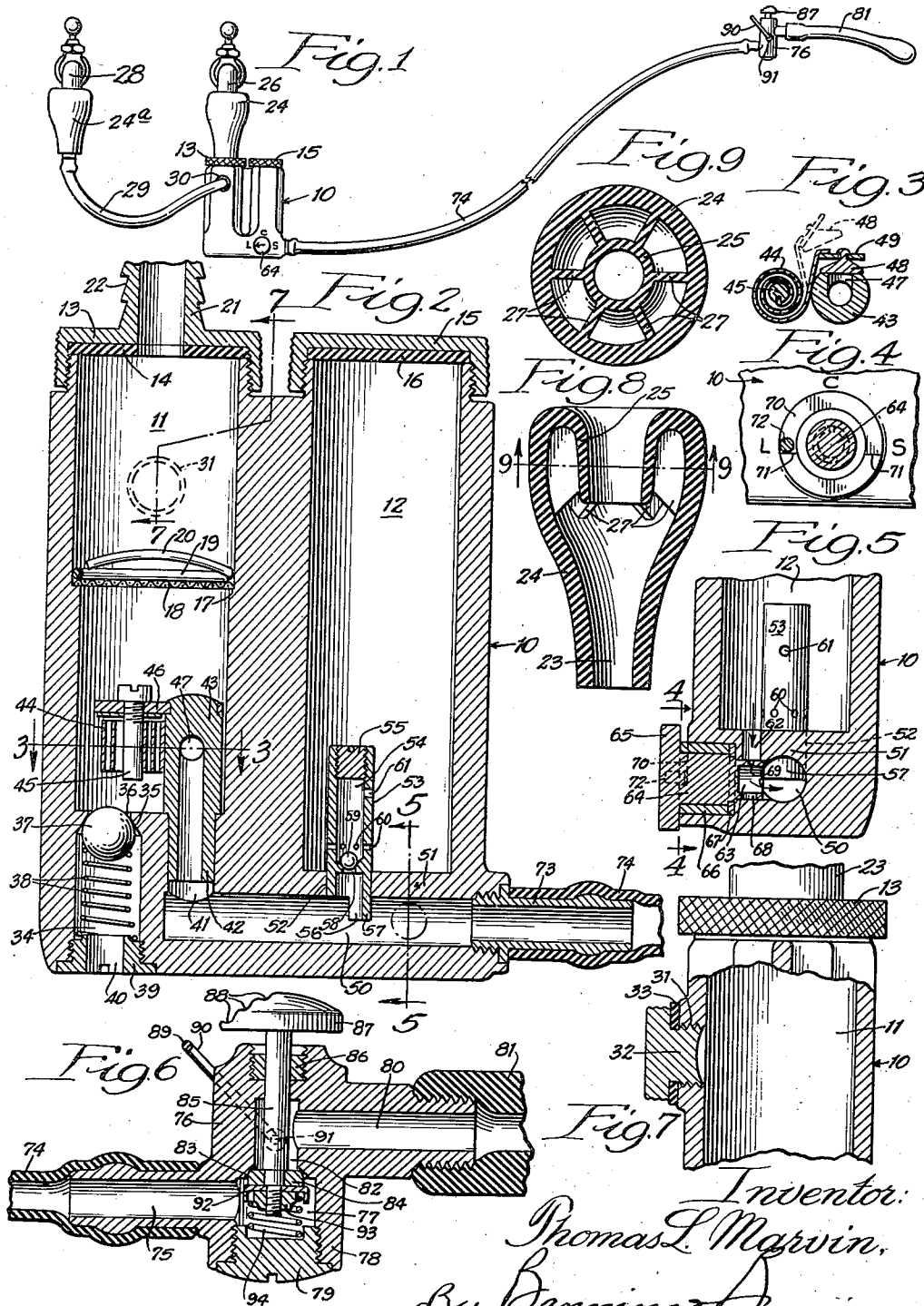


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DOUCHE APPARATUS

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DOUCHE APPARATUS

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The douche apparatus of the present invention is designed to provide for the attachment of the apparatus to one or both faucets of a water system delivering water under city pressure, and to regulate both the pressure and temperature of the water delivered through the tube and syringe or other fitting intended for insertion into the human body to cleanse certain cavities.

A further object is to provide for the commingling of a medicated liquid with the main stream of water of any predetermined amount, so that a mixture may be discharged into the body.

The invention further relates to the means provided for regulating the quantity of medicated fluid admitted, and to the means for regulating the quantity of fluid finally discharged and for maintaining the regulating means in properly adjusted position.

The invention also relates to the means provided for filtering the water admitted from the faucet or faucets; to the nipples for making attachment to the faucets; to the construction and arrangement of the thermostatically controlled valve for regulating the water flow; and to the general structure and arrangement of the device as a whole and the means provided for coordinating the action of the various parts thereof.

Further objects and details will appear from the description of the invention in conjunction with the accompanying drawing, wherein—

Figure 1 is a side elevation of the device as a whole connected to two companion faucets for obtaining a mixture of hot and cold water;

Fig. 2 is a sectional elevation showing the interior arrangement of the water and medicine chambers and the valves, ports, passages, and other features of interior construction;

Fig. 3 is a sectional detail of a thermostatic valve taken on line 3—3 of Fig. 2;

Fig. 4 is a section through the medicine discharge valve taken on line 4—4 of Fig. 5;

Fig. 5 is a sectional view of the lower end of the medicine chamber taken on line 5—5 of Fig. 2;

Fig. 6 is a sectional elevation through the finger valve for controlling the discharge from the flexible hose into the syringe or other device intended for insertion into the body;

Fig. 7 is a fragmental sectional view of the upper portion of the water chamber showing the side port plugged where it is not desired to make connection with a second water faucet;

Fig. 8 is a sectional elevation of the rubber union for attachment to a water faucet; and

Fig. 9 is a cross sectional view of the same taken on line 9—9 of Fig. 8.

The principal operating features of the present device are housed within a casing 10 which is preferably formed of light non-corrosive metal, although it might be formed of a suitable composition. The casing is cored to provide a water chamber 11 and a medicine chamber 12, the former of which is closed by a threaded cap 13 seating against a gasket 14, and the latter of which is closed by a threaded cap 15 seating against a gasket 16.

The chambers 11 and 12 are both of cylindrical formation, and the water chamber 11 near its middle is offset to provide a shoulder 17 for the support of a screen or filter 18 which is secured to a ring shaped rim 19, the ends of which are reversely bent inwardly and arched to afford a finger grip 20 which permits the screen to be easily removed for cleaning or repair.

Water is admitted to the top of the water chamber through a nipple 21 upstanding from the cap 13 and provided on its periphery with circumferential teeth or serrations 22 which serve to engage the neck 23 of an expansible rubber union 24, the walls of which are upwardly flared outwardly and reversely extended inwardly to afford an inner collar 25 adapted to tightly engage the end of a water faucet 26.

Between the collar and the surrounding wall of the union are a series of radial fins 27 which divide the annular space surrounding the inner collar into downwardly opening pockets or compartments which reinforce and center the inner collar 25 but permit it to expand when it is fitted onto the faucet and serve to create a vacuum due to the water flow which draws in on the surrounding walls of the union and assists in holding the same tightly upon the faucet. The ribbed arrangement also serves to prevent any tendency for the union to roll back under pressure, so that the construction as a whole is one which affords a sufficiently firm fit and seal to suspend the casing from the faucet without other means of support.

Where it is desired to make connection to a second faucet 28, a similar union 24^a is employed, which is connected by a flexible hose 29 to an appropriate plug 30 which is threaded into a lateral port 31 in the side wall of the water chamber. However, where a second water connection is not required, the threaded aperture is

closed by a sealing plug 32 bearing against a gasket 33 (Fig. 7).

Below the floor of the water chamber is located a pressure relief chamber 34, the upper end of which is beveled to afford a valve seat 35 surrounding a port 36 which is regulated by a ball relief valve 37 backed by a spring 38 seated against a threaded nut 39 countersunk into the base of the casing and adapted to be adjusted to regulate the spring pressure against the ball relief valve 37. The nut is provided with a waste port 40 for the discharge of water at a pressure in excess of that which it is desired to maintain within the device.

The base of the water chamber is cored to afford a port 41 into which is fitted the tubular stem 42 of a hollow post 43 which supports a convolute bi-metallic thermostatic spring 44, the inner end of which is secured to the stem of an adjusting screw 45 threaded through an arm 46 laterally projecting from the upper end of the post 43. The tubular post is provided with a laterally opening port 47 which is adapted to be closed by a floating valve seat 48 loosely connected to a finger 49 projecting laterally from the free end of said thermostatic spring 44, the valve seat 48 being adjustable in relation to the screw 45. When water below the intended temperature is flowing, the thermostatic spring will contract, as indicated in dotted lines in Fig. 3, to open the valve port 47 for the passage of water through the tubular post 43. When, however, the water chamber approaches the limit of safety, the thermostatic spring will expand, and when the temperature limit is reached, the floating seat will seat itself against the port 47, thereby firmly and tightly sealing the port against the passage of water.

The water discharged through the tubular post 43 enters a horizontal duct 50 located in the base of the casing and extending directly under the medicine chamber 12, which is designed for the reception of medical ingredients either in liquid or powder form, which are intended to be commingled in predetermined amount with the water stream passing through the duct 50.

The chamber 12 is separated from the duct by a floor wall 51 which is provided with an aperture 52 through which is entered the lower end of a vertically disposed valve stem 53 having a center duct 54 which is closed at the upper end by a plug 55. The valve stem at its lower end is provided with a recess 56 communicating directly with the duct 50, and the further wall 57 (in the direction of water flow) is downwardly extended to afford a weir for diverting water upwardly through a restricted valve port 58 which is regulated by a ball check valve 59 which seats against the throated wall at the upper end of the valve port 58.

Immediately above the valve seat thus provided are located a plurality of lateral ports 60 for the discharge of water diverted upwardly from the main stream and into the medicine chamber. In order to facilitate the easy rise of the ball check valve, an upper port 61 is provided. This arrangement permits water to be diverted upwardly from the main stream and into the medicine chamber until the water rises to the extent necessary to commingle with and submerge the medicine therein located, but the rise of the water is restricted by the entrapment of air in the upper part of the medicine chamber, which thus builds up the air pressure and facil-

itates the discharge of the medicated liquid in a manner now to be described.

The discharge from the medicine chamber is afforded by a port 62 (Fig. 5) located in the floor of the medicine chamber, which discharge is controlled by the cupped inner end 63 of an antiseptic valve 64 terminating exteriorly in an enlarged thumb disk 65. The antiseptic valve is journaled within a bushing 66 bearing against a gasket 67 at its inner end. The cupped acting inner end of the antiseptic valve is provided with two oppositely disposed ports 68 and 69 either of which may be turned to register with the port 62. The antiseptic valve communicates laterally with the main duct 50, so that, by regulating the faucet valve, the medicated liquid may be admitted in proper amount into the main water stream, or cut off therefrom entirely as occasion may require.

The rotating movement of the antiseptic valve is limited, as in Fig. 4, by the provision of a surrounding boss which is offset on its upper face 70 to afford abutments 71 at each end which are adapted to be engaged by a pin 72 inwardly extending from the rim of the thumb disk 65. Suitable designating letters, such as L, S, and C, may be provided to indicate the position for adjustment to admit a larger or smaller amount of liquid, or to close off the flow thereof.

The end of the duct 50 has threaded therein a nipple 73 which receives the inner end of a flexible tube or hose 74, the outer end of which is fitted upon a nipple 75 projecting outwardly from a discharge valve 76 having a valve chamber 77 in its lower portion, which is formed in a boss 78 closed by a screw plug 79. The discharge from the valve 76 is through a ported nipple 80 which is threaded into the stem of a syringe 81 or other instrument adapted for insertion into the human body.

The duct through the nipple 80 enters an upper chamber 82 of reduced diameter as compared with the chamber 77, which affords a beveled valve seat 83 at the juncture between the two chambers, which valve seat is closed by a valve 84 on the lower end of a stem 85 projecting upwardly through a plug 86 and topped by a finger button 87 provided on its inner upper face with a series of steps 88, each of which is adapted to be engaged by the cross head 89 of a bail shaped latch 90, the free ends of which are trunnioned at 91 on each side of the valve casing, the arrangement being such that the latch 90 can be adjusted to engage any one of the steps 88 in the finger button, thereby depressing and holding the same at the desired level.

The valve 84 is backed by a flanged disk 92 which is held in place on the threaded end of a valve stem by a nut 93. The disk provides contact for the upper end of a spring 94 for normally holding the valve seated but which permits it to be opened to a greater or less extent as occasion may require.

Operation

In use, the device is attached to one or both of the faucets in the manner described, and water is admitted to the chamber 11 at the desired temperature. The water enters at city pressure, which is usually in excess of that desired for discharge into the human body, and in order to prevent excess of pressure the tested spring 38 is adjusted to hold the ball relief valve seated up to a desired pressure, for instance four pounds, and yield when pressure in excess of that amount

is built up, thereby discharging the excess through the drain duct 40 into a wash bowl or the like. The arrangement thus maintains a pressure of say four pounds in the water chamber, and so long as the water remains below the critical temperature, water at this pressure will flow through the duct in the stem 42 and into the lower duct 50. If the temperature rises above the critical point, the thermostatic valve 48 will close, and as it approaches closing position, the water pressure will snap it shut and it will seat itself tightly, in view of the floating connection provided. This guards against excessively hot water from being injected into the human body, and permits the faucets to be adjusted to deliver water at the proper temperature.

In the exemplification of the invention here shown, the duct in the stem 42 is of less diameter than the lower duct 50, while the duct through the discharge nipple 73 is likewise of less diameter than the duct 50. By regulating the capacity of these ducts in relation to one another in any desired manner, the water pressure can be still further reduced to any desirable amount.

The arrangement of the relief valve 37 also prevents building up of excessive pressure on the rubber faucet union 24, or elsewhere throughout the system, and the force and volume of the ejected water can be further regulated by the setting of the discharge valve 84. All of the ports and passages are of proper dimensions to maintain the pressure within safe and desirable limits and to permit regulation of the discharge as occasion may require.

When medicine is to be used, the water flowing under properly regulated pressure and restricted temperature will be diverted upwardly by the depending weir 57 through the check valve 59 and into the medicine chamber, where it will commingle with the medicine in liquid, granular, or powder form therein contained, and the rising liquid will trap the air in the upper portion of the chamber and there maintain an air pressure which will assist in discharging the medicated liquid through the duct 62 and through the faucet valve 64, which is adjusted to permit the desired flow from the medicine chamber.

So long as the pressure in the duct 50 is in excess of the pressure in the medicine chamber, the ball valve 59 will be lifted and a circulation will be maintained through the medicine chamber, but as the air pressure is built up in the upper part of the chamber, it will cause the ball valve to drop back to its seat, which closes the inlet port and checks any back flow of the mixture into the main current. In this way the discharge of the medicine will be regulated solely by the faucet valve 64 and no excess of medicine can escape into the main line through the inlet port.

Where it is desired to block off the discharge of medicine entirely, the antiseptic faucet valve 64 is turned to closing position, so that clean water only will flow through the nozzle. The discharge control valve assists in regulating the volume and pressure of the discharge in conjunction with the relief valve 37, so that the harmonious relationing of the various parts composing the device as a whole will enable the liquid to be discharged into the body in the desired pressure and volume.

The device as a whole is simple in construction and so designed that the various parts may be easily assembled within the main casing, thereby reducing the cost of manufacture and insuring a simple, rigid and compact arrangement

which may be readily fitted to any faucet or faucets, irrespective of the city water pressure, which eliminates the necessity for providing an elevated water bag of the character ordinarily employed to afford the necessary head of water.

Although the device has been described in full detail, it will be understood that various changes in the construction and arrangement of the parts may be made without departing from the spirit of the invention.

I claim:

1. In a douche apparatus, the combination of a casing provided on its interior with a water chamber having a waste port leading therefrom, a relief valve for controlling the discharge through said waste port and being backed by a spring and means for regulating the pressure exerted thereby, the casing being provided below the water chamber with a main discharge duct and a hose connection and nipple communicating therewith, a tubular ported post extending upwardly into the water chamber and communicating at its upper end with the water chamber and at its lower end with the main duct, and a bimetallic thermostatic member mounted on said post and carrying a floating valve member adapted upon the rise of temperature to close the port through said post.

2. In a douche apparatus, the combination of a casing provided on its interior with a water chamber having a water inlet in the upper portion thereof and having a waste port leading therefrom below said inlet, a relief valve for controlling the discharge through said waste port and being backed by a spring and means for regulating the pressure exerted thereby, the casing being provided below the water chamber with a main discharge duct and a hose connection and nipple communicating therewith, a tubular ported post extending upwardly into the water chamber and communicating at its upper end with the water chamber and at its lower end with the main duct, and a bimetallic thermostatic member mounted on said post and carrying a freely mounted floating valve member adapted upon the rise of temperature to close the port through said post, and means for adjusting the thermostatic member to regulate the relation of said floating valve member to said port to effect closing of the freely mounted floating valve member at the desired temperature.

3. In a douche apparatus, the combination of a casing provided on its interior with a water chamber having a water inlet in the upper portion thereof and having a waste port leading from the base thereof, a relief valve for controlling the discharge through said waste port and being backed by a spring and means for regulating the pressure exerted thereby, the casing being provided below the water chamber with a main discharge duct and a hose connection and nipple communicating therewith, a tubular ported post extending upwardly into the water chamber and communicating at its upper end with the water chamber and at its lower end with the main duct, a bimetallic thermostatic member mounted on said post and carrying a freely mounted floating valve member adapted upon the rise of temperature to close the port through said post, means for adjusting the thermostatic member to regulate the relation of said floating valve member to said port to effect closing of the freely mounted floating valve member at the desired temperature, and a removable screen sup-

ported within the water chamber above said post and below the water inlet.

4. In a douche apparatus, the combination of a casing provided with a water chamber and an adjoining medicine chamber, means for admitting water under pressure to the upper portion of the water chamber, the casing being provided with a waste duct leading from the base of the water chamber and also provided with a main discharge duct below the two chambers and communicating with the water chamber, a relief valve controlling the waste flow for limiting the water pressure within the water chamber, check valve controlled means for admitting water upwardly from the discharge duct to the medicine chamber, the casing having a discharge passage leading downwardly from the medicine chamber to the main discharge duct and an antiseptic for controlling the flow of medicated liquid through said passage, and a flexible hose and nozzle communicating with the main discharge duct.

5. In a douche apparatus, the combination of a casing provided with a water chamber and an adjoining medicine chamber, means for admitting water under pressure to the upper portion of the water chamber, the casing being provided with a waste duct leading from the base of the water chamber and also provided with a main discharge duct below the two chambers and communicating with the water chamber, a relief valve controlling the waste flow for limiting the water pressure within the water chamber and thermostatic means for regulating the downflow of water from the water chamber to the discharge duct, check valve controlled means for admitting water upwardly from the discharge duct to the medicine chamber, the casing having a discharge passage leading from the medicine chamber downwardly to the main discharge duct and an antiseptic valve for controlling the flow of medicated liquid through said passage, and a flexible hose and nozzle communicating with the discharge duct.

6. In a douche apparatus, the combination of a casing provided with a water chamber and an adjoining medicine chamber, means for admitting water under pressure to the upper portion of the water chamber, the casing being provided with a waste duct leading from the base of the water chamber, and also provided with a main discharge duct located below and communicating with the water chamber, a relief valve controlling the waste flow for limiting the water pressure within the water chamber, check valve controlled means for admitting water from the discharge duct upwardly to the medicine chamber, said means including a weir depending into

the main discharge duct for diverting water upwardly therefrom, the casing having a discharge passage leading downwardly from the medicine chamber to the main discharge duct and an antiseptic valve for controlling the flow of medicated liquid through said passage, and a flexible hose and nozzle communicating with the discharge passage.

7. In a douche apparatus, the combination of a casing provided with a water chamber and an adjoining medicine chamber, means for admitting water under pressure to the upper portion of the water chamber, the casing being provided with a waste duct leading from the base of the water chamber and also provided with a main discharge duct located below both chambers and communicating with the water chamber, a relief valve controlling the waste flow for limiting the water pressure within the water chamber and thermostatic means located in the base of the water chamber for regulating the water flow from the water chamber to the discharge duct, check valve controlled means for admitting water from the discharge duct upwardly to the medicine chamber, said means including a weir depending into the main discharge duct for diverting water upwardly therefrom, the casing having a discharge passage leading from the medicine chamber downwardly to the main discharge duct and an antiseptic valve for controlling the flow of medicated liquid through said passage, and a flexible hose and nozzle communicating with the discharge passage.

8. In a douche apparatus, the combination of a main casing provided on its interior with a water chamber and an adjoining medicine chamber and having a main duct located in its base and extending transversely below said chambers, means for connecting the upper portion of the water chamber with a source of water under pressure and a yieldable relief valve in the base of the water chamber for preventing excess of pressure within the water chamber, check valve controlled means for admitting water from the main duct upwardly to the medicine chamber and an antiseptic valve for regulating the return flow of the medicated water downwardly to the main duct, a flexible hose connected with the casing and communicating with the main discharge duct, a discharge valve casing carried by the hose and provided with means for attaching a nozzle or the like thereto, said discharge valve casing providing communication from the hose through the nozzle attaching means, and a depressible finger valve for controlling said line of communication and a spring backing therefor.

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