May 15, 1962 W. KAPNICK ETAL 3,034,139

PORTABLE WHIRLPOOL BATH DEVICE

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FIG. 1

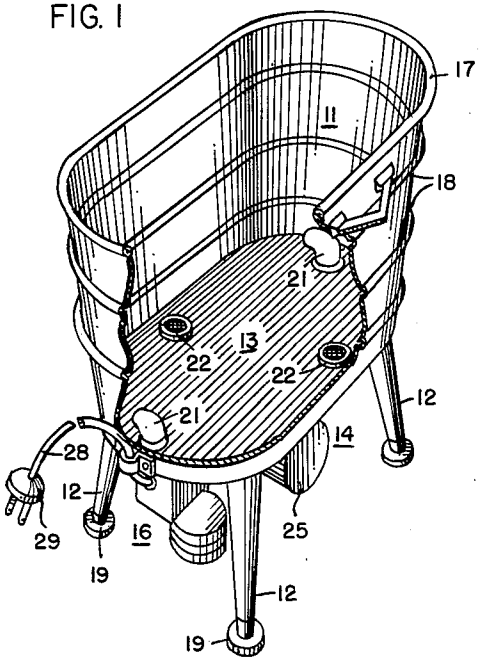


FIG. 2

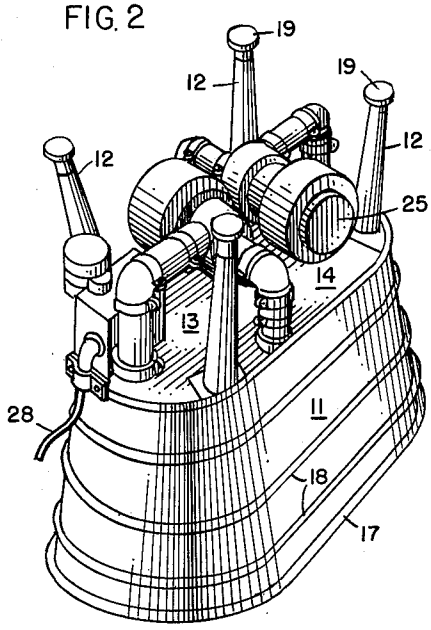


FIG. 3

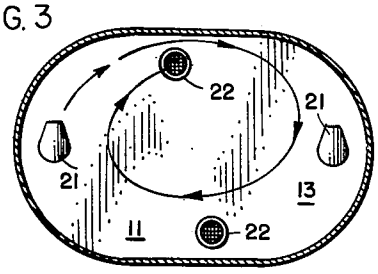


FIG. 4

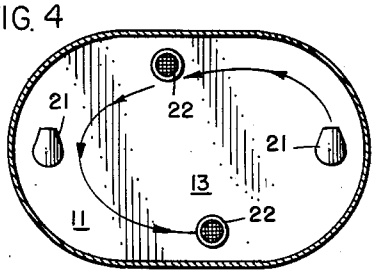


FIG. 5

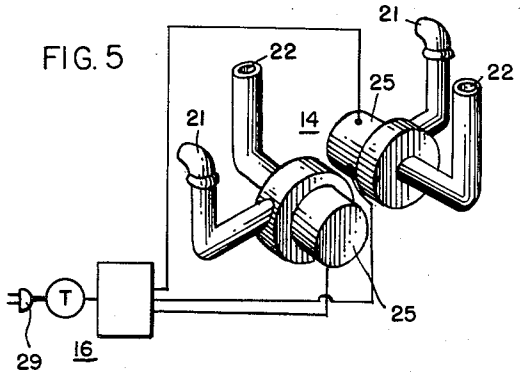
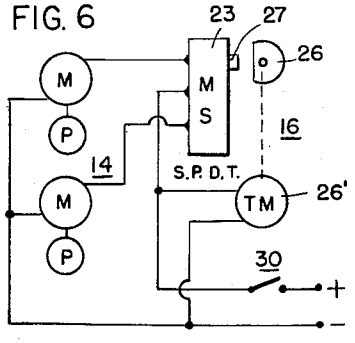


FIG. 6



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FIG. 7

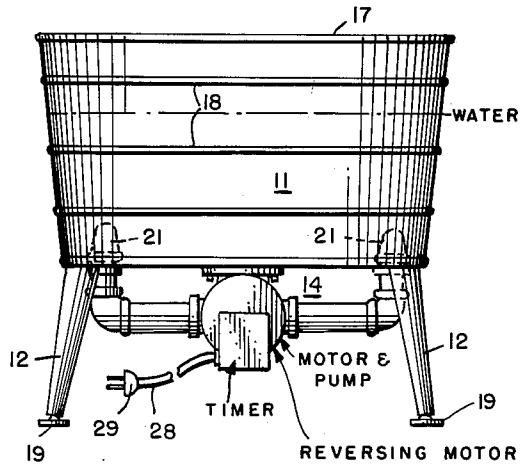


FIG. 8

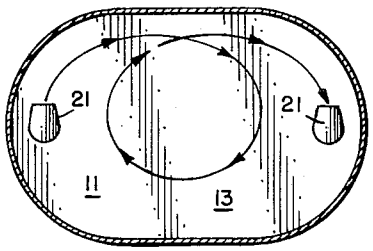


FIG. 9

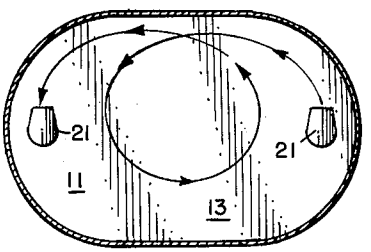
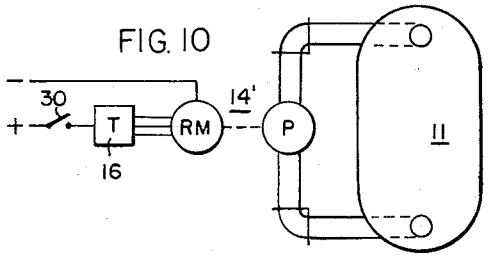


FIG. 10



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3,034,139

PORTABLE WHIRLPOOL BATH DEVICE

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Filed Oct. 2, 1961, Ser. No. 142,067
5 Claims. (Cl. 4—178)

This invention relates to portable whirlpool bath devices used for hydrotherapeutic treatment of certain types of physical ailments.

It is well known that certain physical ailments or conditions of the human body respond to hydrotherapeutic treatment through the use of what is commonly referred to as whirlpool baths. The equipment for such treatment involves a container of water with facilities for effecting the vigorous circulation of the water within the container. As a rule such equipment is available only in hospitals, clinics and/or doctor's offices. Generally, the container is in the nature of a bathtub dimensioned to accommodate the entire body of the patient. Means are provided for causing a forced unidirectional circulatory movement of the water around the patient reclining in the container.

Beneficial results of such hydrotherapeutic treatments often depend upon the frequency with which they are taken over a period of time. Obviously, this makes repeated trips of a patient to the hospital, clinic and/or doctor's office a subject of considerable inconvenience and/or expense. For that reason the frequency of treatments may be curtailed much over the minimum required for the best interests of the patient.

The main objects of this invention are to provide an improved whirlpool bath device especially adapted for use by a patient in the home; to provide an improved form of conveniently-portable whirlpool bath device; to provide improved means for positively controlling the timed duration of a recurring reverse cyclical flow of the water in the container; to provide an improved portable, home-use whirlpool bath device with attached time-controlled water circulating means so compactly structured and assembled as to make its manufacture economical, its use more facile than prior types and the results equally effective, if not more so, as that obtainable with any of the devices heretofore available, and to provide a device of this character which is simple in construction and operation and inexpensive to manufacture.

In the adaptation shown in the accompanying drawings;

FIGURE 1 is a perspective view of an improved whirlpool bath device constructed in accordance with this invention, a part of the container wall being broken away to indicate the arrangement of the water ports in the bottom of the container devised to secure the whirling flow of water in the container.

FIG. 2 is a bottom perspective of the device shown in FIG. 1 indicating the arrangement of the motor-driven pump-means for circulating the water through the container.

FIGS. 3 and 4 are horizontal, sectional views of the container shown in FIG. 1, taken just above the bottom of the container, and indicating how the arrangement of the water ports insure the reversal of the whirling water flow in the container;

FIG. 5 is a fragmentary, perspective view of the dual motor-driven pump-means shown in FIG. 2 and indicating the electrical connections thereto;

FIG. 6 is a diagrammatic view of the timer-controlled electrical circuit which regulates the periodic alternate operation of the dual pump-means;

FIG. 7 is a side elevation of a modified form of whirlpool device constructed in accordance with this invention;

FIGS. 8 and 9 are horizontal sectional views of the adaptation shown in FIG. 7, taken just above the bottom of the container, and indicating the arrangement of water ports for effecting the reversal of the whirling water flow in the container; and

FIG. 10 is a diagrammatic view illustrating the arrangement of the timer-controlled reversible motor-driven pump for causing the reverse cyclical flow of water in the container.

The essential concept of this invention involves a container mounted on legs and suspending from its bottom timer-controlled motor-driven pump-means connected to container inlet and outlet ports to permit use of the device for predetermined periods of reversible cyclical water flow in the container, all the parts being dimensioned and compactly arranged to permit ready portability by the user thereof.

A whirlpool bath device embodying the foregoing concept comprises a container **11** mounted on legs **12** and having the hereinafter explained water-flow ports in the bottom **13** and suspending from the bottom **13** motor-driven pump-means **14** the operation of which is controlled by timer mechanism **16**. The invention resides in the concept for their assembly to provide a compact portable whirlpool bath for use in the home by a patient as he feels the need therefor in the treatment of some physical ailment amelioration of which is effected by the vigorous whirling of temperatured water about the affected areas of the body, most often the legs and arms, first in one direction and then in the opposite direction to thoroughly massage the part treated.

The container **11**, obviously, could be any available or specially-formed article. The herein shown container **11** is a metal unit conventionally marketed as a "foot-bath" tub. As here shown it is substantially elliptical in contour with upwardly-tapering walls and of a depth approximately the same as its width but a bit more than its length. It is formed with reinforcing rim **17** and ribs **18**.

The legs **12** here are shown of tapered form terminating in conventional friction pads **19**. The legs **12** are anchored to the container bottom **13** and angled outwardly therefrom to insure non-tipping stability to the container. The legs **12** are of a length to support the container **11** either on the floor, at a height most convenient for placing one's feet and ankles in the container when one is sitting on a chair, or on a stand or table, at a height most convenient for one to repose an arm and/or a hand in the container **12** when one is sitting on an adjacent stool or chair.

A slightly different arrangement of the water flow ports characterize the two adaptations of this whirlpool bath device, as is clearly indicated in FIGS. 1–6 and 7–10, respectively.

In either adaptation, a pair of ports **21** are arranged

diametrically opposite each other in the container bottom **13**. As herein shown, these ports **21** are in the form of conventional pipe elbows of the male-female thread type, positioned with their horizontally-disposed restricted openings in the same direction substantially normal to the longer diameter of the container **11**. These port openings are spaced a short distance above the container bottom **13**. It should be obvious that a jet flow water action is most desired.

In the adaptation shown in FIGS. 1–6 these ports **21** always serve for both the inlet and outlet of water to the container **11**, the water issuing from one or the other as pressured by one or the other of the individual pumps of the dual motor-driven pump-means **14**, under the control of the timer mechanism **16**.

With this pair of ports **21**, in the adaptation of FIGS. 1–6, is a pair of outlet ports **22** located in the container bottom **13** respectively intermediate the inlet ports **21** and likewise closely adjacent the vertical wall of the container **11**. Water is drawn from the container **11** by one or the other of the individual pumps of the motor-driven pump-means **14**, through the outlet port **22** which is circumferentially at the greatest distance from the inlet port **21** through which water is being injected under high pressure into the container **11**, as indicated by the arrows in FIGS. 3 and 4, respectively, by the pump **14**.

In the adaptation shown in FIGS. 7–10 the pair of ports **21** alternate as inlet and outlet ports as determined by the constantly timed reversing operation of the motor-driven pump-means **14**. Here the flow of water enters one port **21** and by virtue of its impingement upon the opposed curved walls of the container **11** creates a rotary movement of the water in the container. The amount of water ejected through the port **21** is equal to the amount of water drawn by the suction side of the pump **14** from the other port **21** to the pump-means **14**. The nature of this flow is of course whirling or whirl-pool action.

The motor-driven pump-means **14**, in either of the adaptations, comprises conventional fractional motors directly connected to the pumps. A fan **25** on each motor shaft operating within a shield may be used to keep the motor from overheating during an extended use.

In the adaptation shown in FIGS. 1–6, the two pumps are connected by suitable jet nozzles and fittings each to one of the ports **21** and one of the ports **22**, so that one pump is used in connection with one set of water inlet and outlet ports while the other pump is used with the other set of inlet and outlet ports.

In the adaptation shown in FIGS. 7–10 the one pump of the motor-driven pump-means **14** is connected by conventional pipe nipples and fittings to the two jet ports **21**, whereby a reversal of the single pump caused by reversing the motor **14'** likewise causes a reverse in-and-out flow of water through the respective ports **21**, as shown by the arrows in FIGS. 8 and 9.

The timer-mechanism **16** is one or another of two types conventionally available on the open market.

For the adaptation shown in FIGS. 1–6 the form and functioning of the timer mechanism **16** is indicated in FIG. 6. This comprises a three-pole microswitch **23** and a timer **26'** motor mounting a cam **26** eccentrically positioned to alternately contact and release a pin **27** to alternate the microswitch **23** to control the circuit to one or the other of the two units of the motor-driven pump-means **14**.

For the adaptation shown in FIGS. 7–10 the timer-mechanism **16**, of the conventional type, has the motor geared to actuate a single-pole double-throw switch to cause a reversing current flow to the reversible motor of the pump-means **14**.

Current for the motor-driven pump-means **14** is provided through a cord **28** terminating in a plug **29** for connection to a conventional wall receptacle or an extension cord, and an on-off switch **30** may be placed in the circuit.

This improved whirlpool device is used in the following manner:

The device is placed on the floor or on a bench or table according to the desires of the patient using the device. A quantity of water, properly temperatured, is placed in the receptacle **11** up to a level about as indicated in FIG. 7. The plug **29** is inserted into an appropriate wall receptacle or extension cord to obtain a source of current supply. Immediately, the motor-driven pump-means **14** is activated, and continues for any desired length of time as determined by the timer **16**, to effect a periodic reversing cyclical flow of water in the interior of the container **11**.

It should now be obvious that the end result to be accomplished by this invention is to achieve a portable hydrotherapeutic device which will, by alternately changing the direction of flow of water under pressure in the tank, in a timed relationship, cause effective treatment of the parts of the human body disposed in the tank interior.

It is to be understood that details of the device may be altered or omitted without departing from the spirit of this invention.

We claim:

1. A whirlpool bath device comprising, a container having water inlet and outlet positioned to effect a whirling flow of water in the container, motor-driven pump-means connected to the container ports, and timer-actuated electrical-control mechanism associated with said motor-driven pump-means for causing timed reverse cyclical whirling flow of the water under high pressure in said container.

2. A whirlpool bath device as set forth in claim 1 wherein the container is substantially elliptical in contour and supported on legs, the container and legs being respectively dimensioned to make the device conveniently portable.

3. A portable whirlpool bath device comprising, a container of substantially elliptical contour

(*a*) supported on legs,

(*b*) dimensioned for convenient positioning therein of a patient's legs or arms,

(*c*) having water inlet and outlet ports in the bottom disposed to insure a whirling flow of water in the container,

motor-driven pump-means

(*a*) suspended from the bottom of the container and

(*b*) connected to the container ports, and

time-actuated electrical-control mechanism connected to the motor-driven pump-means for effecting a timed reverse cyclical whirling flow of water in the container.

4. A portable whirlpool bath device comprising, a container of substantially elliptical contour

(*a*) supported on legs,

(*b*) dimensioned for convenient positioning therein of a patient's legs or arms,

a pair of horizontally-open water-inlet ports diametrically positioned and disposed above the bottom of the container,

a pair of vertically-open water-outlet ports in the container bottom intermediate the inlet ports,

motor-driven pump-means

(*a*) suspended from the bottom of the container and

(*b*) connected to the container ports, and

timer-actuated electrical-control mechanism connected to the motor-driven pump-means for effecting a timed reverse cyclical whirling flow of water in the container.

5. A portable whirlpool bath device comprising, a container of substantially elliptical contour,

(*a*) supported on legs,

(*b*) dimensioned for convenient positioning therein of a patient's legs or arms,

a pair of diametrically-positioned ports in the bottom of the container opening horizontally above the container bottom, in the same direction substantially normal to the longer dimension of the container,

a reversible pump

(*a*) suspended from the bottom of the container and

(*b*) connected to the container ports,

a reversible electrical motor connected to operate the pump, and

time-actuated electrical-control mechanism connected to the motor for effecting a timed reverse cyclical whirling flow of water in the container.

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