

[54] **PORTABLE COMPACT ELECTRIC DOUCHE**

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[57] **ABSTRACT**

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A portable compact electric douche is intended to be held directly in the user's hand and has means thereon intended for insertion directly into the vagina. The electric douche is small, lightweight, convenient to hold, battery-powered for electrical safety, and is designed for mass production. Stopper means are provided for optional engagement with the vaginal lips, thereby allowing the vaginal tract to be substantially filled with douching fluid, whereupon the user may remove the electric douche and allow the fluid to pass out of the vagina.

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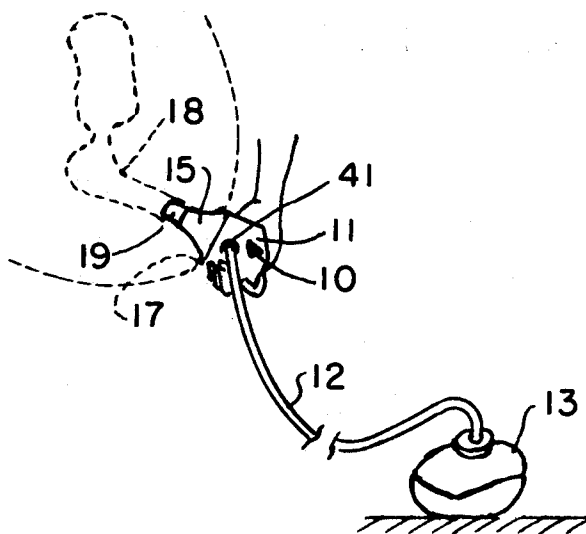
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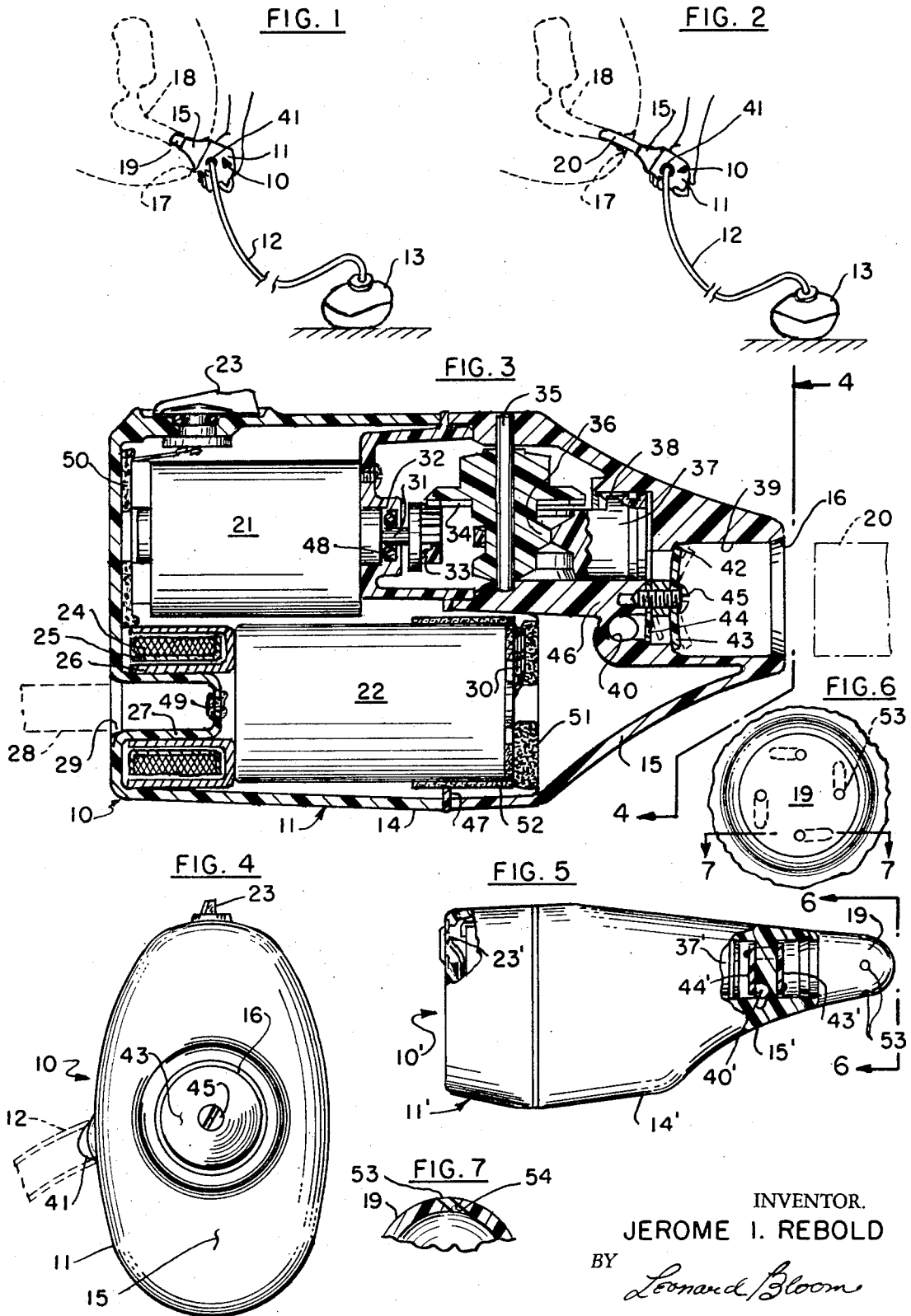
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17 Claims, 7 Drawing Figures

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PORTABLE COMPACT ELECTRIC DOUCHE

In the applicant's co-pending continuation application identified as Ser. No. 77,114 filed Oct. 1, 1970 and entitled "Portable Power-Operated Douching Appliance," and now U.S. Pat. No. 3,653,377, there was disclosed a portable electric douche, preferably battery operated, which included an oscillatory pumping means for developing a pulsating flow of douching fluid for improved results and relaxation.

The disclosure of this application constitutes a further development and extension in the art, and represents a preferred embodiment of the electric douche, one designed for high performance, convenience and reliability consonant with low-cost mass-production manufacture.

OBJECTS AND BROAD STATEMENT OF THE INVENTION

Accordingly, it is an object of the present invention to provide a low-cost quality electric douche that is reliable and safe, electrically and mechanically, and provides the utmost in performance and convenience.

It is another object of the present invention to provide a portable electric douche that includes stopper means thereon adapted for engagement with the vaginal lips, whereby the vaginal tract may be substantially filled with douching fluid for superior cleansing, and whereby the douche may then be retracted from the female genital area to allow the douching fluid to flow out of the vagina.

It is yet another object of the present invention to provide a portable electric douche that may be conveniently used either lying down in the bathtub, or at the option of the user, sitting directly on the toilet bowl.

It is a further object of the present invention to provide an electric douche that includes a reciprocating piston guided in a cylinder formed in the casing and adapted for developing a pulsating flow of douching fluid from a reservoir means to a nozzle means inserted within the vagina.

It is a still further object of the present invention to provide a portable electric douche whose motor is energized by a rechargeable battery, the battery being adapted for recharging by inductively-coupled means.

It is a yet still further object of the present invention to provide a portable electric douche whose casing is sealed, water-tight, and immersible in water for the utmost in electrical safety.

In accordance with the broad teachings of the present invention, there is herein illustrated and disclosed, a compact portable electric douche comprising a casing adapted to be held directly in the user's hand during application of the douche, the casing being substantially sealed and water-tight and having a substantially-tapered portion converging away from the main portion and terminating in a discharge opening, a reservoir of douching fluid, means communicating the reservoir with the discharge opening, and motor-driven means for drawing the douching fluid out of the reservoir and discharging the same through the opening, whereby the user may insert the substantially-tapered portion of the casing through the vaginal lips, whereby the substantially-tapered portion performs the function of a stopper, thereby allowing the vaginal tract to be substantially filled with the douching fluid, and whereby the user may then remove the casing and allow the douching fluid to pass out of the vagina.

In accordance with the further teachings of the present invention, there is herein illustrated and disclosed, a compact portable electric douche comprising a casing adapted to be held directly in the user's hand during application of the douche, nozzle means on the casing adapted for insertion within the vagina, means communicating the nozzle means with a reservoir of douching fluid, a pump comprising a reciprocating piston guided in a cylinder formed in the casing and cooperating with the communicating means for developing a pulsating flow of douching fluid through the nozzle means and into the vagina, a motor in the casing for driving the piston, and a battery in the casing for energizing the motor.

In accordance with the more specific teachings of the present invention, there is herein illustrated and disclosed, a portable hand-held electric douche comprising a casing, a motor in the casing, means for energizing the motor, a rotating eccentric journaled in the casing, means connecting the motor to the eccentric, a piston driven by the eccentric and guided for reciprocation in a cylinder formed in the casing, a reservoir of douching fluid, means on the casing for insertion into the vagina, passageway means formed in the housing for communicating the reservoir and cylinder with the insertion means, and a pair of one-way valves in said passageway means and cooperating with the reciprocation of the piston in the cylinder for alternately drawing douching fluid out of the reservoir and discharging the same through the insertion means into the vagina.

These and other objects of the present invention will become apparent from a reading of the following detailed description, taken in conjunction with the enclosed drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective of a preferred embodiment of the present invention, showing the manner in which the electric douche (and more specifically, a contoured extension of the casing) performs the function of a stopper to allow the vaginal tract to be substantially filled with douching fluid, the broken lines illustrating the overall feminine genital area;

FIG. 2 is a perspective corresponding substantially to that of FIG. 1, but showing a nozzle element removably mounted on the casing and adapted for insertion within the vagina;

FIG. 3 is an enlarged longitudinal section of the electric douche of FIGS. 1 and 2, a portion of the removable nozzle element being shown in exploded relationship;

FIG. 4 is a view, taken along the lines 4—4 of FIG. 3, looking into the substantially-tapered front end of the electric douche;

FIG. 5 is an alternate embodiment, with parts broken away and sectioned to illustrate the structural differences with respect to the FIG. 3 embodiment, the view further showing a removable perforated cap which (as shown in FIG. 1) may be used in lieu of the nozzle element of FIGS. 2 and 3;

FIG. 6 is a view taken along the lines 6—6 of FIG. 5; and

FIG. 7 is a section view, taken along the lines 7—7 of FIG. 6.

DETAILED DESCRIPTION

With reference to FIG. 1, there is illustrated a preferred embodiment of the electric douche 10 of the present invention. The electric douche 10 comprises a casing 11 adapted to be held directly in the user's hand during application of the douche. The electric douche is small, lightweight, compact, easily fits a woman's hand, and is conveniently manipulated and controlled. A hose 12 connects the electric douche to a reservoir 13 of douching fluid, and the reservoir may comprise a disposable or semi-disposable hygienically-sealed plastic bag of the type illustrated and described in the applicant's aforesaid co-pending application.

With reference again to FIG. 1, and with further reference to FIGS. 3 and 4, the casing 11 has a main portion 14 and a substantially-tapered portion 15 converging away from the main portion and terminating in a discharge opening 16. Thus, as shown by the broken lines in FIG. 1, the user may insert the substantially-tapered portion 15 of the casing through the vaginal lips 17; and in this manner, the casing portion 15 performs the function of a stopper means, allowing the vaginal tract 18 to be substantially filled with douching fluid. The user may then remove the electric douche to allow the douching fluid to pass out of the vagina. This method of douching is preferred by a portion of the users, and may result in improved cleansing efficiency, albeit a matter of subjective opinion among some individual users. Preferably, a removable perforated cap 19 (hereinafter described in detail) forms an extension of the tapered casing portion 15 and functions as a nozzle means.

With reference to FIG. 2, the electric douche 10 may be used, optionally at the discretion of the user, with a removable nozzle element 20 inserted to a desired length within the vagina 18. With this nozzle element 20, the stopper feature of the present invention may still be used.

With reference again to FIG. 3, the electric douche 10 includes a motor 21 energized by means of a rechargeable battery 22 within the casing. The energization of the motor by the battery is controlled by means of a switch 23 mounted rearwardly on the casing for convenient manipulation by the user. Preferably, but not necessarily, the switch 23 requires a deliberate, but slight, manual effort to turn from one position to another; experience has shown that a push button switch may be somewhat tiring to some users.

The battery 22, which in the preferred embodiment comprises a single nickel-cadmium cell, is recharged by inductively-coupled means including a toroidal coil 24. The coil 24 is wound on a plastic bobbin 25 and is received with a toroidal core 26 formed with a U-shaped cross-section and made from a suitable material, such as soft iron, which is magnetically permeable. The core 26 is supported upon a boss 27 formed in the casing, and the core and its coil 24 form the secondary winding of an inductively-coupled recharging means. This recharging means includes a primary winding (not shown) which is part of a recharger base and is inductively coupled to the coil 24 by means of a stud 28, likewise of magnetically-permeable material. The stud 28, shown in broken lines in FIG. 3, is inserted through an opening 29 in the rear wall of the casing, whenever the electric douche is returned to its recharger base. A

diode 30 is connected between the battery and coil 24 for proper half-wave rectification of the alternating current induced in the coil. Further details of the inductively-coupled recharger means may be obtained from the Petrides U.S. Pat. No. 3,510,747 issued on May 5, 1970, as well as from the applicant's co-pending application, identified as Ser. No. 146,662 filed May 25, 1971, and entitled "Combination Travel Bag and Recharger for Portable Battery-Operated Electric Douche."

With reference again to FIG. 3, the electric motor 21 has a rotating shaft 31 extending beyond a molded-plastic interior wall 32 in the casing. The motor shaft carries a pinion gear 33 which engages a face gear 34 mounted for rotation on a stud or pin 35 retained within the casing. The gear 34 is formed with an eccentric 36 for driving a piston 37 guided for reciprocation within a cylinder 38 formed in the forward tapered portion 15 of the casing. Passageway means are formed within the casing for communicating the cylinder 38 with the reservoir 13 of douching fluid and with the discharge opening 16. This passageway means includes an axial bore 39 formed in the end of the casing, such that the bottom of the bore communicates with one end of the cylinder 38 within which the piston 37 reciprocates. Moreover, a transverse bore 40 formed in the casing communicates at one end thereof with the bottom of the axial bore, laterally of the cylinder. The other end of the transverse bore 40 leads to a fitting 41, see FIG. 4, on which the hose 12 (shown in broken lines) is removably mounted. The axial bore 39, see FIG. 3 again, is formed intermediately of its length with an annular ledge 42, and a first flap valve 43 is seated on the annular ledge. A second flap valve 44 seats over the transverse bore 40 at the bottom of the axial bore 39. Both flap valves 43 and 44 are made of suitable elastomeric material, such as neoprene, and are secured by means of a screw 45 received within an interior wall portion 46 of the tapered casing portion 15.

In operation, the user closes the switch 23 which energizes the motor 21 from the battery. Rotation of the motor shaft 31, through the gears 33 and 34, causes rotation of the eccentric 36 which in turn causes reciprocation of the piston 37 within the cylinder 38. As the reciprocating piston moves rearwardly of the casing (as viewed in FIG. 3) the first flap valve 43 closes on its annular seat 42, while the second flap valve 44 opens (as shown by the broken lines) to draw douching fluid out of the reservoir, through the hose 12, fitting 41, transverse bore 40 and into the cylinder 38. Then, as the reciprocating piston moves forwardly, the second flap valve 44 closes off the transverse bore 40 and prevents additional fluid from entering the cylinder, while the first flap valve 43 lifts off its seat 42 (as shown by the broken lines) to discharge the douching fluid past the discharge opening 16, through the nozzle element 20, and into the vaginal tract 18.

In a preferred embodiment, the reservoir bag 13 holds a pint of douching fluid, and the electric douche takes approximately 35 seconds to empty the bag. The bag may be placed on the floor of the bathroom, or on the ledge of the bathtub, while the user reclines in the bathtub; in other instances, the user may prefer to sit on the toilet bowl, and support the reservoir bag on her knee. Thus, it is not necessary to support the bag from a

hook, nor is it necessary for the user to hold the bag, as is otherwise the case with the gravity-feed douche bags of the prior art.

The reciprocation of the piston 37 develops an oscillatory pumping of the douching fluid, that is, the fluid is discharged in pulses or spurts; and this pulsating flow from the oscillatory pumping means improves the douching or cleansing while providing the user with a relaxation and comfortable feeling, which albeit somewhat subjective, constitutes a decided advantage over the prior methods.

Moreover, the electric douche 10 of the present invention is small and compact, easily stored and handled, convenient to use, and has been designed so as to be readily manufactured on a low-cost mass-production volume basis. Thus the electric douche 10 of the present invention constitutes a regular consumer-type of product intended for normal usage in the home or on trips, and thus represents the first practical approach to electrified douching.

Further, with reference again to FIG. 3, the electric douche 10 is completely reliable and safe, both electrically and mechanically. The low-voltage of the battery 22 obviates any electrical shock hazard during operation of the douche. The overall unit is completely sealed, water-tight, and hence may be dropped or immersed in water without any deleterious effects. For example, a seal 47 is provided between the portions 14 and 15 of the casing 11, while a seal 48 is provided on the motor shaft 31. The pin 35, upon which the eccentric 36 is rotatably mounted, is staked in the casing. A porous sintered cap 49 is staked in the casing, at the boss 27, for release of any gas that may be generated from the battery 22; the cap 49 thus prevents any possible build-up of gas within the casing, which might otherwise result in a dangerous condition, yet the cap is impervious to water and maintains the water-tight sealed quality of the electric douche. Sponge rubber or foam plastic inserts 50 and 51 take up tolerance accumulations for the motor and battery, respectively, in the assembly of the electric douche, and prevents any "looseness" or rattle within the casing of the electric douche. The battery is provided with a paper insulator 52. The material of the piston 37, cylinder 38, respective one-way check valves or flap valves 43 and 44, and the nozzle 20, is so chosen as to not be affected by the conventional douching fluids (or concentrates) on the market; and by the same token, so as not to introduce any harmful impurities into the douching fluids which might otherwise be irritating to the user. The pressure developed by the oscillatory pumping means (comprising the piston 37) is chosen so as not to exceed safe maximum tolerable pressures recommended by gynecologists.

With reference to FIG. 5, there is illustrated an alternate embodiment 10' of the electric douche, like numbers referring to like parts. The douche 10' is controlled by a push-button switch 23', and the casing 11' of the douche includes a main portion 14' and a forwardly-extending portion 15'. This portion 15' functions in the same manner as casing portion 15 of the FIG. 3 embodiment, but is not symmetrically formed. Rather, it is offset, which may be more convenient to some users. Also, the nozzle means comprises the removable perforated cap 19 which, like the nozzle ele-

ment 20, snaps within the axial bore 39' at the discharge opening 16' of the electric douche. The cap 19, which is molded from a suitable plastic, has openings 53 which communicate with respective channels 54 formed within the cap for imparting proper direction to the douching fluid upon discharge. The cap 19 is preferably shaped so as to constitute a continuation of the contours of the tapered housing portion 15', and cooperates with the portion 15' to comprise the stopper means of the electric douche 10' in a manner as previously recited with regard to FIGS. 1 and 2. Either the cap 19 or the nozzle element 20 is an insertion means or nozzle means suitable for use with the electric douches of the present invention.

Obviously, many modifications may be made without departing from the basic spirit of the present invention. For example, the removable perforated cap 19 may be formed integrally with the casing of the electric douche 10', shown in FIG. 5. Thus, within the scope of the appended claims, the invention may be practiced other than has been specifically described herein.

I claim:

1. A compact portable electric douche, comprising a casing adapted to be held directly in the user's hand during application of the douche, the casing being substantially sealed and water-tight and having a main portion and a substantially-tapered portion converging away from the main portion and terminating in a discharge opening, a reservoir of douching fluid, means communicating the reservoir with the discharge opening, and motor-driven means for drawing the douching fluid out of the reservoir and discharging the same through the opening, whereby the user may insert the substantially-tapered portion of the casing through the vaginal lips, whereby the substantially-tapered portion performs the function of a stopper, thereby allowing the vaginal tract to be substantially filled with the douching fluid, and whereby the user may then remove the casing and allow the douching fluid to pass out of the vagina.

2. A compact portable electric douche, comprising a casing adapted to be held directly in the user's hand during application of the douche, nozzle means on the casing adapted for insertion within the vagina, means communicating the nozzle means with a reservoir of douching fluid, a pump comprising a reciprocating piston guided in a cylinder formed in the casing and cooperating with the communicating means for developing a pulsating flow of douching fluid through the nozzle means and into the vagina, a motor in the casing for driving the piston, and a battery in the casing for energizing the motor.

3. A compact portable electric douche, comprising a casing adapted to be held directly in the user's hand during application of the douche, nozzle means on the casing adapted for insertion into the vagina, means communicating the nozzle means with a reservoir of douching fluid, a motor in the casing and means driven by the motor for drawing the douching fluid out of the reservoir and discharging the same through the nozzle means into the vagina, a rechargeable battery in the casing for energizing the motor, a switch on the casing for controlling the energization of the motor from the battery, and inductively-coupled means for recharging the battery.

4. A compact portable electric douche comprising a casing, nozzle means connected to the casing and adapted for insertion into the vagina, means communicating the nozzle means with a reservoir of douching fluid, said communicating means including oscillatory pumping means for developing a pulsating flow of douching fluid through the nozzle means into the vagina, a motor for driving the oscillatory pumping means, a rechargeable battery for energizing the motor, and inductively-coupled means for recharging the battery.

5. A portable hand-held electric douche comprising a casing, a motor in the casing, means for energizing the motor, a rotating eccentric journaled in the casing, means connecting the motor to the eccentric, a piston driven by the eccentric and guided for reciprocation in a cylinder formed in the casing, a reservoir of douching fluid, means on the casing for insertion into the vagina, passageway means formed in the housing for communicating the reservoir and cylinder with the insertion means, and a pair of one-way valves in said passageway means and cooperating with the reciprocation of the piston in the cylinder for alternately drawing douching fluid out of the reservoir and discharging the same through the insertion means into the vagina.

6. The portable hand-held electric douche of claim 5, wherein the means for energizing the motor comprises a rechargeable battery in the casing, and wherein a switch is mounted externally on the casing for controlling the energization of the motor by the battery.

7. The portable hand-held electric douche of claim 6, wherein inductively-coupled recharging means is mounted on the casing for selectively recharging the battery.

8. The portable hand-held electric douche of claim 5, wherein said passageway means comprises an axial bore formed in one end of the casing, the bottom of the axial bore communicating with one end of the cylinder within which the piston reciprocates, and a transverse bore formed in the casing and communicating with the bottom of the axial bore laterally of the cylinder.

9. The portable hand-held electric douche of claim 8, wherein the transverse bore is provided with a fitting projecting from the casing, and wherein a hose connects the fitting with the reservoir.

10. The portable hand-held electric douche of claim 8, wherein the axial bore is formed intermediately of its length with an annular ledge, and wherein said pair of one-way valves comprises a pair of flap valves, axially spaced from one another, one of said flap valves seating on said annular ledge, and the other of said flap valves

seating over the transverse bore at the bottom of the axial bore.

11. The portable hand-held electric douche of claim 5, wherein the reservoir comprises a hygienically-sealed disposable plastic bag.

12. The portable hand-held electric douche of claim 5, wherein said insertion means comprises a nozzle element removably mounted on the casing.

13. The portable hand-held electric douche of claim 5, wherein said insertion means comprises a removable perforated cap forming a continuation of the casing.

14. The portable hand-held electric douche of claim 5, wherein said insertion means comprises a substantially-tapered portion of the casing, converging away from the main portion of the casing and adapted for insertion through the vaginal lips, thereby performing the function of a stopper, whereby the vaginal tract may be substantially filled with the douching fluid, and whereby the casing may thereafter be removed to allow the douching fluid to pass out of the vagina.

15. The portable hand-held electric douche of claim 5, wherein said casing is substantially sealed and watertight, thereby allowing said electric douche to be safely immersed in water without any deleterious effects or safety hazards.

16. An electric douche, comprising a housing having nozzle means adapted for insertion into the vagina, means communicating the nozzle means with a reservoir of douching fluid, pumping means in the housing for drawing the douching fluid out of the reservoir and discharging the same through the nozzle means and into the vagina, an electric motor for driving the pumping means, and stopper means on the housing adjacent to associated with the nozzle means and adapted for engagement with the vaginal lips, whereby the vaginal tract may be substantially filled with the douching fluid, and whereby the user may then remove the stopper means and allow the douching fluid to pass out of the vagina.

17. An electric douche, comprising nozzle means adapted for insertion into the vagina, means communicating the nozzle means with a reservoir of douching fluid, said last-named communicating means including pumping means comprising a reciprocating piston guided in a cylinder and further including a pair of alternately-closed one-way valves cooperating with the piston for drawing the douching fluid out of the reservoir and discharging the same through the nozzle means into the vagina, a motor for driving the piston, and a battery for energizing the motor.

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