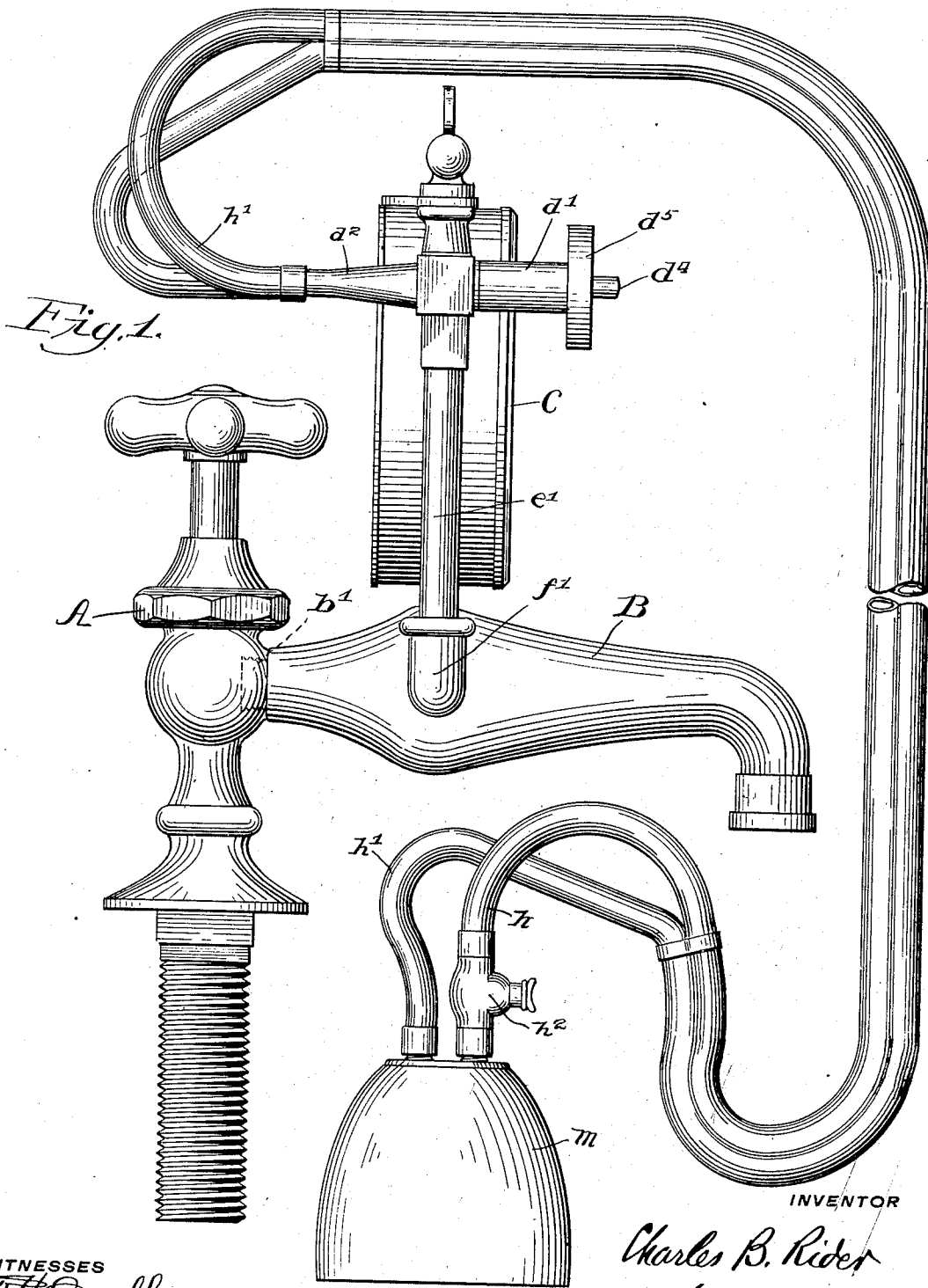


C. B. RIDER.
 VACUUM MASSAGING MACHINE.
 APPLICATION FILED MAR. 31, 1909.

929,113.

Patented July 27, 1909.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 2.

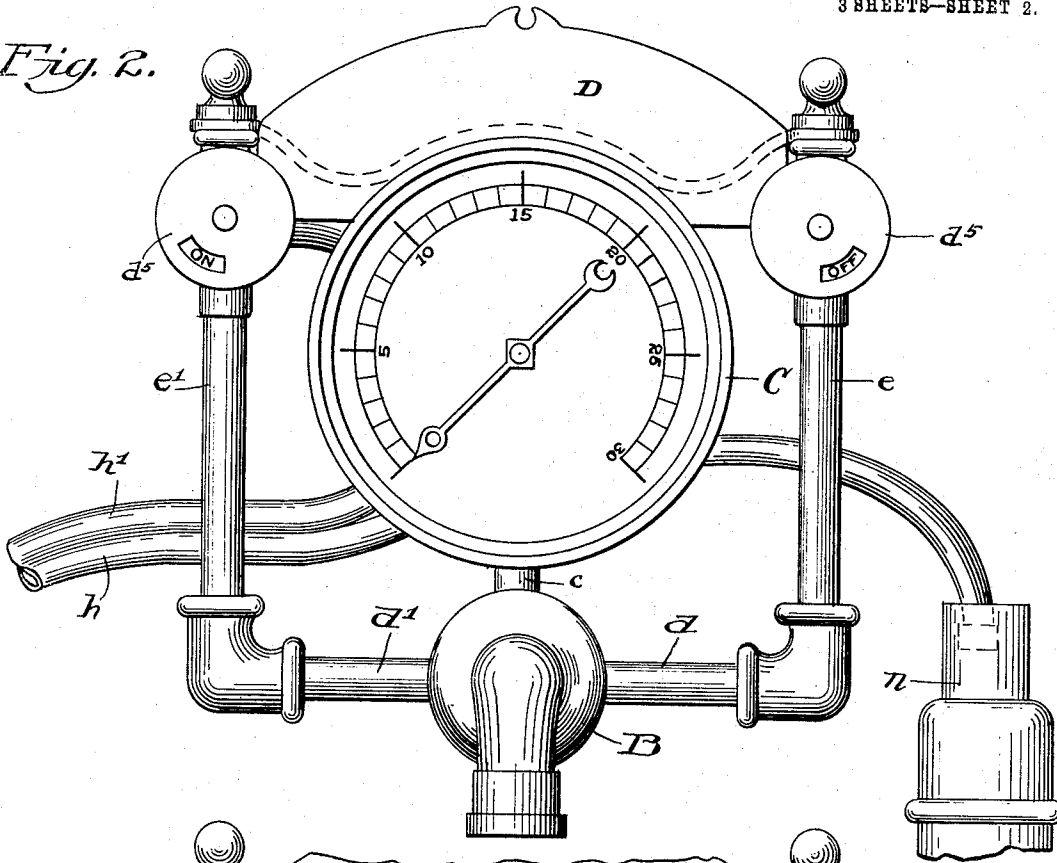
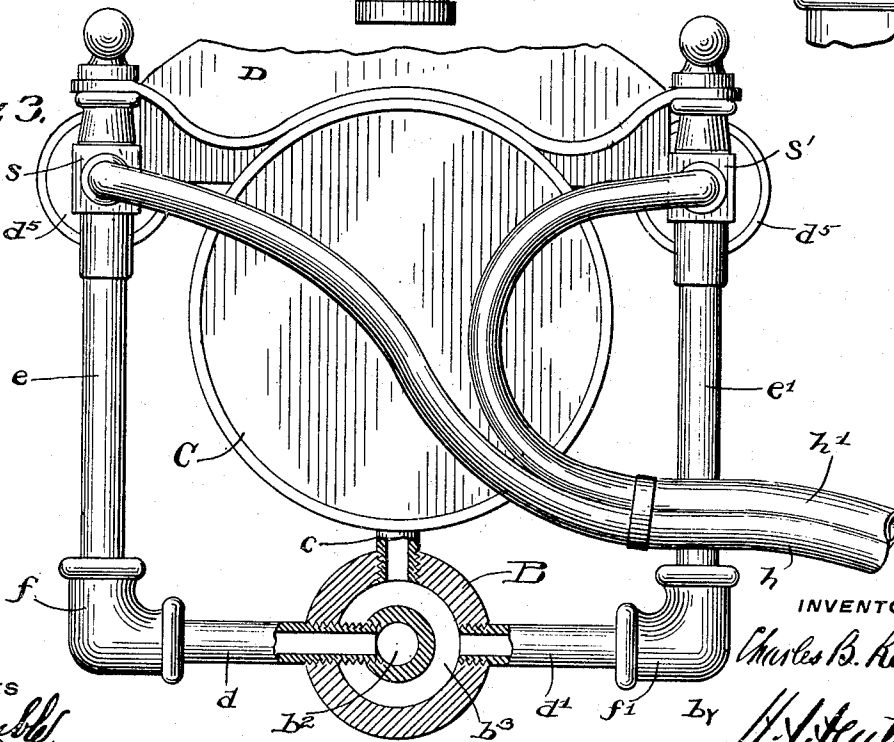


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

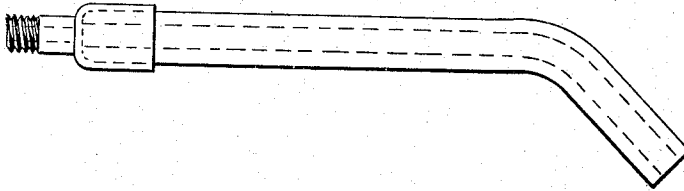


Fig. 5.

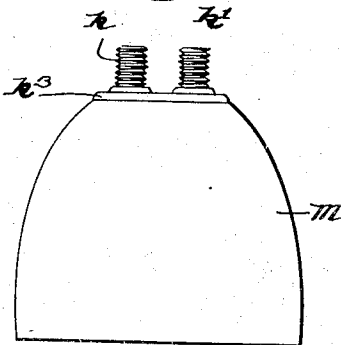


Fig. 6.

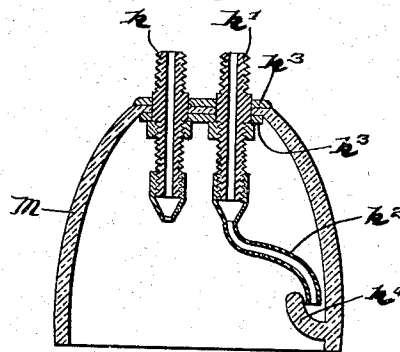


Fig. 7.

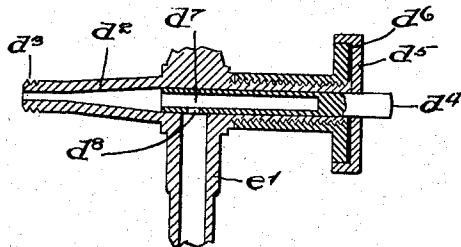
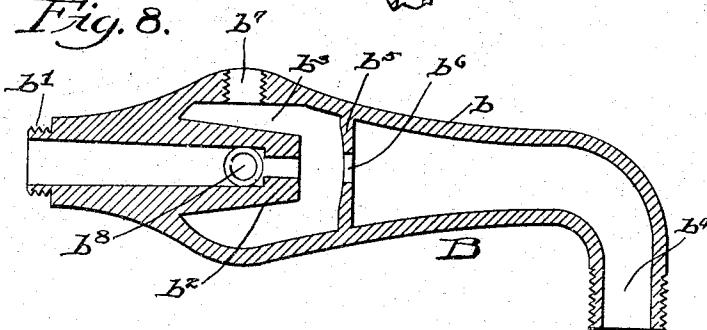


Fig. 8.



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UNITED STATES PATENT OFFICE.

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VACUUM MASSAGING-MACHINE.

No. 929,113.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed March 31, 1909. Serial No. 486,995.

To all whom it may concern:

Be it known that I, CHARLES B. RIDER, citizen of the United States, residing at Ocean City, State of New Jersey, have invented certain new and useful Improvements in Vacuum Massaging-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to vacuum massaging apparatus, and has for its object to provide an instrument perfected in all its elements and as a whole, which, stated, generally, consists, in combination, an air-exhaust or vacuum tube operated by water under pressure, a chambered vacuum cup, valve-controlled tubular means between the two creating and governing the vacuum in the chambered cup, other valve-controlled tubular means between the same elements to divert the water passing through the air-exhaust tube from the nozzle thereof to the vacuum cup. In a pending application for patent, Serial No. 448,113, I have described and claimed an apparatus comprising said recited elements in combination, but my present invention is of improvements in the several elements thereof, and of new arrangements, in combination, of said elements, and of wholly new minor elements and combinations of them.

In the accompanying drawings illustrating my present invention, Figure 1 is a side elevation of the complete device, all the parts being in operative position. Fig. 2 is a front view of the apparatus, detached from the water-supply bib, and from the vacuum cup, and showing an alternative source of wash-supply. Fig. 3 is a rear view of the same parts, partly in section, and not showing the alternative source of wash-supply. Fig. 4 is an elevation of an alternative form of vacuum cup; Fig. 5 is an elevation and Fig. 6 a central vertical section of the principal form of vacuum cup. Fig. 7 is a longitudinal section of one of two similar valves each controlling the respective tubular means for air and water, between the vacuum tube or exhaust device, and Fig. 8 is a longitudinal section of the vacuum tube or exhaust device.

Referring now to said drawings, in which similar letters of reference refer to like parts in the several views, A indicates a wash-stand bib or faucet, having the usual screw-

threaded water-discharge aperture, into which, directly or through a coupling-ring commonly employed, the screw-threaded inlet end b' of the vacuum tube element B of my apparatus is inserted; hence the latter is not only operatively and removably supported by the fixed bib, but is so far connected directly with the source of water-supply, without the intervention of flexible or other tubular connections, and in such manner as to bring the water-discharge end of the vacuum tube into position over the wash bowl to discharge directly thereinto; these being features entirely new in apparatus of this class employing a vacuum device operated by water under pressure. The vacuum tube B is preferably constructed as a single casting, as shown in section in Fig. 8, and consists of the water-inlet tube b^2 , which tapers slightly interiorly, operating as an injector nozzle and which is centrally disposed within a casing b , of greater diameter in the region of the nozzle to provide an annular air-exhaust chamber b^3 ; the casing b thence extending, preferably tapering to a smaller diameter, and curved downward, as at b^4 , at its discharge end, in order to discharge directly into the basin to which the bib is attached.

The inlet end of the injector nozzle b^2 projects beyond the rear end of the casing b to provide the aforesaid screw-threaded end or nipple b' to couple the device to the water-bib. Within the casing, slightly beyond the discharge end of the injector nozzle b^2 is a plate b^5 which is slightly concave on its side facing the nozzle and is centrally bored at b^6 to provide a water-discharge opening slightly larger than the opening in the discharge end of the nozzle. The purpose of this plate, when constructed and arranged relatively to the discharge end of the nozzle, as described, is to get the full air-exhausting effect of a moving column of water by moderating the rapidity of its discharge through the casing from the nozzle, and to this end the function of the apertured plate is two-fold, namely: it operates as a sort of baffle plate, gathering the water on its concave face toward the central aperture therein, and the latter presents a water-discharge opening which, while slightly larger than the discharge end of the nozzle, is relatively smaller in circular area than the discharge chamber of the casing forward of the nozzle.

The casing b is apertured in the region of the air-chamber b^3 , as at b^1 , which opening is screw-threaded, to conveniently attach thereto the air-tube c of a pressure gage indicated at C in Figs. 1, 2 and 3. On opposite sides of the casing b are screw-threaded openings b^8 (Fig. 8) which receive screw-threaded tubes d, d' (see Figs. 2 and 3), one of them (d') leading, through means to be described, from the air-chamber b^3 of the vacuum tube, to the vacuum cup to be exhausted of its contained air; and the other of them (d) extending through the wall of the casing and of the injector tube, and also leading, through means to be described, to the vacuum cup. The former (d') and its tubular connections, govern the exhaust of air from the cup, while the latter (d) governs the supply of wash water to the cup, when desired, as hereinafter described. Each of the tubes d, d' , being horizontally disposed and transversely to the length of the vacuum tube, are connected respectively, by elbow couplings f, f' to vertically disposed tubes e, e' which are externally connected, near the top of each, by a cross-piece or standard D. Near the top of each of the tubes e, e' , they are transversely bored to admit of a valve s (for the wash-water tube) and valve s' for the air-exhaust tube. These valves are alike and one of them is shown in longitudinal section in Fig. 7, and they consist of a tubular barrel d^2 having a threaded or notched end on which to removably place the end of a flexible tube h' leading to the vacuum cup m (see Fig. 1); and in this barrel is mounted a hollow plug d^1 apertured at d^8 , so that on the turn of a plug its aperture will open or close, respectively, communication between the air-tube e' and barrel d^2 ; while on the other end of the barrel is screwed a tube having a disk-shaped face-plate d^6 , on which are printed at appropriate places the words "Off" and "On" (see Fig. 2). On the projecting end of the plug d^1 and embracing said face-plate is a flanged operating button d^5 having a slot cut in it, so that when it and the plug are turned, appropriately, the slot will expose the word "On" or "Off" as the case may be.

The flexible tubes h and h' are respectively attached to the notched end of the barrels of the air and wash-water valves d and d' and lead to the vacuum cup m , though, in the case of the water-tube h , the connection is through the medium of an interposed spring-controlled and normally-closed thumb-valve h^2 (see Fig. 1) which is the same as in my former apparatus and need not be further described. The vacuum cup, in the form most commonly employed by me (see Figs. 5 and 6) consists of a bell-shaped, or other suitable shape giving a chambered interior, of glass or other suitable material. At its flattened apex it is em-

braced on both sides by flat metallic disks each having a pair of screw-threaded apertures in which are mounted a pair of nipples, k, k' . The nipple k has a reduced discharge end, preferably, and on its projecting screw-threaded end is applied the barrel of the thumb-valve h^2 before referred to, and on the opposite end of this valve barrel is attached the free end of the flexible wash-water tube h , extending from end of valve-barrel of water-tube e (see Fig. 3) through tube d to the interior of the injector nozzle. The projecting end of the other nipple, k' , (Fig. 6) receives the opposite end of the air-exhaust flexible tube h' , leading, through the valved tubular connections described, to the air-exhaust chamber of the vacuum tube. This nipple k' is however supplied at its discharge end with a small tubular extension h^2 bent over toward the wall of the vacuum cup m with its end behind a boss k^3 preferably cast in the material of the cup, the function being to prevent the flesh being drawn up into the exhaust tube.

For some purposes such as the removal of black-heads, so-called, a glass vacuum cup of tubular shape having its operating end bent at an obtuse angle to the body of the tube, and provided at its opposite end with a metallic attaching handle for detachably coupling to it a flexible air-tube, as shown in Fig. 4, is very effective for such use.

Referring now to Fig. 2, the flexible wash-water tube h , governed by its thumb-valve h^2 , and leading from nipple k on the vacuum cup, through valve-controlled tubes e and d to the interior of the injector nozzle of the vacuum tube (see Fig. 3) enables the operator (without closing valve s' or shutting off the air-exhaust) to wash the flesh massaged by pressing the thumb-valve and thereby establishing a direct communication between the source of water-supply and the vacuum cup; the water so entering the cup for washing purposes passing out through the air-tubes leading from the cup, without affecting the action of the exhaust except in degree. Furthermore the apparatus enables the operator to wash the flesh, through the vacuum cup, by a medicated solution drawn from a bottle, indicated at n , Fig. 2, by merely shutting off the valve s governing the tubular connections e and d , detaching the flexible tube h from the barrel of the valve s , and placing the detached end of the flexible tube h in the bottle n , the exhaust in the vacuum cup operating to draw the medicament through the tube h into the vacuum cup with facility.

The construction of the elements and their combination, as described, especially of the fixed parts shown in Figs. 2 and 3, are such, as to provide a compact and readily operated device, removably attachable as a whole directly to a fixed source of water supply

by which it is operatively supported, without the intervention of tubes, and discharging its water directly into the basin of the bib.

5 The operation of the apparatus otherwise than as stated, is readily understood. Attaching the fixed part of the apparatus, to the bib A by the screw-threaded projecting end, or an interposed common coupling ring, 10 of the injector nozzle of the vacuum tube, the volume of water from the bib, passing through the vacuum tube will discharge into the basin, creating in its passage a vacuum in the air-chamber *b*³ and extending through the valved tubular arm *e*¹ and flexible tube 15 *h*¹ to the vacuum cup. With or without closing the valve *s*¹ of said connections, the valve *s* governing the wash-water connections of the apparatus can be manipulated to throw a volume of water, much or little, as the 20 thumb-valve is manipulated, into the vacuum cup; while by closing valve *s* and detaching its flexible water-tube *h*, and dropping the free end of the latter into a bottle 25 *n*, the vacuum cup will operate to draw a medicament therefrom and discharge it on the flesh operated on under the cup.

Having thus described my invention, I claim as new and desire to secure by Letters 30 Patent:—

1. In a vacuum massaging apparatus, the combination with a fixed water-supply bib, of an air-exhaust device comprising an injector nozzle adapted to be coupled to and 35 operatively supported horizontally by said bib, a casing providing an annular air-chamber around the nozzle and a water discharge chamber forward thereof, a rigid tubular frame-like structure mounted on said casing 40 and consisting of a pair of oppositely-disposed horizontal tubes leading respectively from said annular air-chamber and the interior of the nozzle, and bent intermediate their length into vertical parallelism, a valve-controlled nipple near the end of each of said 45 tubes, a flexible tube detachably mounted on each of said nipples, and a vacuum cup provided with coupling means for the opposite ends of said flexible tubes.

50 2. The combination with a vacuum tube comprising an injector nozzle and a suitable casing therefor providing an annular exhaust chamber surrounding the nozzle and a water discharge chamber forward thereof, of 55 a frame-like structure adapted to support said vacuum tube horizontally, and consisting of a pair of rigid valve-controlled tubes leading respectively from the air exhaust chamber and interior of the injector nozzle 60 of the vacuum tube and extending horizontally and in opposite directions, and then vertically and in parallelism, a vacuum cup, and flexible tubular means detachably connecting the same with either or both said 65 rigid tubes.

3. In combination, an air-exhausting device, a vacuum cup and valve-controlled tubular means operatively connecting the same, said vacuum cup having a boss on its interior wall rearward of its peripheral edge, and a 70 rigid air-exhaust tube which is provided with an extended end terminating in a recess behind said boss.

4. In combination, an air-exhausting device operating by fluid under pressure, a 75 vacuum cup and valve-controlled tubular means operatively connecting the same, said vacuum cup having a truncated apex, a pair of plates on opposite sides thereof, and a pair of screw-threaded tubes mounted in said 80 plates.

5. In combination, a vacuum cup, valve-controlled tubular means leading therefrom, with means on the opposite end of said tubular means adapted to exhaust the air from 85 said cup by a moving volume of fluid under pressure, said means consisting of an injector nozzle, a casing therefor providing an annular air-chamber surrounding the nozzle, and an apertured plate within the casing 90 forward of the discharge end of the nozzle and in alinement therewith.

6. In combination, a vacuum cup, valve-controlled tubular means leading therefrom, and an air-exhausting device on the opposite 95 end of said tubular means operating by water under pressure, said exhausting device consisting of an injector nozzle having means to couple its inlet end to a source of water supply, a tubular casing therefor providing an annular air-chamber surrounding 100 the nozzle, and provided with a concaved and apertured plate in its water discharge chamber in alinement with the nozzle.

7. In combination, an air-exhausting device 105 comprising an injector nozzle and a suitable containing casing therefor providing an annular exhaust chamber surrounding the nozzle and a water discharge chamber forward thereof, rigid tubular means 110 communicating respectively with the air-exhaust chamber and interior of the injector nozzle of said exhaust device, a valve-controlled nipple near the end of each of said 115 tubular means, a flexible tube leading from each of said nipples, and a vacuum cup, provided with tubular means for air and for water respectively, with which said flexible 120 tubes are adapted to be detachably coupled.

8. In combination, an air-exhausting device, a vacuum cup, valve-controlled tubular means operatively connecting said elements, said cup having an upwardly-projecting boss on its interior wall above its lower edge, 125 adapted to provide a recess between it and said wall, a rigid air tube and means to support it dependingly from the apex of the cup, said tube having an extension end terminating in said recess between the boss and 130 the wall of the cup.

9. In combination, an air-exhausting device, a vacuum cup, valve-controlled tubular means operatively connecting said elements, said cup having a pair of plates on opposite sides of the apex of the cup, a pair of screw-threaded tubes mounted in said plates, and reducing nipples on the ends of said tubes which extend within the cup.

10. In combination with a vacuum cup, a flexible air tube leading to and from the same, and an air-exhausting device comprising an injector tube and a suitable casing therefor providing an annular exhaust chamber surrounding the nozzle and a water discharge chamber forward thereof, of a tubular frame-like structure operatively supporting said exhaust device, one tube of

said structure leading to the air-exhaust chamber and the other to the interior of the injector tube, a valve-barrel carrying a valve, on the end of each of said members of the tubular structure, means to actuate the valves manually, means actuated by said valves indicating their open and closed positions respectively, and a nipple on each of said valve barrels to which a flexible tube is adapted to be detachably coupled.

In testimony whereof, I have hereunto affixed my signature this 25th day of March A. D. 1909.

CHARLES B. RIDER.

Witnesses:

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A. M. BIDDLE.