July 23, 1957 J. A. JAWETT 2,799,866

HYDROTHERAPY APPARATUS

Filed July 9, 1954

FIG. 1

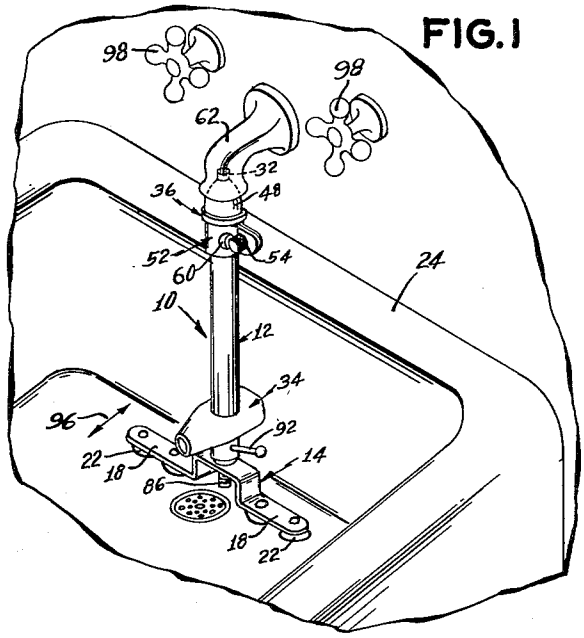


FIG. 2

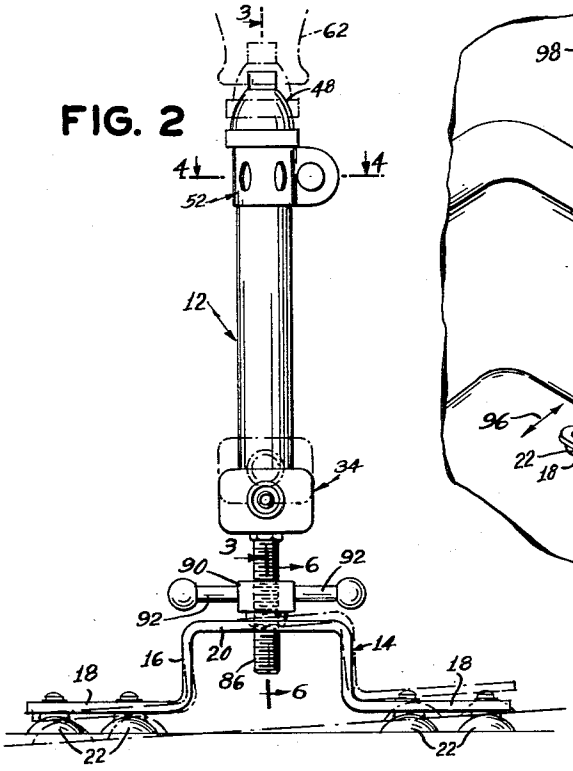


FIG. 4

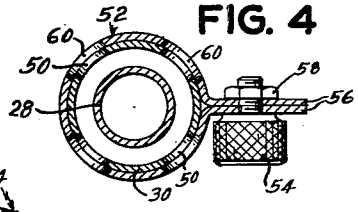


FIG. 3

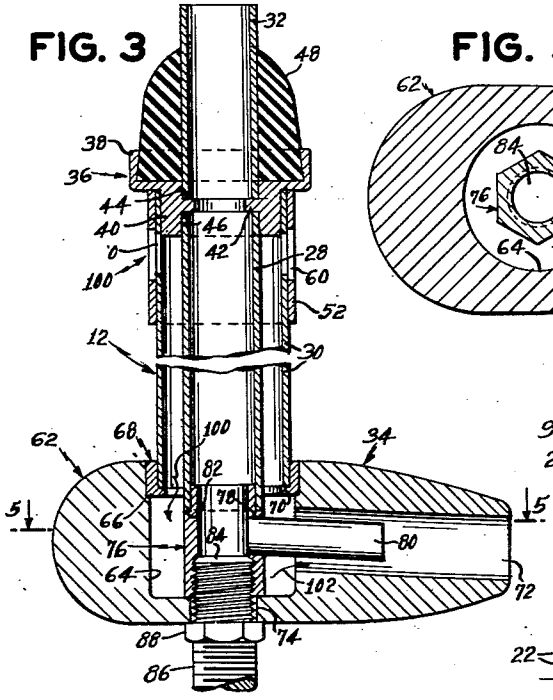


FIG. 5

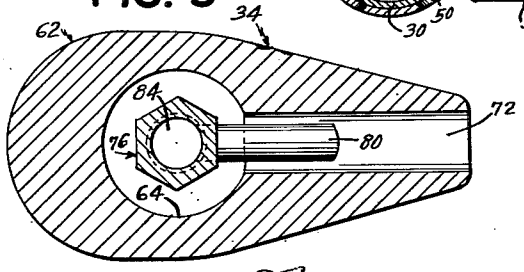
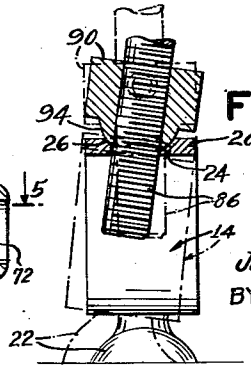


FIG. 6



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HYDROTHERAPY APPARATUS

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Application July 9, 1954, Serial No. 442,280

4 Claims. (Cl. 4—180)

The present invention relates in general to hydrotherapy apparatus, and, in particular, to a whirlpool bath which is especially adapted for home use.

The effectiveness of a whirlpool bath in the treatment of such conditions as arthritis, neuritis, rheumatic disorders, traumatic injuries, stiff joints, etc., has been well established. Due to the fact that many patients may require a whirlpool bath treatment once or twice a day over a period of many months, it is highly desirable and advantageous to provide for such treatment in the patient's home. Hydrotherapy apparatus which had heretofore been available for home use necessitated the making of a permanent installation of the apparatus in the bathtub in the patient's home. This required permanent connection to the cutting of the plumbing fixtures and, consequently, was not permitted in many rented dwellings. In addition, the permanent attachment of the hydrotherapy apparatus to the bathtub plumbing interfered with the normal use of the bathtub when it was not desired to use the hydrotherapy apparatus.

In view of the foregoing, the primary object of the present invention is the provision of a hydrotherapy apparatus which obviates the various disadvantages and objections heretofore encountered in the utilization of hydrotherapy apparatus in the home.

Another object is the provision of a hydrotherapy apparatus which can be readily installed and removed from a bathtub without the necessity for any tools whatsoever and without the requirement of the services of a plumber or other mechanic.

Another object is the provision of a hydrotherapy apparatus having provision for an adjustable aerator device so as to provide a desired mixture of air and water in the apparatus.

Another object is the provision of a generally simplified means for mounting the apparatus on the bottom of the bathtub in such manner that the apparatus may be rigidified against the water outlet or faucet in the bathtub so as to be maintained in proper disposition regardless of the amount of water pressure or the velocity of the water therethrough.

A further object is the provision of such a device which, although anchored to the bottom of the bathtub has provision for the adjustability thereof for aligning the device with the water faucet in the bathtub.

A still further object is the provision of a hydrotherapy apparatus of generally simplified construction and design which is efficient in use and which is relatively inexpensive to manufacture and sell.

The above and other objects, features and advantages of the present invention will be more fully understood from the following description considered in connection with the accompanying illustrative drawing.

In the drawing which illustrates the best mode presently contemplated by me of carrying out the invention:

Fig. 1 is a perspective view of the hydrotherapy apparatus of the present invention, as installed in a bathtub;

Fig. 2 is a view in elevation of the hydrotherapy apparatus;

Fig. 3 is a sectional view, on an enlarged scale, taken on the line 3—3 of Figure 2;

Figure 4 is a sectional view, on an enlarged scale, taken on the line 4—4 of Figure 2;

Figure 5 is a sectional view taken on the line 5—5 of Figure 3; and

Figure 6 is a fragmentary sectional view taken on the line 6—6 of Figure 2 and illustrates the adjustability of the apparatus for the mounting thereof.

Referring now to the drawing in detail, the hydrotherapy apparatus 10 comprises the water and air supply or conduit means 12, and the anchoring means 14 therefor. As here shown, the anchoring means 14 is constituted by an inverted channel or base bracket 16 having the laterally extending flanges or arms 18 and the raised intermediate bight portion 20. The bracket 16 is formed of a suitable metal preferably steel, and the arms 18 thereof are provided with depending rubber suction cups 22 for releasably securing the anchoring means 14 to the bottom or floor of a bathtub 24. Centrally thereof, the bight 20 is provided with an aperture 24 having a portion 26 which defines a curved seat, the purpose of which is hereinafter described in detail.

The water and air supply conduit means 12 comprises a water tube 28, disposed within an air tube 30, a guide tube 32 in registry with the water tube 28, and a discharge nozzle assembly 34 through which the water-air mixture is discharged, said components each being formed of a suitable metal, preferably brass. In order to mount the guide tube, the water tube and the air tube in assembled relation, provision is made for a bushing 36 which is formed of a suitable metal, preferably brass. As here shown, the bushing 36 is provided with an upstanding portion 38, which defines an apertured seat, and with an apertured neck 40 which depends from the seat. The upper end of the outer, or air, tube 30 is positioned over the neck 40 and abuts the bottom of the seat 38, being secured to the neck in a suitable manner, as by soldering or welding. The neck 40, at its inner surface, is provided with an annular rib 42 which defines an upper seat 44 and a lower seat 46. The upper end of the water tube 28 abuts the lower surface of the rib 42, being secured as by welding or soldering, in said lower seat 46. A dome shaped apertured rubber washer 48 is seated in the seat 38 of the bushing 36. A guide tube 32 extends through the aperture in the washer 48 and the lower end thereof abuts the upper surface of the rib 42, being secured in the seat 44, as by soldering or welding. Consequently, it will be apparent that the lower end of the guide tube 32 is in registry with the upper end of the water tube 28. Adjacent its upper end, the outer or air tube 30 is provided with a plurality of air inlet openings 50. An air shutter 52, preferably formed of brass, is mounted at the upper end of the air tube 30, being adjustably rotatably positioned thereon by the knurled head screw 54 which extends through the companion tabs 56 and is engaged by the nut 58. The shutter 52 is provided with a plurality of air inlet openings 60. It will be apparent that the shutter 52 may be adjustably rotated on the air tube 30 to and from a position, wherein the openings 60 thereof are in registry with the underlying openings 50 for the maximum admission of air into the tube 30, into a position wherein the shutter completely covers the underlying openings 50 so as to prevent the admission of air into the tube 30. It will be noted that the upper end of the guide tube 32 projects upwardly from the washer 48 for insertion into the faucet 62 of the bathtub, as hereinafter explained in detail.

The lower ends of the air tube **30** and the water tube **28** are seated in the discharge nozzle assembly **34**. More specifically, said nozzle assembly comprises a casting or discharge nozzle housing **62** preferably formed of brass. A chamber **64** is defined in the housing **62** and, at the upper end of the chamber, provision is made for an annular seat **66**. An apertured bushing **68**, preferably formed of brass, is seated in the seat **66**, being secured in position therein, as by soldering or welding. The bushing **68** is provided with an annular shoulder **70** which defines a seat for the lower end of the air tube **30**, which is suitably secured therein as by welding or soldering. A laterally extending discharge passageway **72** communicates with the air chamber **64**, and provision is also made for a constricted opening **74** which extends through the bottom of the housing **62** from the chamber **64**. A fitting **76**, preferably formed of brass, is disposed in the chamber **64** in registry with the restricted opening **74** therein. Said fitting is provided with a side opening **78** which is in registry with the discharge passageway **72**. A water discharge or jet nozzle **80** which is of smaller diameter than the nozzle outlet **72**, is press-fit into the fitting aperture **78** and extends into the discharge opening **72** which defines a large diameter discharge nozzle which surrounds the smaller diameter discharge or jet nozzle **80**, the latter terminating inwardly of the outer end of the discharge nozzle **72**. At the upper end thereof, the fitting **76** is provided with an annular peripheral shoulder **82** which defines a seat for the bottom end of the water tube **28**. As best illustrated in Figure 3, the water tube, at its lower end, extends through the opening in the bushing **68** and is seated on the upper end of the fitting **76**, being suitably secured thereto as by welding or soldering. The reduced diameter upper end portion **84** of a threaded stud **86** is threadedly engaged in the lower end of the fitting **76**. It will be noted that said portion **84** enters the fitting **76** through the apertured portion **74** of the nozzle housing **62**, to close the lower end of the fitting, being secured in position therein by the nut **88**.

An adjusting nut **90** is threadedly engaged on the stud **86**. Said nut is provided with the laterally extending arms **92—92** and with a cup shaped portion **94** which engages the curved seat **26**, in the bight **20** of the anchoring means **14**. Referring now to Figure 6, it will be noted that the bowl or cup-shaped portion **94** of nut **90**, cooperates with the curved seat **26** in the anchoring means **14** to constitute a universal joint so that the conduit means **12** can be tilted in any desired direction when mounted on the anchoring means **14**, as indicated, for example, by the full and broken line positions of the stud **86**, in Figure 6.

In assembling the hydrotherapy apparatus **10** in a bathtub such as that indicated at **24** in Fig. 1, the anchoring means **14** is first positioned by means of the suction cups **22** on the floor of the bathtub immediately below the mouth of the faucet **62** thereof. In the event that the floor of the bathtub is not level, the anchoring means **14** will readily accommodate itself to said condition due to the resiliency of the suction cups **22** thereon. For example, as illustrated in Figure 2, the full line position of the anchoring means **14** indicates its disposition on a level bathtub floor and the broken line position thereof indicates the disposition of the anchoring means for a non-level or tilted bathtub floor, it being readily apparent that the suction cups will securely and releasably retain the anchoring means on the bathtub floor in either condition thereof. Water is now permitted to flow into the bathtub until the water reaches a depth of about seven inches, for the hydrotherapy apparatus as now constructed. This is the depth which is initially required to cover the outlet of the nozzle **72** to prevent the water jet from striking an opposing portion of the bathtub and being scattered or spattered over the bathroom when the water is initially turned on, which may occur if there is no water in the bathtub. After the bathtub is filled to the

required depth, the water is turned off and the conduit means **12** is positioned on the anchoring means **14** by inserting the stud **86** into the aperture **26** of the anchoring means. The arms **92** of the nut **90** are then rotated in a clockwise direction to elevate the conduit means **12** toward the faucet, as illustrated in broken line in Fig. 2, so as to engage the projecting portion of the guide tube **32** to the faucet mouth and to clamp the latter therein by a tight engagement of the rubber washer **48** in the mouth of the faucet, as illustrated in Fig. 1. This serves to rigidify the conduit means **12** in position between the anchoring means and the faucet against the pressure of the water flowing from the faucet. Plumb-line accuracy is not required in the original alignment between the guide tube **32** and the mouth of the faucet **62** for the insertion of the guide tube therein. In this connection, two separate adjustments are provided in the hydrotherapy apparatus to facilitate said engagement of the guide tube in the faucet mouth where either the anchoring means **14** or the conduit means **12** is not accurately aligned with the mouth of the faucet **62**. The first of these adjustments results from the fact that the anchoring means **14** may be readily rocked in opposite directions, as required, on the suction cups **22**, as indicated by the arrow heads **96** in Fig. 1. This rocking action is illustrated in Figure 6, wherein it will be noted that the anchoring means **14** may be readily tilted from its full line position to the broken line position thereof and it will be understood that the anchoring means may also be tilted in the opposite direction from that illustrated. The second adjustment results from the universal joint formed by the cup shaped portion **94** of the nut **90** and the curved seat **26**. This permits the conduit means **12** to be tilted in any direction, as may be required, relative to the anchoring means **14** as illustrated by the full and broken line positions of stud **86** in Fig. 6. Therefore, it will be apparent that in the event that the guide tube **32** is not exactly aligned with the mouth of the faucet **62**, the guide tube may nevertheless be clamped in position in the faucet mouth through the tilting or rocking adjustment of the anchoring means **14** and, if required, by the tilting of the conduit means **12** relative to the anchoring means **14**. It will be understood that when the stud **86** is initially inserted into the anchoring means **14**, the nozzle assembly **34** is pointed in a predetermined or desired direction in which it is desired to direct the jet or stream of water and the previously described universal joint facilitates the adjustment of the nozzle in the desired direction.

With the washer **48** tightly clamped in the mouth of the faucet **62** and with the nozzle assembly **34** adjusted to direct the stream of water in the desired direction, the hydrotherapy apparatus is now assembled for the administration of a whirlpool bath treatment. The temperature of the water may be regulated by adjustment of the hot and cold water faucets **98—98** in the usual manner. The water pressure may also be adjusted through the manipulation of the faucets **98**. In this connection, it will be noted that the inner diameter of the fitting **76** is smaller than the inner diameter of the water tube **28** so as to provide a restricted passageway and a resultant increase of water pressure and, further, that the diameter of the jet tube **80** is smaller than the inner diameter of the fitting **76**, so that the water will issue from the jet tube **80** in the form of a high pressure stream or jet of water. The jet of water flowing through and out of the larger nozzle **72** will provide a flow of air by suction into the air inlets **60** and **50** and down through the air tube **30** into the chamber **64**, as indicated by the arrows **100** in Figure 3. As indicated by the arrow **102**, the air flows from the chamber **64** into the larger diameter nozzle **72** where it mixes with the water to provide a high pressure aerate water jet which is directed at a desired part of the body or which flows into the water into the tub to provide a whirlpool bath. The amount of air mixed with the water may be readily regulated or adjusted by ro-

tation of the air shutter **52** on the water tube **30** for opening or covering the air inlet openings **50** therein, as may be desired. The jet may be readily discontinued, as or when desired, by manipulation of the faucets **98** to discontinue the supply of water to the hydrotherapy apparatus. The apparatus may then be readily disassembled by rotation of the arms **92** in a counterclockwise direction to release the conduit means from clamping engagement with the faucet **62**. The conduit means is then removed from the anchor member **16** and the latter is removed from the bathtub.

In view of the foregoing, it will be apparent that there is provided, pursuant to the present invention, a hydrotherapy apparatus which is especially adapted for home use, which requires no permanent plumbing connections or interference with existing plumbing lines, which may be readily attached and removed from a bathtub so as not to interfere with the normal use thereof when required, and which can be simply operated by the patient in his own home. However, it will be understood that the apparatus of the present invention is not limited to home use but may be used to great advantage in doctors' offices, hospitals and clinics.

While I have shown and described the preferred embodiments of my invention, it will be understood that various changes may be made in the present invention without departing from the underlying idea or principles of the invention within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. Anchor means for mounting hydrotherapy apparatus to a bathtub or the like, said means comprising an inverted channel member provided with laterally extending flanges and a bight portion intermediate said flanges and spaced upwardly therefrom, said flanges being provided with depending suction means for securement to the bathtub, and said bight portion having an apertured portion for mounting the hydrotherapy apparatus to be anchored by said means to the bathtub.

2. Portable hydrotherapy apparatus, comprising water pipe means adapted to releasably engage a bathtub faucet, means for releasably anchoring said pipe means against said faucet to oppose the pressure of the waterflow therefrom, and discharge nozzle means provided on said pipe means to cause the forceful ejection of a stream of water therefrom, said anchoring means comprising an inverted channel member provided with laterally extending flanges and a bight portion intermediate said flanges and spaced upwardly therefrom, said flanges being provided with depending suction means for securement to the bathtub, and said bight portion having an aperture defined therein, said pipe means having a threaded member at the lower end thereof freely movable in said aperture, and a nut threaded on said member and bearing against the upper surface of said bight portion, whereby rotation of said nut on said threaded member will elevate said pipe means to clamp the upper end thereof in said faucet.

3. Hydrotherapy apparatus for a bathtub or the like, said apparatus comprising an anchor member for securement to the bottom of the bathtub, and water conduit means having jet discharge nozzle means and adapted to be mounted by said anchor member for clamping engagement with the bathtub faucet, said conduit means comprising a guide tube and a water tube in registry therewith, a bushing mounting a resilient washer, said tubes being seated in said bushing with the upper end of said guide tube projecting therefrom, a nozzle housing mounting said jet discharge means in communication with said water tube, and an air inlet tube encompassing said water tube, the upper end of said air tube being engaged with said bushing, said nozzle housing defining an air chamber, the lower end of said air tube being in communication with said chamber, and said nozzle housing having a discharge portion into which said jet means extends, said discharge portion being in communication with said air chamber, whereby to aerate the water flowing from said jet means through said discharge opening.

4. Hydrotherapy apparatus for a bathtub or the like, comprising conduit means including a water conduit adapted for fluid communication with a water faucet and an air conduit surrounding said water conduit, discharge nozzle means at the lower end of said conduit means in fluid communication with said water and air conduits and adapted for the forceful ejection of a stream of aerated water therefrom, said air conduit having openings at the upper end thereof providing air inlet means for said air conduit, an air shutter movable on said air conduit relative to said openings for adjusting the air intake to said air conduit, a resilient washer mounted at the upper end of said conduit means, and means for clamping said resilient washer into engagement with the water faucet, said clamping means comprising an apertured support member adapted for securement to the bathtub, a threaded member provided at the lower end of said conduit means and bodily movable in the aperture of said support member, and a clamping member threadedly engaged on said threaded member and in engagement with said support member whereby the rotation of said clamping member in a clamping direction is effective to elevate said conduit means relative to said support member to clamp said resilient washer into engagement with the water faucet against the pressure of the water flow through the latter, said clamping member and said support member having cooperating provisions defining a universal joint to facilitate the registry of said resilient washer with the water faucet.

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