

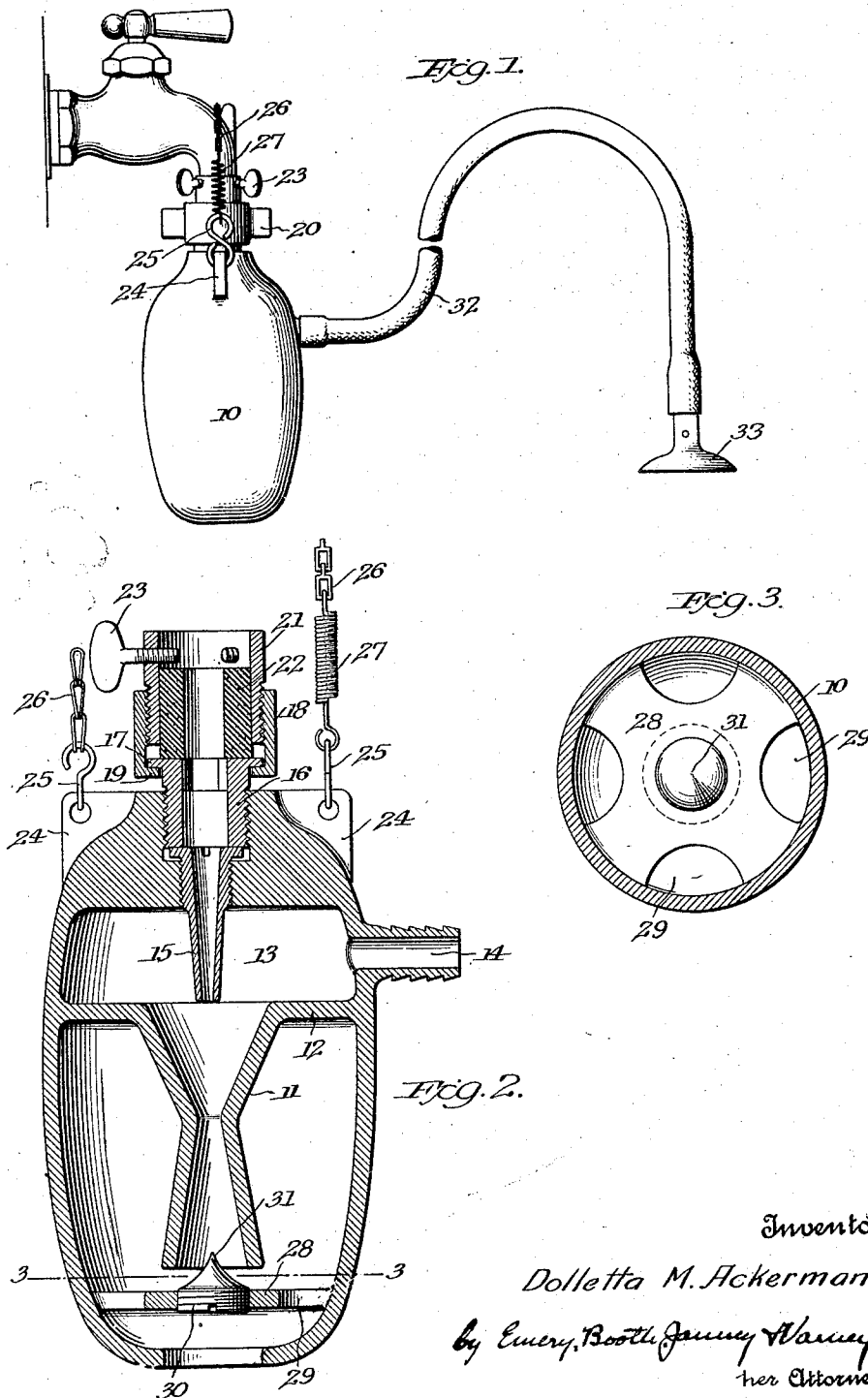
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D. M. ACKERMAN

ASPIRATOR

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Inventor

Dolletta M. Ackerman

by Emory Booth James Harvey
her Attorneys

UNITED STATES PATENT OFFICE.

DOLLETTA MAY ACKERMAN, OF LONGBEACH, CALIFORNIA, ASSIGNOR OF FORTY-NINE PER CENT TO PEARL D. PATCHELL.

ASPIRATOR.

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My invention aims to provide an improved fluid actuated aspirator particularly adapted for use in conjunction with surgical and massage appliances; although it is capable of various uses.

In the accompanying drawings showing one illustrative embodiment of my invention, particularly adapted for actuation by domestic water pressure,

Fig. 1 is a view in side elevation showing my improved aspirator attached to a household spigot;

Fig. 2 is a central sectional view in elevation of the aspirator shown in Fig. 1; and

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2.

Referring to the illustrative embodiment of the invention shown in the drawings, the form of my improved aspirator shown therein comprises a hollow approximately eggshaped shell 10, preferably made of aluminum, arranged with its axis vertical and having axial inlet and outlet openings at its upper and lower extremities for a suitable motive fluid, such as water under pressure. Centrally disposed within the hollow interior of the shell is a Venturi nozzle 11 (Fig. 2), preferably cast integral therewith, and having an enlarged outlet terminating short of the bottom of the shell. The space between the enlarged upper end of the nozzle 11 and the inner wall of the shell is closed by a connecting web 12 which is spaced below the top wall of the shell to provide an air chamber 13, which has an opening communicating with an air exhausting conduit 14, shown as an integral nipple projecting from the body of the shell near the top.

At the top of the shell, I have shown a restricting nozzle 15, adjustably threaded into the inlet opening which extends downwardly into the air chamber 13, and preferably terminates at the enlarged inlet to the Venturi nozzle. The space surrounding the lower end of the nozzle 15 provides an annular inlet for the air which it is desired to exhaust from the chamber to enter the Venturi nozzle and commingle with the motive fluid therein. Advantageously, this nozzle may be adjusted longitudinally to produce the most effective suction. The top of this nozzle is shown as being slotted to receive a screw driver, and may be locked in adjusted position by means of a threaded sleeve or nipple 16, shown in Fig. 2 as having a hex-

agonal portion in the upper end of its bore to receive an end wrench.

To provide convenient means for attaching my aspirator to an ordinary household spigot, I have shown the nipple 16, which is threaded into a counterbore in the shell above the restricting nozzle, as provided with a swivel connection for a spigot engaging device. In the device illustrated, the nipple 16 has an external flange 17 cooperating with an internally threaded sleeve 18 which in turn has an internal annular flange 19 engaging therewith to permit rotation of the aspirator about its axis so that the exhausting nipple 14 will point in the proper direction. As shown in Fig. 1, this sleeve preferably has ears 20 projecting from it to facilitate threading it on an externally threaded bushing 21 carrying a suitable gasket or packing 22 for yieldably engaging the mouth of the spigot. I have shown thumb screws 23 distributed around the bushing 21 at its upper end to facilitate securing it against lateral movement on the spigot after it has been adjusted properly.

At the upper end of the shell I have shown opposed integral ears 24, each having a perforation to receive a hook 25 on the end of a chain or cord 26 which is adapted to be secured around the top of the spigot. This chain or cord preferably has a coil spring 27 between its ends to permit it to be secured to the spigot under tension and hold the aspirator with its packing 22 in water-tight engagement with the mouth of the spigot. It is desirable to reduce the velocity of the water and air being discharged from the aspirator and eliminate unnecessary splashing of water against the bottom of the sink or basin under the spigot, and to this end I have provided a baffle 28 (Fig. 2) above the discharge opening in the bottom of the shell. Conveniently, the baffle may be integral with the shell casting and preferably extends entirely across the inside of the shell below the lower end of the Venturi nozzle. It may advantageously be shaped to divide and gradually spread the stream into a circular sheet discharging radially against the sides of the shell. At spaced intervals near the inner wall of the shell I have shown openings 29 (Fig. 3) through the baffle so that the spreading volume of the commingled water and air is permitted to escape in a plurality of streams. The chamber above

the baffle 28 and around the Venturi nozzle serves as an air trap or air chamber to counteract any tendency to produce a water hammer and eliminate the objectionable noise incident thereto.

I have shown the baffle 28 as being provided with a central opening which permits easy removal of the core sand from the lower end of the Venturi nozzle, and this opening is closed by a specially shaped adjustable plug 30 which is screw-threaded and has a slot in its lower end to receive a screw driver. The upper end 31 of this plug is preferably tapered and curved as shown in Fig. 2 to produce a whirling action of a commingled air and water discharging from the enlarged outlet end of the Venturi nozzle. This provides, in effect, a second restriction in the Venturi nozzle to increase the suction. The width of the passage between the plug and outlet end of the nozzle may be adjusted to give the maximum suction effect under service conditions. The enlarged annular space around the Venturi nozzle permits some of the water to pass up in it after striking the baffle 28 and allows the commingled air and water to expand more or less freely after passing out of the lower restricted opening between the bottom of the Venturi nozzle and the baffle.

The device illustrated comprises a rubber hose or flexible tube 32 which may be slipped over the nipple 14, and any suitable applicator, such for example, as the massage cup 33, may be inserted in the open end of the tube so as to utilize the suction to massage the body. However, my aspirator is capable of a wide variety of uses and I desire it to be understood that this illustrative use is not to be construed in a restrictive sense.

From the foregoing description it will be observed that I have produced a relatively simple and very durable aspirator in which threaded joints and a multiplicity of parts that ordinarily require accurate fitting to prevent leakage are eliminated. Also, I have materially reduced the expense of manufacture by combining in a single casting a number of the elements of my invention. The device is easy to apply to a spigot by an unskilled operator and has very few parts apt to get out of order. It is relatively small so that it may be carried in a doctor's kit as a necessary part of his equipment, and is ef-

fective under a wide range of conditions of use.

Obviously, my invention is not limited to the particular embodiment herein shown and described.

What I claim and desire to secure by Letters Patent is:

1. An aspirator comprising, in combination, a hollow shell presenting an integral web therein, a Venturi nozzle connected to the web, inlet and outlet openings in the shell axially arranged with respect to said Venturi nozzle, a nozzle projecting through the inlet opening in said shell and directed toward the Venturi nozzle, a baffle member adjacent to said outlet opening within the shell, and means including a swivel clamping device for connecting said shell to a spigot.

2. An aspirator comprising, in combination, an elongated hollow shell for axial inlet and outlet openings therein, a Venturi nozzle axially arranged within said shell, a web cast integrally with said shell and carrying said Venturi nozzle, said shell presenting an air exhausting chamber above said Venturi nozzle, a baffle below the lower end of said Venturi nozzle having a central opening therein, a plug having a tapered projection extending into the lower end of said nozzle to cause whirling of the commingled air and water flowing there through, and flexible attaching means for securing said shell over the mouth of a water spigot, said means having its ends connected to the opposite sides of the upper end of said shell arranged to be looped over the spigot and a spring between its ends to produce a yielding watertight connection.

3. An aspirator comprising, in combination, a hollow shell having axially arranged inlet and outlet openings therein, a Venturi nozzle between said openings, an air suction chamber above the Venturi nozzle, a swivel fitting connected to the upper end of the shell and having a yieldable packing therein to fit over the mouth of a spigot, clamping means on the end for clamping the aspirator to the side walls of the spigot, and means yieldably to press the packing against the mouth of the spigot prior to clamping and to assist in holding it in place.

In testimony whereof, I have signed my name to this specification.

DOLLETTA MAY ACKERMAN.