

Nov. 10, 1931.

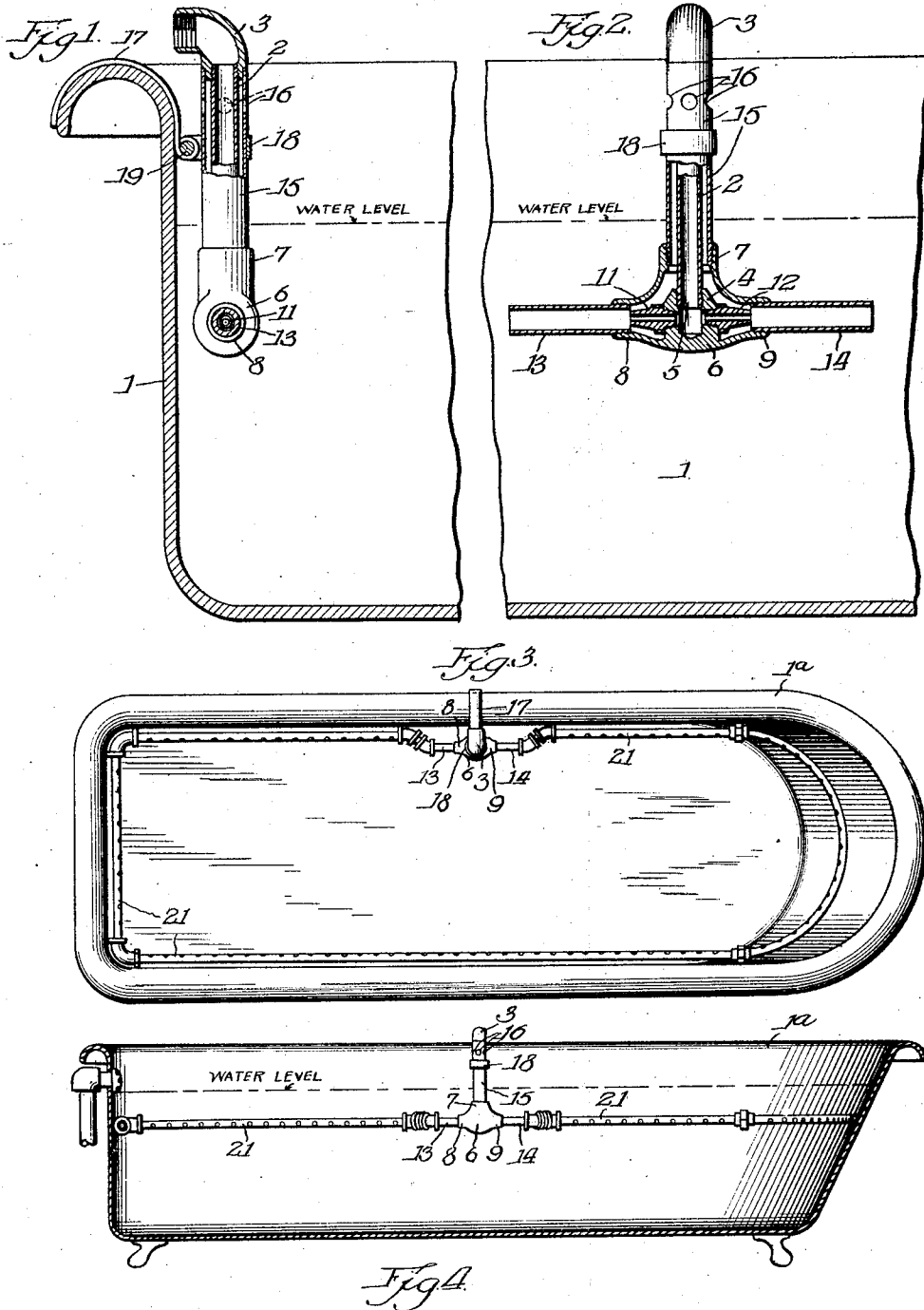
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1,830,853

AERATOR FOR BATHS

Filed May 19, 1930

2 Sheets-Sheet 1



Witness:

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*Fig. 5.*

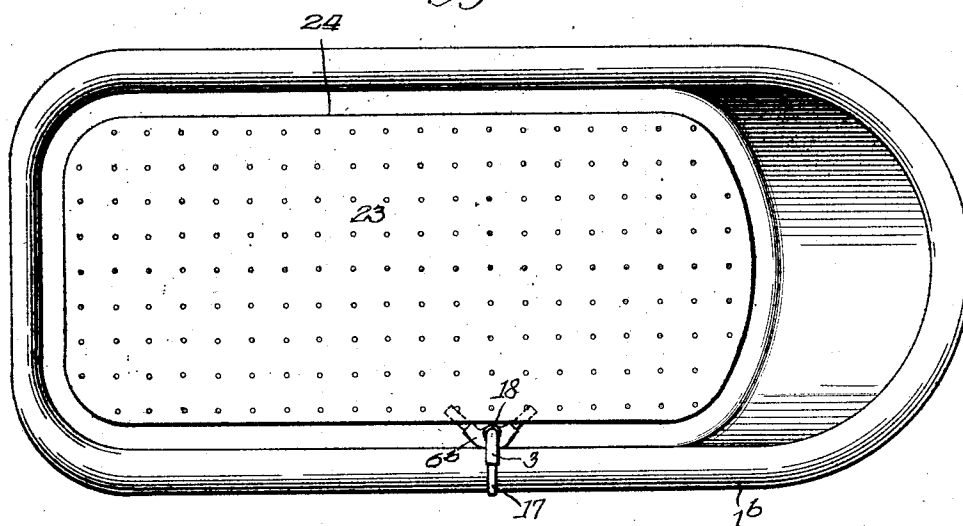
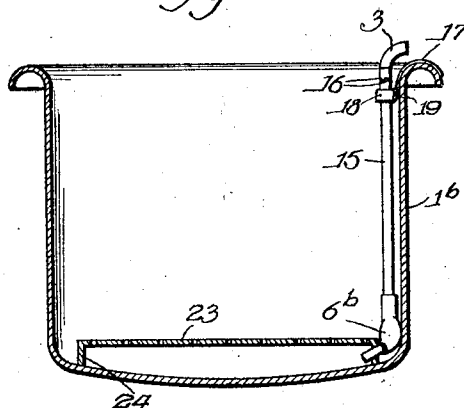


*Fig. 6.*



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## UNITED STATES PATENT OFFICE

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## AERATOR FOR BATHS

Application filed May 19, 1930. Serial No. 453,563.

This invention relates to a device for aerating and agitating water in a bathing apparatus such as a hydrotherapeutic device and more particularly to a fixture for delivering a mixture of air and water to a suitable receptacle.

It is well known that water agitated by air and kept in a state of movement thereby has certain beneficial and curative effects in the treatment of various maladies. To obtain this agitation, fixtures have been utilized which direct a stream or plurality of streams of air into a receptacle containing water. It has been discovered, however, that a more thorough agitation and uniform distribution of air and movement of the water may be obtained by projecting a stream or plurality of streams of a mixture of air and water into a body of water in a receptacle.

It is the purpose of this invention therefore to provide a means for procuring a thorough and uniform agitation and aerating of the contents of the receptacle.

A better and more thorough understanding will be had of this invention, which will be termed an aerator, from the following description given in connection with the drawings, in which:

Fig. 1 is an end elevation partly in section of a portion of a bath or tub equipped with an aerator constructed in accordance with this invention;

Fig. 2 is a front elevation of a portion of a tub having an aerator constructed in accordance with this invention supported therein;

Fig. 3 is a plan view of a conventional bath having a modified form of aerator therein;

Fig. 4 is a vertical section through the longitudinal center of the tub and aerator shown in Fig. 3;

Fig. 5 is a plan of a tub having a further modified form of aerator; and

Fig. 6 is a transverse section through the tub shown in Fig. 5.

Referring particularly to that form of the invention illustrated in Figs. 1 and 2, there is shown a portion of a tub 1 which may be any suitable receptacle such as a conventional bath or a basin into which is hung an aerator.

The aerator comprises a supply conduit or tube 2 threaded into one end of an elbow 3, the other end of which is connected to a suitable source of water by means of a suitable pipe or hose (not shown). The conduit 2 extends into a plug 4 preferably formed integrally with and in the center and bottom of a T-shaped body or casing 6, the latter having a top outlet 7 and two side outlets 8 and 9. The top portion of the plug 4 is bored and tapped as at 5 to receive the lower end of the supply conduit. The sides of the plug are tapped at diametrically opposite points to communicate with the central bore 5 and to receive two nozzles 11 and 12 having their orifices directed into the outlets 8 and 9, respectively. Into the outlets 8 and 9 are threaded two short discharge tubes or nipples 13 and 14 of larger diameter than the nozzles 11 and 12.

Threadedly connected to the upper outlet 7 is a tube or casing 15 larger in diameter than conduit 2 and surrounding the same. The tube 15 extends upwardly and abuts against the end of elbow 3 which is reduced in diameter to receive the same. Adjacent its upper end the tube 15 is provided with a series of apertures 16 which permit the entry of air thereinto. The air may pass downwardly between the tube 15 and conduit 2 and enter into the discharge tubes 13 through the annular passage surrounding the nozzles 11 and 12.

In order to suspend the fixture within a tub, a hook 17 is provided which has a portion suitably shaped to overlie the rim of the tub. The inner end of the hook 17 engages a band-like clamp 18 which surrounds the casing 16 and may be clamped at any desired point thereon by means of a bolt 19. The fixture may accordingly be supported at varying depths into the tub 1.

Referring to the embodiment of this invention shown in Figs. 3 and 4 there is illustrated a slightly modified form of this invention as applied to a conventional bath 1<sup>a</sup>. In this modification instead of using a pair of open-ended tubes 13 and 14, the open ends are connected to form one continuous tube 21 which surrounds the inner periphery of

the tub at a point below the normal water level thereof. The tube 21 is provided with a series of apertures disposed throughout its entire length, the apertures being directed inwardly toward the center of the tub.

It has been found that one hanger such as a hook 17 and clamp 18 is sufficient to support the modified form of fitting in a tub although it is obvious that additional hangers may be employed if desired.

A further modified form or application of this invention rests in the use of a perforated plate, which may be placed on the floor or bottom inside the tub, under which the aerator in the jet form may be installed. The purpose of such an installation is to permit of the perforated plate acting as a sort of distributor or deflector for the currents of aeration permitting of more even distribution throughout the entire expanse or area of the plate, depending upon the arrangement of perforations and/or the type of jet employed. In Figs. 5 and 6 there is shown an example of this modification comprising a conventional tub or bath 1<sup>a</sup> provided with an aerator substantially like that heretofore described with the exception of the manner of delivery to the tub. In this form the tube 16 is continued to the bottom of the bath and caused to discharge through a Y discharge fitting 6<sup>b</sup>, generally similar to casing 6, under a perforated pan 23. Pan 23 extends over the bottom of the tub and is spaced therefrom by a flanged rim 24.

The operation of all modifications is identical and believed to be apparent from the foregoing description and therefore need only be briefly summarized. A supply of water entering the elbow 3 from any suitable supply or source will pass through tube 2 and through the nozzles 11 and 12. As the water emerges from nozzles 11 and 12 and is allowed to expand, a partial vacuum or suction is created which will draw air in through apertures 17. The air taken in will pass through the annular passage between tubes 2 and 16 and into the discharge tubes 13 and 14 or the tube 21 as the case may be. Tubes 13 and 14 or tube 21 will therefore discharge a mixture of air and water which will create a thorough agitation and uniform movement throughout the tub and also aerate the water in the tub. This movement and agitation is due both to the movement of the incoming water and to the entrapped air in the water, the former of which will bubble upwardly through the water in the tub.

It is obvious that many changes may be made in the details of construction without departing from the spirit and scope of this invention as defined in the claims appended hereto. For example, a double jetted aerator may be used in order to accomplish better distribution, thus the conduit 2 in the aerator may be extended to permit of the use of sev-

eral additional nozzles 12, without affecting the principle of this invention.

I claim:

1. In a plumbing fixture for aerating water, a fitting comprising a body having an inlet and a plurality of outlet portions, a supply conduit extending into said inlet portion and terminating in a plurality of nozzles directed toward said outlets, a tube of greater diameter than said conduit and surrounding a substantial length of the same, said tube being open to the atmosphere at one end and connected to said inlet at its other end said tube being arranged to establish communication between the outlets of said fitting and the atmosphere.

2. In a plumbing fixture for aerating water, a fitting comprising a body having an inlet, an outlet and a plug disposed between said inlet and outlet, said plug having a passage therethrough communicating with the inlet and outlet of said fitting, a supply conduit extending into said inlet and into the inlet end of the passage in said plug, a nozzle secured to the outlet end of the passage through said plug and directed toward the outlet of said fitting, said nozzle being of smaller diameter than said outlet opening, and a tube of greater diameter than said conduit and surrounding a substantial length of the same, said tube being open to the atmosphere adjacent one end and secured to said inlet at its other end and arranged to permit air to pass into said inlet and be discharged around said nozzle into said outlet.

In witness of the foregoing I affix my signature.

OTTO C. OSTERHAGE.