A therapeutic appliance according to claim **1** in which the upper and lower wall portions are freely separable for cleaning and are provided with clip means for detachably connecting their abutting flanges.

6. A therapeutic appliance according to claim **1** in combination with air supply means having a hose attached to the said connection for the introduction of air, said supply means including a motor-blower having a timer for controlling its period of operation.

7. A therapeutic appliance according to claim **6** in which said air supply means comprises a case having a horizontal partition above its said motor blower, said timer having a control extending through said partition and the case including space above the partition for the storage of said hose.

8. A therapeutic appliance for bathtub use comprising a panel having upper and lower wall portions of like form in plan and cross section and assembled in mutually inverted positions, said wall portions having complementary marginal flanges and means connecting said flanges, and further having complementary channels and intervening bosses, the channels being in engagement and the bosses being spaced to form interior passages and interconnected about the channels to constitute an air distributing system within the panel, and means for providing an air supply connection to a passage of said system, the sides of the bosses of the upper wall portion having air escape apertures.

9. A therapeutic appliance according to claim **8** which includes means immediately adjacent the panel and in a position to be submerged in the use of the panel for controlling the flow of air through said connection into the air distributing system of the panel.

10. A therapeutic appliance according to claim **9** in which said means comprises a slide valve disposed between the upper and lower wall portions of the panel and having relatively ported and unported areas selectively registrable with said air supply connection, the panel having means guiding said valve for reciprocation with respect to said connection.

11. A therapeutic appliance according to claim **9** in which the means for controlling flow comprises an escape port with which said air supply connection is provided adjacent the panel and a valve having means mounting it for movement across said port and accessible to a user of the panel.

12. A therapeutic appliance according to claim **9** in which the upper and lower wall portions are separable for cleaning, one of said wall portions having a clip pivoted to a margin thereof and movable to and from connection with the margin of the other wall portion.

13. A therapeutic appliance according to claim **12** in further combination with means providing a seal between the margins of the separable wall portions.

14. A therapeutic appliance for bathtub use comprising a panel having upper and lower wall portions in detachable connection and of identical form in plan and cross section, said wall portions having complementary oppositely convex channels oppositely engaged and forming passages interconnected in an air distributing pattern, means for providing an air supply connection to said passages, one of said wall portions having air escape apertures, and means for the marginal connection of said wall portions.

15. An appliance according to claim **14** in which the means connecting the wall portions comprises clips.

16. An appliance according to claim **14** in further combination with means for providing a seal around said wall portions for retention of air in said passages against substantial escape at points other than said apertures.

17. An appliance according to claim **14** in which the air-introducing means comprises a fitting attached to one

of said wall members and having a hose connection, and said fitting has a lateral air escape port and an encircling valve ring movable across said port for varying the area thereof which is open for the escape of air.

18. An appliance according to claim 14 in which one of said members has a port through which the air-producing means communicates with the air passages, means for supplying air through said port, and a slide valve having means guiding it for reciprocation with respect to the member having the port, said valve including portions movable across the port for varying the extent of

the opening thereof and thereby varying the amount of air admitted to said passages to bubble from said ports.

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