Aug. 2, 1966 J. H. EVERSTON 3,263,678

THERAPEUTIC BATHTUB HAVING PLURAL ASPIRATING FITTINGS

Filed June 19, 1965 2 Sheets-Sheet 1

Fig. 2

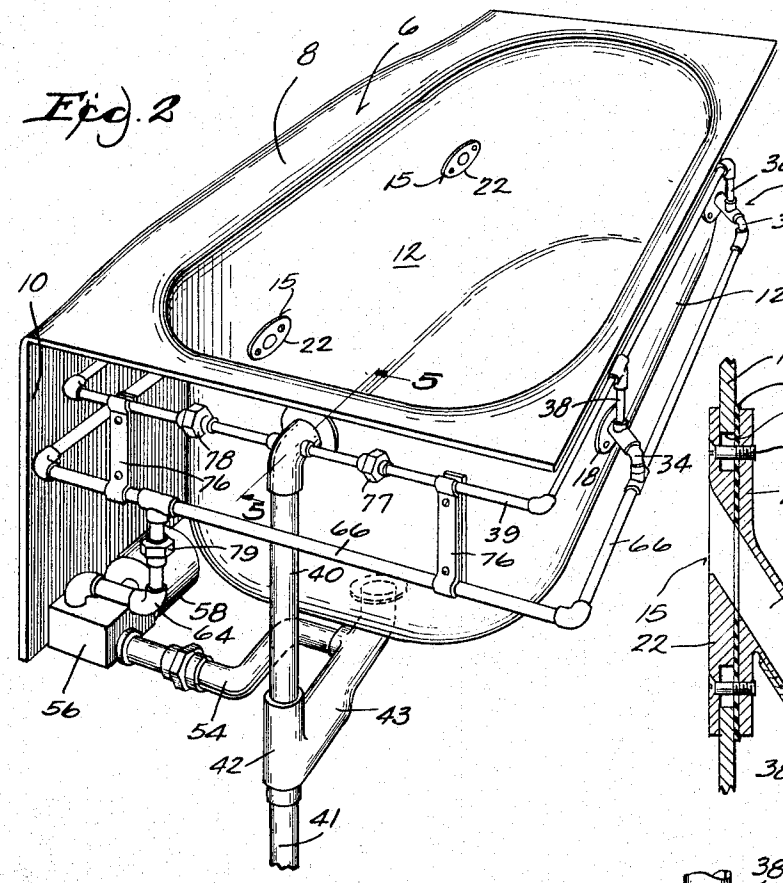


Fig. 4

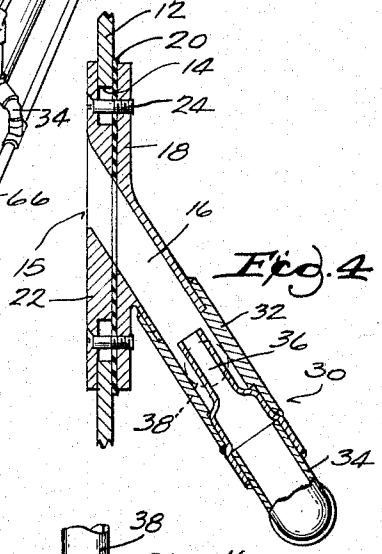
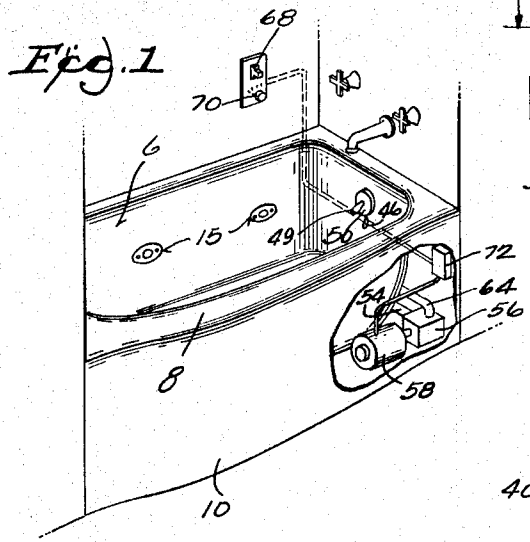


Fig. 1



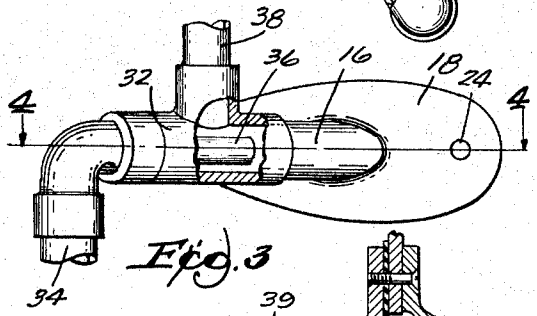
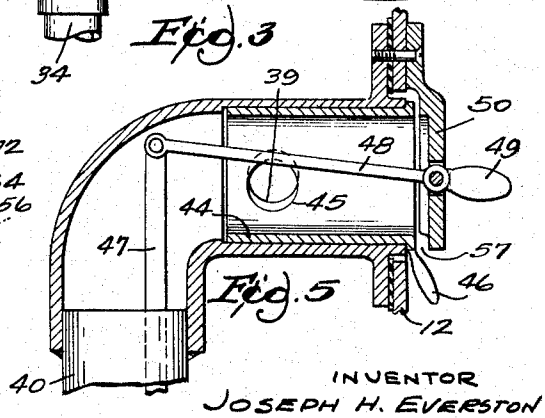


Fig. 3

Fig. 5



INVENTOR
JOSEPH H. EVERSTON
BY Wheeler, Wheeler & Wheeler
ATTORNEYS

Aug. 2, 1966 J. H. EVERSTON 3,263,678

THERAPEUTIC BATHTUB HAVING PLURAL ASPIRATING FITTINGS

Filed June 19, 1965 2 Sheets-Sheet 2

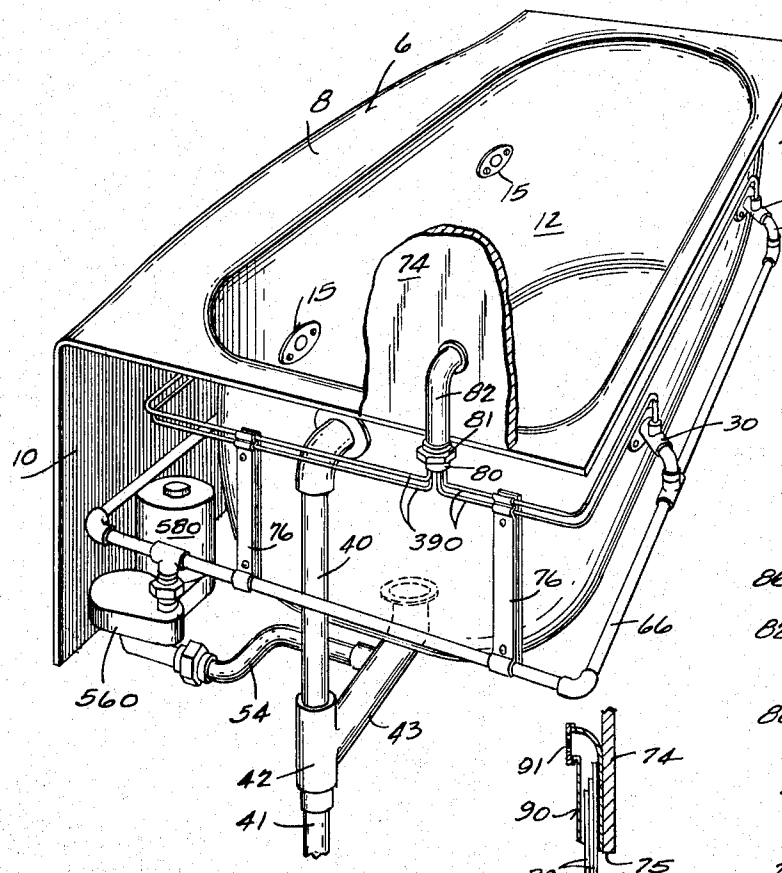


Fig. 6

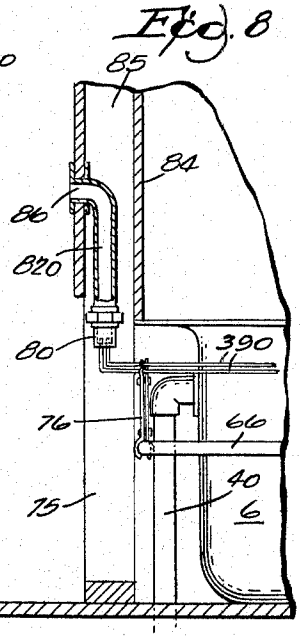


Fig. 8

Fig. 9

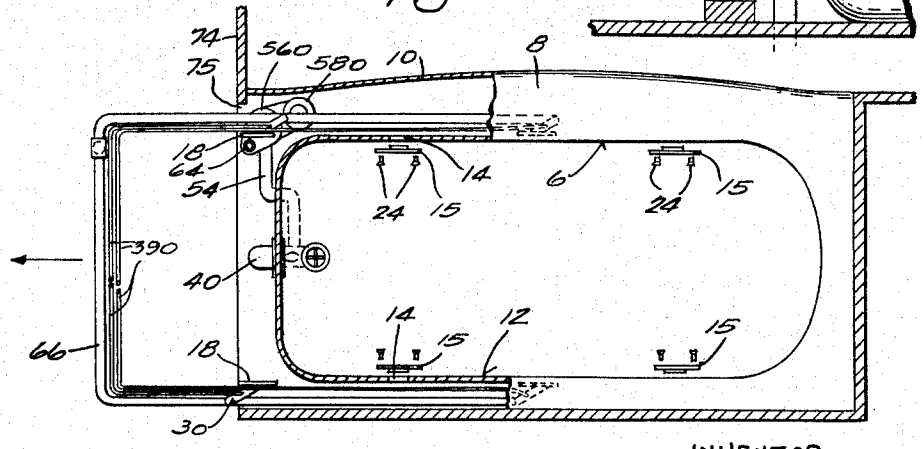


Fig. 7

INVENTOR
JOSEPH H. EVERSTON

BY Wheeler, Wheeler & Wheeler
ATTORNEYS

United States Patent Office 3,263,678 Patented August 2, 1966

3,263,678

THERAPEUTIC BATHTUB HAVING PLURAL ASPIRATING FITTINGS

Joseph H. Everston, 328 N. Maple Drive, Beverly Hills, Calif.

Filed May 19, 1965, Ser. No. 456,958
14 Claims. (Cl. 128—66)

The present application is a continuation-in-part of my application 238,254, filed November 16, 1962 and now abandoned.

This invention relates to a therapeutic bathtub.

The invention contemplates a unitary construction in which a receptacle for therapeutic bathing has jets below normal water level for producing turbulence and diffusing finely divided air bubbles throughout the water. It is desired to diffuse the finely divided bubbles throughout the water of the tub by introducing the aerated jets at a number of points. Generically, such a vessel may include a pool. Specifically, it is disclosed in a tub.

I have found by experimentation that the desired effect cannot be fully achieved unless the air is admitted individually to the respective streams of water. Accordingly, in the preferred practice of the invention, air supplied from a point above water level is admitted through aspirating inlets immediately adjacent the respective jets.

It is desirable that the air inlets be so located that surges of water which may enter the air supply pipes cannot overflow onto the floor. A preferred arrangement supplies all of the air required by the several aspirating nozzles through a manifold which derives such air from the tub overflow pipe. It is also contemplated that each of the aspirating nozzles may have its own separate air inlet pipe and that whether separate pipes or a manifold are employed the air inlet may be at some point above the level of the bathtub but not necessarily through the tub overflow pipe.

An important feature of the present invention is the arrangement whereby all of the piping to the respective nozzles, including both the water pipes and the air pipes, can be removed for cleaning, preferably as a unit.

In the drawings:

FIG. 1 is a fragmentary detail view in perspective showing a therapeutic tub unit embodying the invention, portions of the apron being broken away and portions of the wall of the room being omitted.

FIG. 2 is an enlarged detail view in perspective showing the tub assembly and the drain pipe connection.

FIG. 3 is a further enlarged detail view showing in perspective the aspirating fitting and its connection.

FIG. 4 is a view taken in section on the line 4—4 of FIG. 3 including fragmentarily a portion of the wall of the tub.

FIG. 5 is an enlarged fragmentary detail view taken in section on the line 5—5 of FIG. 2.

FIG. 6 is a view in perspective somewhat similar to FIG. 2 showing a modified arrangement, portions of the partition at the foot of the tub being fragmentarily illustrated.

FIG. 7 is a plan view on a reduced scale, a partition being fragmentarily illustrated in section and portions of the tub being broken away, water and air manifolds embodying the invention being illustrated as partially withdrawn from about the tub.

FIG. 8 is a fragmentary detail view on a scale larger than FIG. 7 showing a modification of the embodiment illustrated in FIG. 6 wherein the air inlet is at the opposite side of the partition wall, the wall being illustrated in section.

FIG. 9 is a fragmentary detail view showing a further modified embodiment in which air is admitted in a manner different from that shown in FIG. 8.

Except as modified in the manner hereinafter described, the bathtub **6** may be of any desired construction or design. As shown, it is a tub designed for alcove installation. It has a rim **8** and an apron **10**. The tub is provided with an enclosure which may include walls or partitions such as those hereinafter described, in addition to the rim **8** and apron **10**.

The tub side wall **12** has apertures **14** below normal water level to receive any desired number of jet nozzles **15**, four being illustrated. In the preferred organization, these are set obliquely as best shown in FIG. 4. The nozzle tube **16** carries a plate **18** through which it communicates obliquely with the interior of the tub. The plate is desirably shouldered as shown to receive a gasket **20** engaged exteriorly with the side wall **12** of the tub.

Coacting with clamping plate **18** is a plate **22** in the interior of the tub removably connected by screws or bolts **24** with plate **18** to clampingly engage the tub wall **12** about the opening **14** therein.

Aspirator **30** has a casing **32** connected to the end of the nozzle tube **16**. Water under pressure is supplied through pipe **34** to the aspirator nozzle **36** which entrains air supplied through tube **38** to the aspirator casing **32** beside the nozzle **36**. Since the tube **38** does not show in FIG. 4, the location of the tube opening is indicated in dotted lines. As already noted, I have found that in order for the air to be dispersed in the form of minute bubbles throughout the water of the tub, it is necessary that the air be introduced individually into each of a number of jets of water and, in each case, immediately adjacent the jet. If the air is introduced into the water at any distant point, the air bubbles tend to unite with each other and the diffusion of minute bubbles is lost.

The various tubes **38** which individually supply the respective aspirating fittings receive air from some point above the level of the water in the tub. Various arrangements are illustrated in the drawings. In the device shown in FIGS. 1, 2 and 5, the air is supplied by means of manifolds **39** from the overflow pipe **40** which leads to the drain **41** through the usual sleeve valve housing **42** whereby the drain pipe **43** leads to the drain. If it be desired to regulate the amount of air aspirated to the jets of water entering from the nozzle tubes **16**, this can easily be done by means of a rotary sleeve valve **44** ported at **45** to control communication with the respective manifolds **39**. Overflow water can always pass through the sleeve **44** to the overflow pipe **40**, but by means of the handle **46** the valve may be rotated to exclude air from the manifolds **39** or to open such manifolds to receive air freely.

The tub draining valve (not shown) is conventional and it is operated in the conventional manner by means of the link **47** connected with a lever **48** having a handle portion **49** exposed to the user of the tub, the lever being pivoted in a fitting **50** which partially obscures from view the rotary sleeve valve **44**, while leaving an opening at **51** through which overflow can occur.

Instead of supplying fresh water to the several nozzles and draining the excess constantly through the overflow pipe of the tub, it is preferred to recirculate the water from the tub for the purpose of supplying the jets. Accordingly, I prefer to provide a pipe **54** communicating through the pipe **43** with the tub and leading to the inlet of a centrifugal pump **56** driven by motor **58**. The pump output pipe **64** is connected to headers **66** which supply the various pipes **34** leading to the individual nozzles. The headers extend beside the tub beneath the rim **8** to any extent necessary to serve the nozzles desired. One of the features of the arrangement consists in the ease with which the water headers **66** and the air headers **39** may be withdrawn unitarily for repair or replacement by pulling them in a direction away from the end of the

tub after the bolts **24** have been withdrawn. As shown in FIG. 2, the entire apparatus with the exception of the drain **41** is a unit. It can be preassembled and installed as a unit.

If the tub is installed in an alcove or against the wall, there will almost always be a service opening in the partition adjacent the end of the tub at which the drain is located.

The partition **74** adjacent the end of the tub has a service opening **75** through which, in the showing of FIG. 7, the air and water pipe assembly is in process of unitary withdrawal.

To facilitate unitary movement of the various headers and nozzles, it is preferred that the headers **39** and **66** be mechanically connected as by the clips **76** (FIG. 2) and that unions be provided wherever needed, typical installations being shown in FIG. 2 at **77**, **78** and **79**. With the screws **24** withdrawn and the plate **15** removed, as shown in FIG. 7, the entire aerating manifold system can be handled unitarily.

The device shown in FIG. 6 is essentially like that of FIG. 2. The pump **560** and its motor **580** are shown in slightly different form. Instead of having air header means **39** as suggested in FIG. 2, FIG. 6 discloses separate tubes **390** individual to the several nozzles **30**. Moreover, instead of leading the tubes into the tub overflow pipe **40** as in FIG. 2, the ends of the pipes **390** are bent upwardly and extended into a fitting **80** connected by a union or coupling **81** with a pipe **82** which extends through the partition **74** to open into the space above the tub **6**.

FIG. 8 shows a similar arrangement of separate tubes or pipes **390** but the partition **84** here illustrated has an interior space **85** through which the pipe **820** may lead to an inlet **86** at the back of the partition.

As shown in FIG. 9, even a partition **74** of single panel thickness such as that shown at FIG. 6, can have the air inlet at the back side thereof. As a convenient means of doing this, the several pipes **390** may be led through the service opening **75** at the back side of partition **74** and there the free ends of the several pipes **390** may be gathered together and loosely confined within the fitting **90** which is open at its bottom and has at **91** a formaminous closure plate so that air can reach the free ends of the tubes **390** through the apertures of the closure pipe **91** or through the open bottom of the fitting **90**.

In making the installation, means is desirably provided for enabling the occupant of the tub to turn the apparatus on and off, and, preferably, to vary the speed of blower operation, without leaving the tub. Accordingly, I have shown on the wall next to the tub a toggle switch **68** for controlling the operation of the motor and a rheostat **70** for controlling its speed of operation, both being connected to the motor through a relay box **72** so that there are no high voltage connections to the wall switch.

It will be clear that the entire apparatus including tub, motor-driven pump and piping can be manufactured, sold and installed as an integrated unit in the same space normally required for bathtub installation, there being ample room at the end of the tub to receive the water recirculating pump and motor.

I claim:

1. A therapeutic tub comprising the combination with a tub having wall portions, of means for diffusing air bubbles throughout water in the tube, said means comprising a common source of water under pressure and a plurality of water jetting nozzle means opening through said wall portions and having water supplying connections from said source and having air aspirating fittings communicating individually with respective nozzle means immediately behind respective nozzle means and in immediate proximity to the tub, the air aspirating fittings being remote from said source and directly associated with respective nozzle means whereby water entering the air nozzle means will aspirate air to be delivered in dispersed fine bubbles throughout the water of the tub.

2. A therapeutic tub according to claim **1** in which the air aspirating fittings have air inlet tube means and the water jetting nozzle means have water manifold connections extending beside the tub and constituting water supplying connections from said source, and means for releasably connecting respective water jetting nozzle means with the tub wall, said water manifold connections and tube means being withdrawable longitudinally of the tub wall for cleaning.

3. A therapeutic tub according to claim **2** in which the air inlet tube means comprises air manifold means and the air manifold means and the said water manifold connections and said tube means are unitarily connected and extend from one end of the tub along opposite sides thereof and can be withdrawn and replaced unitarily by movement relative to said tub away from and toward said end.

4. A therapeutic tub according to claim **1** in which the said aspirating fittings have air supply connections in communication with the interior of the tub below the top of the tub, whereby any water entering any such connection will not be discharged into the room externally of the tub.

5. A therapeutic tub comprising the combination with a tub having wall portions, of means for diffusing air bubbles throughout water in the tub, said means comprising a plurality of water jetting nozzle means opening through said wall portions and having air aspirating fittings communicating individually with respective nozzle means immediately behind respective nozzle means and in immediate proximity to the tub whereby water entering the air nozzle means will aspirate air to be delivered in dispersed fine bubbles throughout the water of the tub, said tub being provided with an overflow means opening from the tub, said air aspirating fittings having air supply connections leading from the interior of the tub through the opening of the overflow means.

6. A vessel for therapeutic bathing comprising the combination with a receptacle adapted to contain water to predetermined depth and provided with side walls and with overflow means above normal water level, of a source of water under pressure comprising a motor driven pump disposed externally of said receptacle and having an inlet communicating with the interior of the receptacle below normal water level and having a water delivery outlet, a plurality of water jetting nozzles mounted on and opening through the side walls of the receptacle to the interior thereof below normal water level, means disposed externally of the receptacle and connecting said water source with the respective nozzles and including aspirating fittings individual to the respective nozzles and located immediately behind respective nozzles, and means for supplying air to said fittings to be aspirated into water traversing the respective nozzles, whereby aerated jets of water are delivered through respective nozzles to the interior of the receptacle.

7. A vessel for therapeutic bathing comprising the combination with a receptacle adapted to contain water to predetermined depth and provided with side walls and with overflow means above normal water level, of a source of water under pressure, a plurality of water jetting nozzles mounted on and opening through the side walls of the receptacle to the interior thereof below normal water level, means connecting said water source with the respective nozzles and including aspirating fittings individual to the respective nozzles and located immediately behind respective nozzles, and means for supplying air to said fittings to be aspirated into water traversing the respective nozzles, whereby aerated jets of water are delivered through respective nozzles to the interior of the receptacle, the means for supplying air to said aspirat-

ing fittings including means for providing air communication thereto from the overflow means.

8. A vessel according to claim **6** in which the vessel is a tub which has an enclosure, means extending around one end and two sides of the tub within the enclosure for connecting the source of water and for supplying air to said fittings and nozzles, the air supply means having inlet means above water level at the said tub end and the means connecting the source of water under pressure with the respective nozzles leading from the same end of the tub.

9. A therapeutic tub according to claim **8** in which the means connecting the source of water as a means for supplying air constitutes pipes connected mechanically to each other and removable as a unit from said end and sides through an opening with which said enclosure is provided.

10. A vessel for therapeutic bathing comprising the combination with a receptacle adapted to contain water to predetermined depth and provided with side walls and with overflow means above normal water level, of a source of water under pressure, a plurality of water jetting nozzles mounted on and opening through the side walls of the receptacle to the interior thereof below normal water level, means connecting said water source with the respective nozzles and including aspirating fittings individual to the respective nozzles and located immediately behind respective nozzles, and means for supplying air to said fittings to be aspirated into water traversing the respective nozzles, whereby aerated jets of water are delivered through respective nozzles to the interior of the receptacle, the vessel being a tub having a rim, and the means for supplying air to the asiprating fittings including manifold means encircling a portion of the tub beneath the rim thereof and having a connection to the overflow means, said means comprising a pipe having a port providing such connection and having a valve movable within the pipe for regulating the opening of said port.

11. A therapeutic tub comprising the combination with a bathtub having an overflow pipe and provided with side walls, end walls and a rim, of a motor driven pump disposed externally of the tub and having an inlet connected with the interior of the tub at a point to be below normal water level therein, said pump constituting a common source of water under pressure, a plurality of water jetting nozzles mounted on and opening through the side walls of the tub to the interior thereof, means disposed externally of the tub and connecting the common source of water under pressure with the respective nozzles and including manifolds extending from one end of the tub along the side walls under the rim and aspirating fittings connected with the manifolds and individual to the respective nozzles and located immediately behind respective nozzles, each such nozzle having a shoulder abutting the exterior surface of the tub side wall and having a retaining plate detachably connected to the nozzle and abutting the interior surface of the tub side wall, the nozzles being freely removable unitarily with respective manifolds when the retaining plates are detached, and replaceable when said plates are re-connected to the nozzles, and means for supplying air to said fittings to be

dispersed into water traversing the respective nozzles whereby aerated jets of water are delivered through respective nozzles to the interior of the tub, said last means including manifolds extending from the same said end of the tub along respective side walls and connected operatively with respective nozzles for unitary handling therewith and with the first mentioned manifolds in removal and replacement as aforesaid.

12. A therapeutic tub comprising the combination with a bathtub having an overflow pipe and provided with side walls, end walls and a rim, of a motor driven pump disposed externally of the tub and having its inlet communicating with the interior of the tub at a point below normal level of water therein and constituting a source of water under pressure, a plurality of water jetting nozzles mounted on and opening through the side walls of the tub to the interior thereof, means connecting the source of water under pressure with the respective nozzles and including manifolds extending from one end of the tub along the side walls under the rim and aspirating fittings connected with the manifolds and individual to the respective nozzles and located immediately behind respective nozzles, each such nozzle having a shoulder abutting the exterior surface of the tub side wall and having a retaining plate detachably connected to the nozzle and abutting the interior surface of the tub side wall, the nozzles being freely removable unitarily with respective manifolds when the retaining plates are detached, and replaceable when said plates are re-connected to the nozzles, and means for supplying air to said fittings to be dispersed into water traversing the respective nozzles whereby aerated jets of water are delivered through respective nozzles to the interior of the tub, said last means including air tubes extending from the same said end of the tub along respective side walls and connected operatively with respective nozzles for unitary handling therewith and with the first mentioned manifolds in removal and replacement as aforesaid, said air tubes having inlet means located above the level of the tub.

13. A therapeutic tub according to claim **12** in which said inlet means comprises a passage-forming means with which the ends of the respective tubes communicate, the passage-forming means being open to the atmosphere above the tub.

14. A therapeutic tub according to claim **13** in which the passage-forming means is a fitting externally of an enclosure with which the tub is provided.

References Cited by the Examiner

UNITED STATES PATENTS

1,526,179	2/1925	Parr et al.	128—370 XR
2,280,979	4/1942	Rocke	4—180
3,027,568	4/1962	Blau et al.	4—178 XR

FOREIGN PATENTS

105,590	4/1917	Great Britain.

RICHARD A. GAUDET, *Primary Examiner.*

L. W. TRAPP, *Assistant Examiner.*