Nov. 24, 1970 V. A. STRICKER 3,541,616

HYDRO-THERAPY BATH DEVICE

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Fig 1

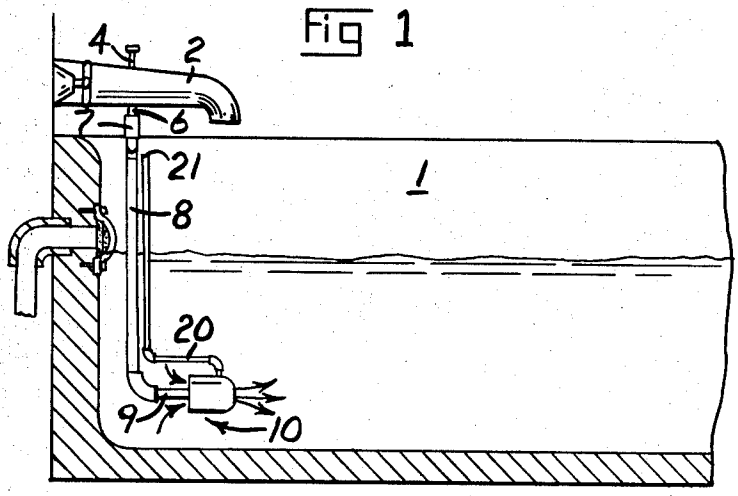



Fig 2

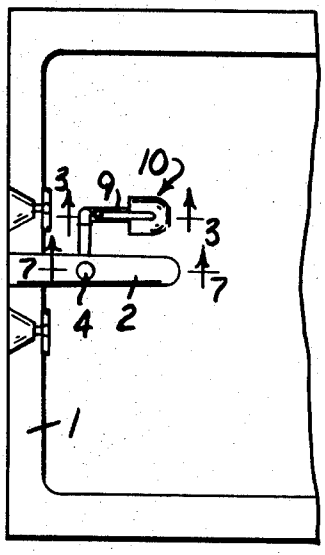
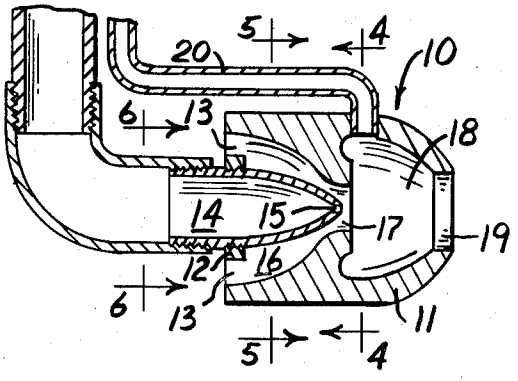



Fig 3




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Fig 4

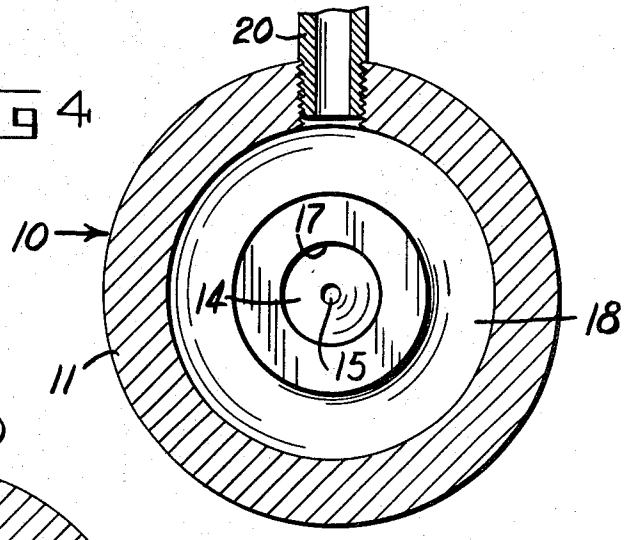



Fig 5

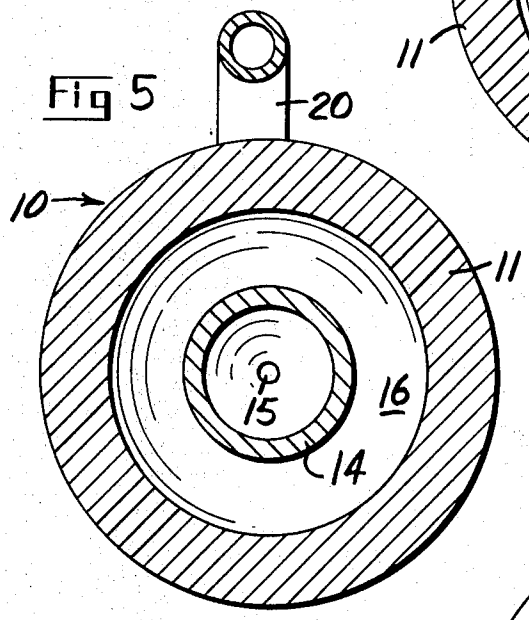



Fig 6

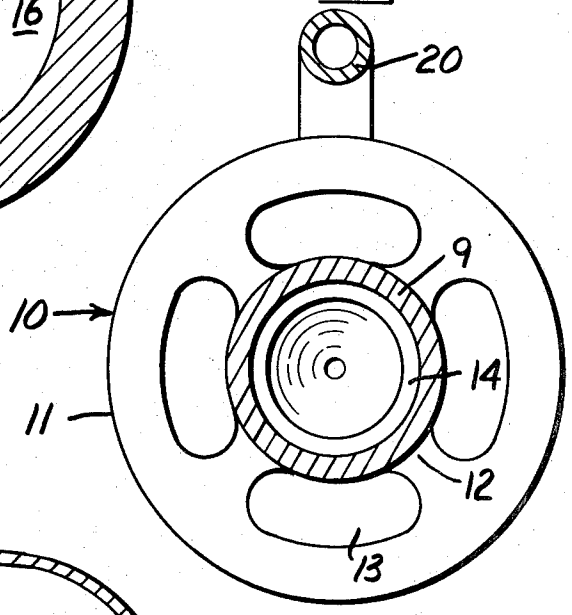
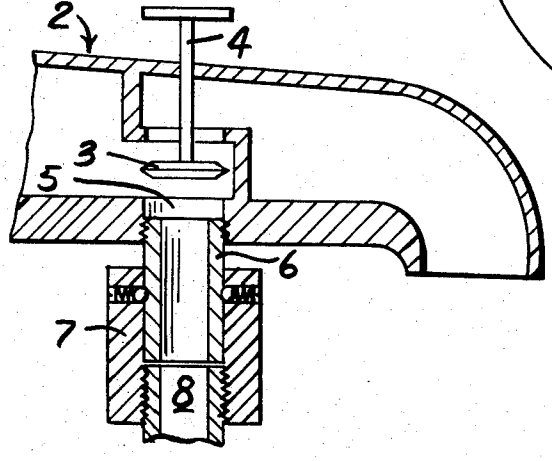



Fig 7




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United States Patent Office

3,541,616
Patented Nov. 24, 1970



3,541,616

# HYDRO-THERAPY BATH DEVICE

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Filed July 5, 1968, Ser. No. 742,647
Int. Cl. A47k 3/03
U.S. Cl. 4—180 3 Claims

## ABSTRACT OF THE DISCLOSURE

A simple device for installation in a conventional bath tub provides the necessary force to circulate the water in the tub from the water supply and further utilizes the added water and the circulated water to entrain and distribute air in the tub below the water.

The device embodies a valve in the faucet operable to direct water under pressure down into the tub below the normal water level and laterally through an injector nozzle within an open ended chamber where the jet from the nozzle entrains water from the supply in the tub and projects the water mixture into a second chamber having an air pipe leading into it. The water entrains air in passing through the second chamber and the mixture of air bubbles and water is discharged laterally into the open tub close to the bottom thereof with substantial force to effect a gentle massage of a body in the tub.

## GENERAL DESCRIPTION

The purpose of the present invention is to provide a simple device which can be readily attached to the faucet of a bath tub, which device has a jet nozzle at its lower end and a pair of entraining chambers around the jet nozzle so arranged that the water discharged from the jet nozzle first entrains water from the body of water in the tub and the combined tub water and fresh water flow draws air down through an air pipe and mixes it with the water to discharge water and air bubbles laterally into the body of water in the tub. All this is accomplished wholly by using the pressure of water in the water supply to the faucet.

The nature and advantages of this invention will appear more fully from the following description and the accompanying drawings illustrating a preferred form of the invention.

In the drawings:

FIG. 1 is a sectional view taken vertically through a bath tub showing my invention therein;

FIG. 2 is a fragmentary plan view of the tub with my invention therein;

FIG. 3 is an enlarged sectional view on the line 3—3 of FIG. 2;

FIG. 4 is an enlarged sectional view on the line 4—4 of FIG. 3;

FIG. 5 is an enlarged sectional view on the line 5—5 of FIG. 3;

FIG. 6 is an enlarged sectional view on the line 6—6 of FIG. 3; and

FIG. 7 is an enlarged sectional view taken substantially on the line 7—7 of FIG. 2.

According to my invention I provide an attachment that can be applied to the faucet or water inlet spout 2 of a bath tub 1 to utilize the normal water pressure for supplying household water in producing a hydro-therapy treatment in the tub 1. The faucet 2 is provided with a valve 3 which, as shown in FIG. 7, can be lifted by its stem 4 to open an outlet 5 through the bottom wall of the faucet. A short length of pipe 6 is provided in the outlet 5 and is used to mount a quick release coupling 7 of known design on the top end of a support pipe 8.



The pipe 8 has a horizontal portion 9 on which an injector unit 10 is mounted. The details of the unit 10 are best illustrated in FIGS. 3–6 inclusive. An outer body 11 of the unit carries a mounting ring 12 to secure it on a jet producing nozzle 14 which is threaded into the horizontal portion 9 of the pipe 8. Water inlets 13 are provided between the ring 12 and the body 11. The nozble 14 has a jet orifice 15 at its tip. The body 11 has an inner chamber 16 that decreases from the ring 12 to an outlet 17 that opens into a larger tapering mixing chamber 18 within the body 11. The orifice 15 discharges a high speed jet of water into the center of the outlet 17 so as to entrain the water in the tub and direct this water through the mixing chamber 18 and an outlet 19 from the body 11. The outlet 19 is somewhat larger than the outlet 17.

When water at normal supply pressure for households is supplied to the nozzle 14 it creates a high speed water jet from the orifice 15 that entrains water from the tub through the inlets 13 and the chamber 16 and a combined water flow is directed across the chamber 18 and out through the outlet 19. This creates a lower than atmospheric pressure within the chamber 18.

I take advantage of this result to draw air into the chamber 18 through an air inlet pipe 20 that is carried by the body 11 and is directly above the outlet 17. This pipe 20 has its inlet end 21 above the water level in the tub 1. The air thus drawn in mixes with the stream of water projected across the chamber 18 and the outflow from the outlet 19 is a mixture of air and water. The air forms bubbles in the stream of water. These bubbles rise rapidly in the water. The turbulence created in the body of water in tub 1, and the air-water mixture are quite effective in hydro-therapy treatments. The temperature of the water is controlled in the normal manner of controlling temperature of water supplied to the tub.

It is believed that the nature and advantages of my invention will be apparent from the foregoing description.

I claim:

1. A device for utilizing the normal water supply to a conventional bath tub through its faucet to create a turbulent flow of a mixture of air and water within the tube comprising:

(a) a water pipe secured to the faucet in advance of the faucet outlet and extending downward into the tub;

(b) a valve in the faucet manually operable to direct water supplied to the faucet into the pipe;

(c) an injector unit connected to the pipe near the tub bottom;

(d) said unit embodying a body having a first chamber having an end open to the tub, a second chamber a restricted outlet leading from the first chamber to the second chamber, and a second restricted outlet from the second chamber into the tub and larger than the first outlet;

(e) a nozzle extending from the pipe into the first chamber and having a jet orifice positioned in the first chamber to discharge water from the pipe through the first restricted outlet; and

(f) an air inlet pipe on said unit having one end opening into the second chamber and its other end extending upwardly from the unit to atmosphere.

2. The device defined in claim 1 wherein the first chamber has a central ring at its open end in which said nozzle is mounted.

3. The device defined in claim 1 wherein said outlets of the chambers are in horizontal alignment and said nozzle is directed axially of said outlets.


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