

Nov. 27, 1934.

J. S. MARTIN

1,982,259

BATH APPARATUS

Original Filed Feb. 19, 1931 3 Sheets-Sheet 1

Fig. 1.

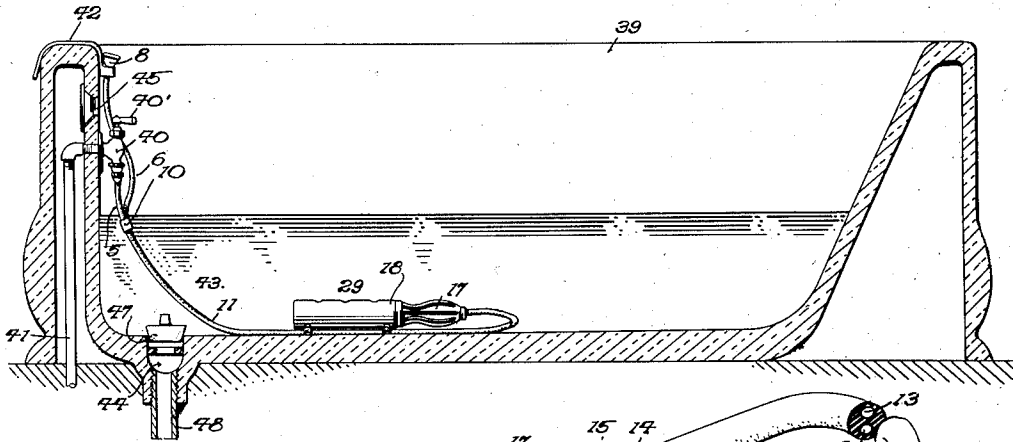


Fig. 2.

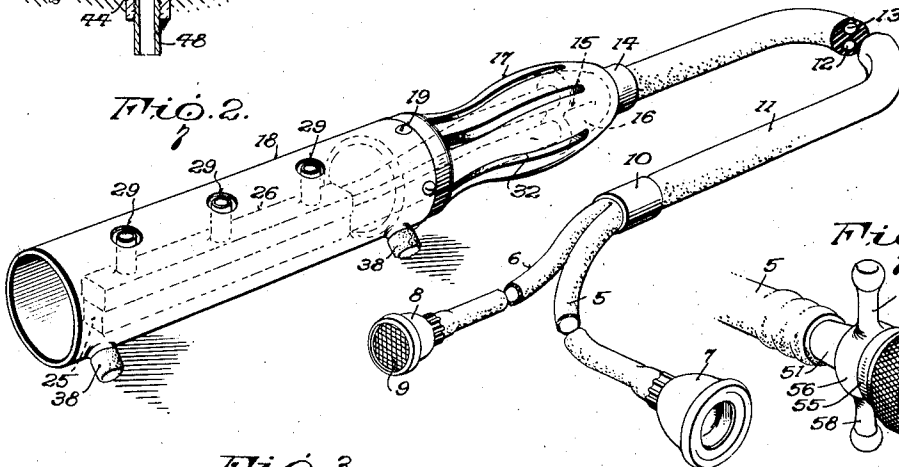


Fig. 5.

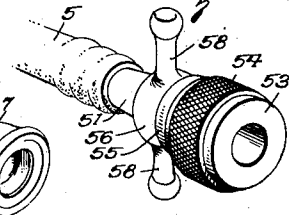


Fig. 3.

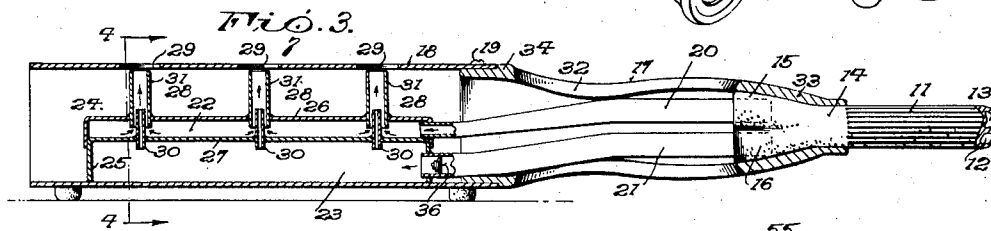


Fig. 4.

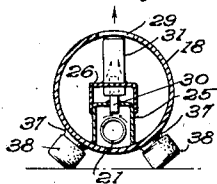
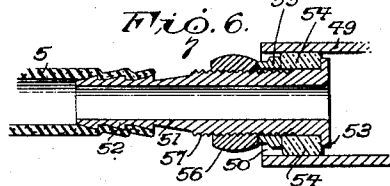


Fig. 6.



Inventor

John S. Martin.

By

Cameron, Kerkam & Sutton.

Attorneys

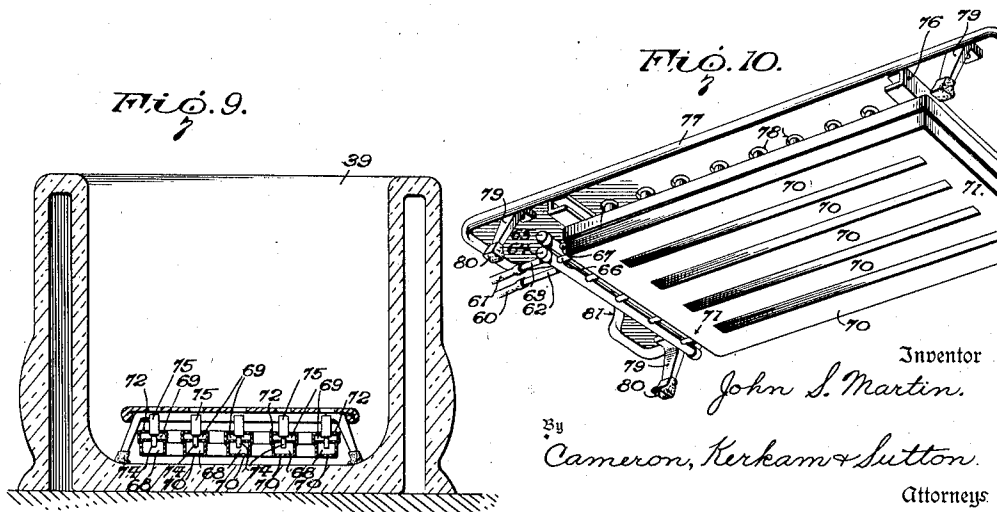
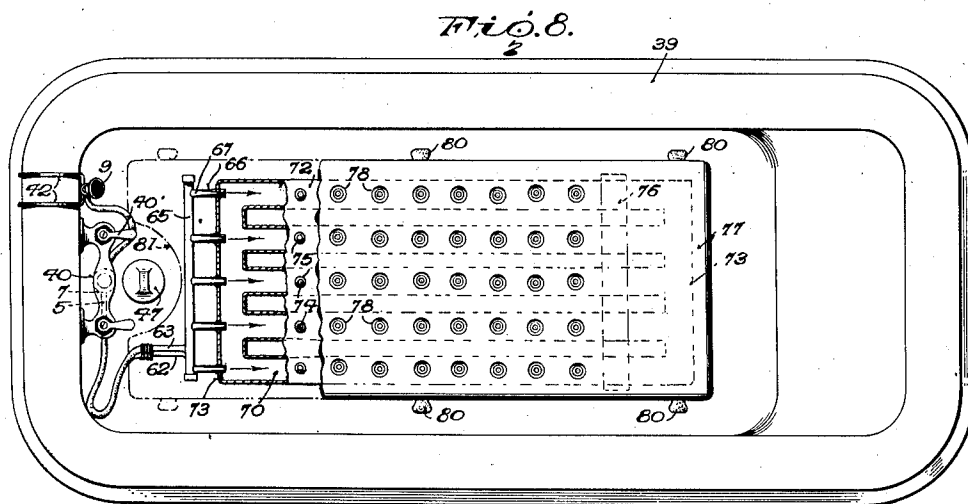
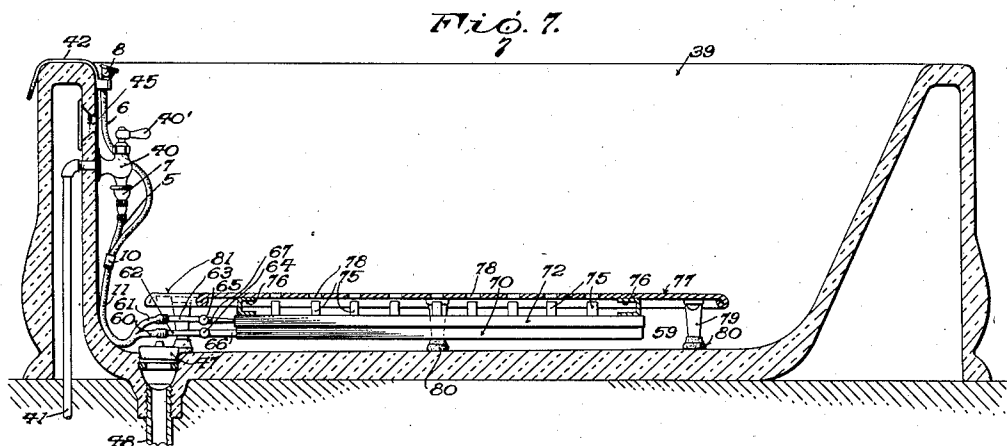
Nov. 27, 1934.

J. S. MARTIN

1,982,259

BATH APPARATUS

Original Filed Feb. 19, 1931 3 Sheets-Sheet 2



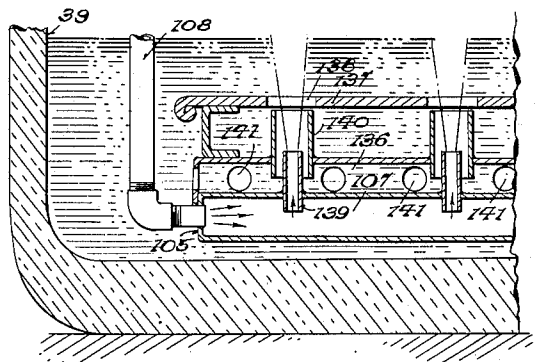
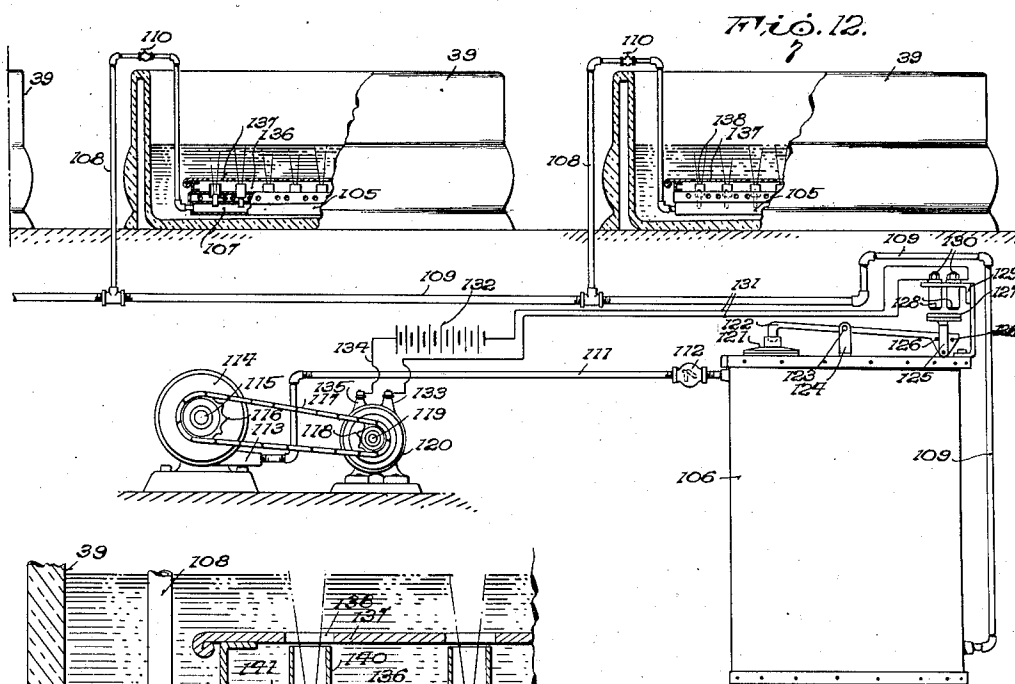
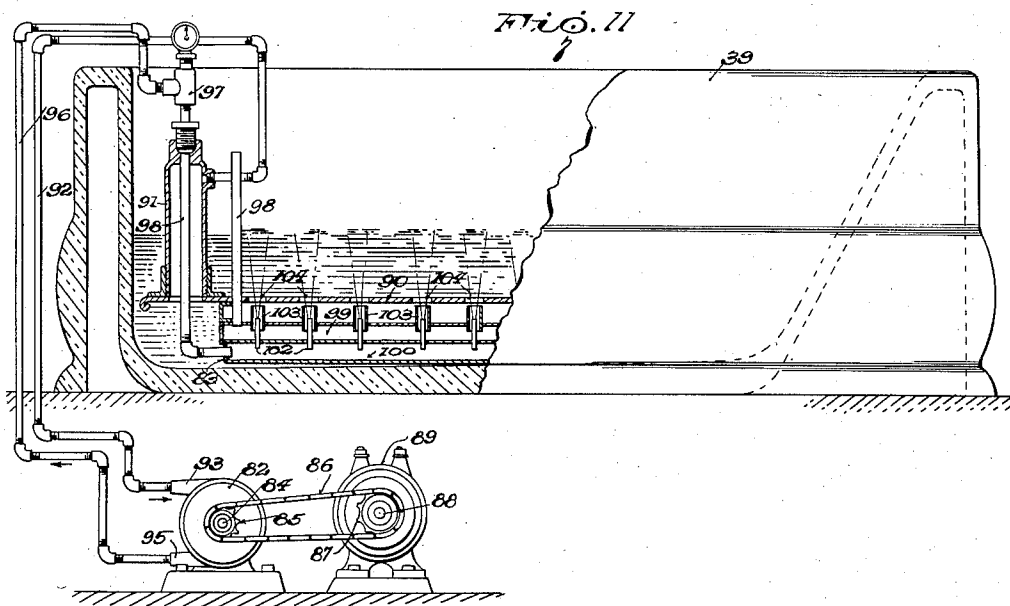
Nov. 27, 1934.

J. S. MARTIN

1,982,259

BATH APPARATUS

Original Filed Feb. 19, 1931 3 Sheets-Sheet 3



Inventor

John S. Martin.

Cameron, Kerkam & Sutton.
Attorneys

UNITED STATES PATENT OFFICE

1,982,259

BATH APPARATUS

John S. Martin, Atlantic City, N. J., assignor to
Hydro-Pneumatic Bath Appliance Company,
Atlantic City, N. J., a corporation of New Jersey

Application February 19, 1931, Serial No. 517,090
Renewed March 1, 1934

16 Claims. (Cl. 4—180)

This invention relates to bath apparatus, and more particularly to bath apparatus of the type employed in administering treatments that have a stimulating and healthful effect on the body of the person receiving the same.

One object of the present invention is to provide bath apparatus which is constructed for use under water to produce a fluid massage on the body of a person therein, and embodies an improved manifold and injector elements thereon, for both portable and normally stationary types of equipment.

Another object of the present invention is to provide bath apparatus, either of portable or normally stationary types, which has a novel manifold constructed and arranged in connection with injectors thereon, to form high velocity massaging jets or sprays under water for application to the body of a person therein.

Another object of the present invention is to provide bath apparatus which embodies novel connections, conduits, manifold compartments, and associated devices, so formed as to readily facilitate their assembly in a portable appliance that will produce high velocity massaging jets or sprays under water for application to the body of a person therein.

Another object of the present invention is to provide bath apparatus which embodies novel means for producing massaging jets or sprays under water or other liquid, and wherein either air or other gas under pressure, or water or other liquid under pressure is supplied to said means and entrains another fluid constituent of said jets or sprays.

Another object of the present invention is to provide bath apparatus which embodies superposed manifold conduits or compartments equipped with injectors for producing massaging jets or sprays and affording an extremely compact and efficient assembly for use in either portable or normally stationary types of equipment.

Another object of the present invention is to provide bath apparatus which embodies novel means for producing massaging jets or sprays under water or the like and enables said jets or sprays to be formed simultaneously in a plurality of tubs or pools, or selectively in one or more of the same.

Another object of the present invention is to provide bath equipment which embodies novel jet or spray producing means for administering fluid massage treatments in a plurality of tubs or pools, and wherein fluid under pressure for the jet or spray producing means of the several tubs

or pools is derived from a single and automatically controlled apparatus.

These and other objects of the present invention will appear as the following description thereof proceeds, and in order to more clearly understand said invention, reference may be had to the accompanying drawings which illustrate several embodiments of the inventive idea.

In said drawings:

Fig. 1 is a vertical longitudinal sectional view of a tub, showing portable fluid massage apparatus embodying the present invention and connected with the hot and cold water mixing faucet for said tub;

Fig. 2 is an enlarged detail perspective view of the portable fluid massage apparatus or appliance shown in Fig. 1;

Fig. 3 is a vertical longitudinal sectional view of said apparatus or appliance;

Fig. 4 is a vertical transverse sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a detail perspective view of means for connecting the apparatus or appliance with a faucet having an outlet such as shown in Fig. 6;

Fig. 6 is a vertical longitudinal sectional view of said faucet outlet and the connection shown in Fig. 5;

Fig. 7 is a vertical longitudinal sectional view of a tub equipped with fluid massage apparatus constituting another embodiment of the present invention;

Fig. 8 is a top plan view of the tub and apparatus shown in Fig. 7;

Fig. 9 is a vertical transverse sectional view through the tub and apparatus shown in Figs. 7 and 8;

Fig. 10 is a detail perspective view of the apparatus shown in Figs. 7 to 9 inclusive;

Fig. 11 is a side elevation, partly in section, of a tub and fluid massage apparatus associated therewith and constituting another embodiment of the present invention;

Fig. 12 is a side elevation, partly in section, of a plurality of tubs equipped with fluid massage apparatus constituting another embodiment of the present invention;

Fig. 13 is an enlarged fragmentary vertical longitudinal sectional view of a tub and portions of the apparatus shown in Fig. 12.

Referring to the drawings, wherein like reference characters designate like parts throughout the several views, Figs. 2, 3 and 4 illustrate a portable fluid massage apparatus or appliance embodying the present invention and including a flexible conduit 5 and a similar conduit 6 pro-

vided on corresponding extremities thereof with couplings 7 and 8, respectively. The coupling 7 may be of any suitable type adapted to be readily connected with and disconnected from a faucet or other source of water or liquid under pressure, and the coupling 8 may also be of any suitable type provided, if desired, with a screen 9, and adapted to admit air or other gas in the conduit 6. The coupling ends of the conduits 5 and 6 extend separately out of a coupling 10 formed on one extremity of a flexible hose 11 or the like provided therein with passages 12 and 13 that form continuations of the conduits 5 and 6, respectively.

The opposite extremity of the hose 11 is provided with a coupling 14 having two branches 15 and 16 which communicate with the passages 12 and 13, respectively, and are enclosed in a hollow handle 17 provided at one end thereof with an opening through which the coupling 14 extends. The opposite end of the handle 17 is fitted in one end of a tubular guard or casing 18 and secured thereto, as by small machine screws 19 or the like.

The conduits 5, 6, the hose 11, and the coupling 14 with its branches 15, 16, may be of any suitable construction and made of any suitable material, but as herein shown, the conduits and hose are preferably formed of rubber and integrally with each other, and the coupling 14 and its branches 15, 16 are preferably formed of hard rubber or other suitable rigid substance vulcanized to or formed integrally with the hose 11.

The handle 17 may be of wood, metal, hard rubber, or any other suitable material, and said handle may be secured to or fitted on the guard or casing 18 in the described or any other suitable manner.

Connected in any suitable manner with the branches 15 and 16 of coupling 14 are conduits 20 and 21, respectively, which are made of metal or any other suitable material, and extend through the handle 17 into the guard or casing 18 that is likewise made of metal or other suitable material. This guard or casing 18 is provided interiorly thereof with a manifold having a conduit or compartment 22 connected in any suitable manner with the conduit 20, and a conduit or compartment 23 connected in any suitable manner with the conduit 21. This manifold is indicated broadly at 24 and said manifold is preferably formed by an elongated box 25 of rectangular cross section, and a cover 26 fitted on said box in spaced relation with the wall 27 thereof. The cover 26 has a fluidtight fit with the box 27 and may be secured thereto in any suitable manner. The box 25, in turn, is secured in any suitable manner to the guard or casing 18 within the latter, and said guard or casing forms one wall of the box in opposed relation with the wall 27 thereof.

The manifold 24 is provided with injector means preferably comprised by a plurality of injectors indicated broadly at 28. These injectors extend transversely of the guard or casing 18 and are axially aligned with openings 29 in the wall thereof. The injectors 28 are each preferably comprised by two tubes 30 and 31 of different diameters extending one within the other, the tubes 30 being secured to the wall 27 of box 25 in any suitable manner and communicating with the compartment 23, and the tubes 31 being secured to the cover 26 in any suitable manner and communicating with the compartment 22. The injectors 28 serve to mix gas and

liquid received from the compartments 22 and 23, respectively, and discharge jets or sprays of said mixture under pressure and at high velocity through the openings 29 in the guard or casing for application to the body of a person as hereinafter described.

The guard or casing 18 is open at the end thereof opposite that carrying the handle 17, and said handle is preferably hollow and provided therein with slots 32 extending between opposite annular end portions 33 and 34 of the handle. The screen 9, and a screen 36 in the inner end of the conduit 21, prevent dirt or other matter from entering the various conduits, the manifold, and the injectors, and thereby insure that said conduits, manifold, and injectors will function properly and not become clogged or stopped up by any extraneous matter. The guard or casing 18 may, if desired, be provided with lugs 37 which are secured to or formed integrally with said guard or casing and fitted with rubber sleeves or the like 38. Said lugs and sleeves serve to support the guard or casing 18 when the apparatus or appliance is not in use, and the sleeves 38 prevent marring or scratching of the surface of any equipment on which the apparatus or appliance might be supported.

The above described portable fluid massage apparatus or appliance may be used in tubs, pools, or other bathing places as, for example, in a tub 39 such as indicated in Fig. 1 of the drawings. This tub 39 is equipped with a mixing faucet 40 for hot and cold water received from any suitable source through pipes such as indicated at 41. In this case, the coupling 7 is connected with the faucet 40, and the water under pressure is delivered through the conduit 5, passage 12, conduit in branch 16 of coupling 14, and conduit 21, into the compartment 23 of manifold 24. The conduit 6, in the use of the portable apparatus or appliance as stated, is preferably supported by a hook 42 secured in any suitable manner to the coupling 8 and detachably engaged over the upper edge of the tub 39 to hold said coupling in a position substantially as shown in Fig. 1 of the drawings. The water delivered under pressure into the compartment 23 of manifold 25, as previously pointed out, passes through the tubes 30 of the injectors 28, and tubes 31 thereof, and the openings 29 in the guard or casing 18. The tubes 30, as clearly shown in Fig. 3 of the drawings, extend within the tubes 31 in spaced relation therewith, so that the passage of water through the injectors in the manner stated, creates suction in the compartment 22, the conduit 20, the passage 13, and the conduit 6, thereby drawing air into the compartment 22. This air is entrained by the water delivered through the tubes 30, mixed therewith in the injectors 28, and discharged therefrom through the openings 29 in the guard or casing 18. The tub 39 may have previously been filled with water before attachment of the portable apparatus or appliance to the faucet 40, or said tub may be filled by delivery of the water therein through said apparatus or appliance after attachment thereof to said faucet. The tub 39 is provided with the usual drain opening 44, stopper 47 therefor, drain pipe 48, and overflow outlet 45.

A person in the tub 39 may, through the medium of the handle 17, move the portable fluid massage apparatus or appliance about the tub, and under the surface of the water therein, as desired, and thus apply the jets or sprays dis-

charged by the injectors 28, against various portions of the body with a beneficial and healthful effect thereon. The jets or sprays consisting of a mixture of liquid and gas discharged under pressure and at relatively high velocity below the surface of the water and against the body of the person therein produce, in effect, a vibratory massage on the body of the person, which massage may be of more or less vigorous character, in accordance with the pressure of the liquid as regulated by the handle 40' of the faucet 40. It will, of course, be understood that instead of delivering water or other liquid under pressure to the portable apparatus or appliance, the air or other gas could be delivered thereto under pressure and the water could be supplied from the tub to the portable apparatus or appliance through suitable openings in the manifold thereof. In either case, the effect produced upon the body of the person is substantially the same, and the device would be connected with the source of fluid under pressure, and operated, in substantially the same manner. Various forms of couplings could be connected with the conduits 5 and 6, for the delivery therethrough of liquid and gas, respectively. In Figs. 5 and 6, for example, there is shown a form of expansible coupling for connection with a faucet having a relatively large spout 49 and outlet opening 50. This coupling consists of a tube 51 provided at one end with serrations 52 and thereby connected with the liquid conduit 5 of the portable apparatus or appliance. The opposite end of the tube 51 is provided with a shoulder 53 engaging one side of a rubber ring 54 which is fitted on the tube 51 against said shoulder. A ring 55 loosely mounted on the tube 51 is adapted to engage the rubber ring 54 and expand the same when pressed thereagainst by a nut 56. This nut 56 is fitted on a threaded portion 57 of the tube 51, and said nut is provided with operating handles 58. When the coupling end of the tube 51 is inserted in the opening 50 of spout 49, the nut 56 is turned by the handles 58 to press the ring 55 against the ring 54 so that the latter is expanded against the inner periphery of the spout 49 to form a fluid-tight joint. The water from said spout is then delivered through the tube 51 and the conduit 5 to the portable apparatus or appliance, as previously described. When it is desired to disconnect the apparatus or appliance from the spout 49, the nut 56 is turned by the handles 58 to release the ring 55 from ring 54 so that the latter contracts and the coupling may be disconnected.

In the embodiment of the invention shown in Figs. 7 to 10, inclusive, the conduit 11, instead of being connected with a portable apparatus or appliance, is connected with a normally stationary manifold indicated broadly at 59 and having substantially the same construction as the manifold 24. In this case, the conduit 11 is provided at one end with flexible branches 60 and 61 communicating with the water and air passages 12 and 13 (Fig. 2) respectively, which, in turn, communicate with the conduits 5 and 6, as before described. The branches 60 and 61 are connected in any suitable manner with pipes 62 and 63, respectively, which connect with, and are secured in any suitable manner to, pipes or conduits 64 and 65 which are closed at their opposite ends by any suitable means for this purpose. The pipes 64 and 65 extend transversely of the tub 39 and have connected therewith, and extending at right angles thereto, pipes or conduits 66 and 67, respectively. The pipes 66 and 67, in turn, are

connected through one end of the manifold 59, with compartments or conduits 68 and 69 thereof, respectively. The conduits 68 and 69 are separated from each other longitudinally of the manifold and at the opposite ends thereof, the conduits 68 communicating with each other at opposite ends of the manifold respectively, and the conduits 69 likewise communicating with each other at opposite ends of said manifold, respectively.

The manifold 59, as clearly shown in Figs. 9 and 10, is made in the form of a grating or the like constructed in two parts one fitted on, and secured in any suitable manner to, the other so as to provide fluidtight joints between the same. The lower part of the manifold 59 is provided with a series of elongated box-like compartments or conduits 70 of rectangular cross section, and similar conduits or compartments 71 extending transversely of the conduits or compartments 70 at opposite ends thereof and communicating therewith as before described. The upper part of the manifold 59 is constituted by a series of elongated channel shape portions 72 and similar portions 73 extending transversely of the portions 72 at opposite ends thereof and communicating therewith. The manifold 59 is provided with injectors each comprising a pair of tubes 74, 75 of different diameters extending one within the other as in the case of the injectors previously described. The tubes 74 are secured to the conduits or compartments 70 on the top walls thereof and communicate with said compartments as clearly shown in Fig. 9 of the drawings. The tubes 75 are secured to the top of the channel members 72 and communicate with the chambers 69 formed by said members and the upper walls of the conduits or compartments 70. The manifold 59 is connected in any suitable manner with cross members 76 made of channel iron or other suitable material. These cross members 76, in turn, are secured in any suitable manner to a support 77 on the underside thereof. This support 77 is provided with openings 78 axially aligned with the injectors 74, 75 and through which the latter discharge jets or sprays of fluid in a manner to be presently described. The support 77 has secured thereto in any suitable manner legs 79 which rest on the bottom of the tub 39 and are provided with pads 80 of rubber or other suitable material that prevent marring or scratching of the surface of the tub.

When the tube 5 is connected with the faucet 40, as shown in Fig. 7 of the drawings, and the tube 6 is supported on the tub 39 by the hook 42, water under pressure may be delivered from the faucet 40 through the described connections therefor with the manifold 59, into the compartments 68 thereof. The water passes upwardly under pressure through the tubes 74 and the openings 78 in supports 77, thereby creating suction in the compartments 69 so that air is drawn therein through the described connections therefor with the conduit 6 and its fitting 8. The air is thus mixed with the water in the parts 75 of the injectors and the mixture of air and water is discharged from said injectors, as before described, for application to the body of a person positioned on the support 77. The tub 39 may have previously been filled with water from the faucet 40, or from the manifold 59, and the jets or sprays are delivered under water against the body of the person so as to produce a fluid vibratory massage on the body of the person with the

resulting invigorating and healthful effect attending the same.

In the embodiment of the invention shown in Fig. 11 of the drawings, a continuous circulation of the water in the tub 39 is maintained by a pump 82 and connections therefor with the manifold 83. The pump 82 may be of any suitable construction, but as herein shown is preferably of the rotary type including a driven shaft 84 having fixed thereon a sprocket 85 around which passes a chain 86. The chain 86 also passes around a sprocket 87 which is fixed on the armature shaft 88 of an electric motor 89 supplied with current from any suitable source. Mounted in the tub 39 in any suitable manner, is a support 90 arranged to be submerged in water supplied to the tub by suitable faucets or the like (not shown). Mounted on the support 90 is a standpipe 91 connected through the medium of a pipe 92 with the inlet 93 of the pump 82. The water is drawn from the tub through the standpipe 91, the pipe 92 and the inlet 93 of the pump and forced back through the outlet 95 of said pump through a pipe 96, a fitting 97 connected with said pipe and the standpipe 91, a pipe 98 connected with said fitting, and the manifold 83 which is connected with the last named pipe. A continuous circulation of water and air is thus maintained in the described circuit including the manifold, the pump, and the connections therebetween.

The manifold is connected with and supported by the support 90 in any suitable manner, and said manifold has a construction similar to that of the manifold shown in Figs. 7 to 10, inclusive, of the drawings. The manifold 83, however, has connected with the upper conduit or compartment 99 an air pipe 94 which extends upwardly toward the top of the tub 39. The lower compartment 100 of the manifold has connected therewith the pipe 98. The manifold 83, as in the case of the manifold previously described, is provided with injectors for mixing and discharging liquid and gas, and these injectors are each comprised by tubes 102 and 103 of different diameters extending one within the other, as clearly shown in Fig. 11 of the drawings. The tubes 102 are secured to the upper wall of the compartment 100 and communicate with the interior thereof, and the tubes 103 are secured to the upper wall of the compartment 99 and communicate with the interior thereof. The injectors 102, 103 are axially aligned with openings 104 formed in the support 90, so that when a person is positioned on said support, jets or sprays of air and water will be delivered from the injectors through the openings 104 against the body of the person to produce a fluid vibratory massage action on the body of the person, with the resulting invigorating and healthful effect previously referred to. The air is supplied to the injectors 102, 103 through pipe 98 and compartment 99, the water forced through said injectors creating suction in said pipe and compartment so that air from the atmosphere is drawn therethrough, entrained and mixed with the water in the injectors, and discharged therefrom with the water, as before described.

In the embodiment of the invention shown in Figs. 12 and 13 of the drawings, a series of tubs 39, arranged in separate rooms or compartments if desired, are connected with a single source of fluid under pressure supplied to manifolds 105 in the several tubs from a tank 106. For this purpose, the lower compartments or conduits 107 of the manifolds 105 have connected therewith pipes 108, which, in turn, are connected with a

pipe 109 that is connected with the tank 106. Suitable valves 110 may be provided in the pipes 108 to selectively or simultaneously control the delivery of air or gas under pressure from the tank 106 into the compartments 107 of the manifolds 105. The tank 106 has connected therewith one end of a pipe 111 provided with a suitable check valve 112 and having an opposite end connected with the outlet 113 of a rotary air compressor 114. This compressor 114 may be of any suitable construction including a driven shaft 115. Fixed on the shaft 115 is a sprocket 116 around which passes a chain 117 that also passes around a sprocket 118 which is fixed on the armature shaft 119 of an electric motor 120. Motor 120 receives current from any suitable source and drives the compressor 114 which therefore acts to supply the tank 106 with compressed air or other gas, through the pipe 111.

The supply of air in the tank 106 may, if desired, be regulated automatically, and for this purpose there is mounted on said tank, in communication with the interior thereof, a diaphragm 121 connected with one end of a lever 122 so as to rock the same about its pivot 123 as the pressure of the air in the tank 106 decreases and increases. The pivot 123 for the lever 122 is provided by a bracket 124 secured in any suitable manner to the tank 106, and the end of the lever opposite that connected with the diaphragm 121 has pivotally mounted thereon a lever 125 arranged for limited swinging movement on the lever 122 between pins 126 secured thereto. Carried by the lever 125 and insulated therefrom in any suitable manner is a contact 127 adapted to engage contacts 128 carried by a bracket 129 and insulated therefrom in any suitable manner. The bracket 129, in turn, is secured in any suitable manner on the tank 106. The contacts 128 are provided with suitable terminals 130 with which are connected lead wires 131 that, in turn, connect with one side of a source of electric current 132 and one terminal 133 of the electric motor 120. The opposite side of the source of electrical current 132 is connected by a lead wire 134 with the other terminal 135 of said electric motor.

When the tank 106 is sufficiently charged with air, the diaphragm 121 moves outwardly thus tilting the lever 122 so that the contact 127 is moved out of engagement with the contacts 128, and the motor 120 and the compressor 114 are stopped. When the pressure of the air in the tank 106 decreases sufficiently to enable the diaphragm 121 to move inwardly, the lever 122 is tilted so that the contacts 127 and 128 are engaged, thus starting the motor 120 and the compressor 114, to recharge the tank 106. It will thus appear that the tank 106 is automatically charged each time the pressure therein decreases sufficiently to enable the diaphragm 121 to move and engage the contacts 127, 128, and that as soon as the tank 106 is recharged, the motor and compressor will be stopped, as before described.

The manifolds 105 are substantially the same in construction and operation as those previously described, except that the air compartments 107 are provided in the lower part of the manifolds and water compartments 136 are provided in the upper part of the manifolds. The manifolds 105 are secured in any suitable manner to supports 137 and depend therefrom as clearly shown in Figs. 12 and 13 of the drawings. The supports 137, in turn, are mounted in any suitable manner in the several tubs, and said sup-

ports are provided with openings 138 that are axially aligned with injectors mounted on the manifolds 105. Each of these injectors comprises two tubes 139 and 140 of different diameters extending one within the other, the tubes 139 being mounted on the top walls of the compartments 107 and communicating with the interior of said compartments, and the tubes 140 being mounted on the top walls of the compartments 136 and communicating with the interior of the last named compartments. The compartments 136 are provided with suitable openings 141 through which water in the several tubs passes into said compartments. Water is supplied to the tubs and drained therefrom by suitable faucets and drain devices, respectively (not shown).

In the operation of the last described embodiment of the invention, air under pressure is delivered by the described means for this purpose, into the compartments 107, through the tubes 139 and 140, thereby entraining water from the compartments 136 in the tubes 140 and mixing said water with said air. The mixture of air and water is discharged under pressure through the openings 138 of the supports 137 in jets or sprays that produce a fluid vibratory massage when applied to persons on the supports 137. Thus, in accordance with the last described embodiment of the invention, treatments may be simultaneously administered in the several tubs or in any one of the same, through operation of the valves 110 or any one of the latter. In either case, the person positioned on the support in water in the tub in which the support is mounted, will have applied to the body, the jets or sprays of liquid and gas which produce a fluid vibratory massage on the body of the person, with the resulting invigorating and beneficial effects derived therefrom.

It will appear, from the foregoing, that as respects the portable apparatus or appliance first described, the same may be used under water to produce a fluid massage on the body of a person therein, or said apparatus or appliance may be used as a spray, if desired. It will further appear, that in all embodiments of the present invention, liquid may be delivered under pressure to the injectors thereof to entrain air or other gas therewith, or the gas or other air may be delivered under pressure to the injectors to entrain liquid therewith. It will further appear, that various liquids, gases, and mixtures thereof may be employed, and that either the liquid or the gas may be of a medicinal character or have a medicinal constituent as a component part thereof. Medicinal treatments may thus be given simultaneously with the fluid massage treatment, if desired.

It will further appear, that in all embodiments of the present invention, the delivery of jets or sprays into the water in the tub, pool, or other bathing place where the treatments are administered, will create a bubbling and agitation of the water that produces a pleasing and restful effect on the person being treated. This bubbling and agitation of the water assists in the application of the fluid vibratory massage to the body of the person, and may be emphasized with the addition to the water of effervescent compounds or materials of medicinal or other characteristics.

It will thus appear, from the foregoing, that while several embodiments of the invention have been illustrated and described herein with more or less particularity, the invention is not limited to said embodiments or otherwise than by the terms of the appended claims.

What is claimed is:

1. In an apparatus of the character described, a manifold having two conduits extending in side by side relation, injector devices on the manifold and each comprising two concentric nozzles extending one within the other in communication with the two conduits respectively, a hollow guard or casing for the injector devices and the manifold and in which the latter is secured with the injector devices in axial alignment with openings in said guard or casing, and flexible means for connecting the two manifold conduits with different sources of fluid one of which is delivered under pressure to the inner nozzles through the manifold conduit in communication therewith.

2. In an apparatus of the character described, a manifold having two conduits extending in side by side relation, injector devices on the manifold and each comprising two concentric nozzles extending one within the other in communication with the two conduits respectively, a hollow guard or casing for the injector devices and the manifold, and in which the latter is secured with the injector devices in axial alignment with openings in said guard or casing, flexible means for connecting the two manifold conduits with different sources of fluid one of which is delivered under pressure to the inner nozzles through the manifold conduit in communication therewith, and a hollow handle secured to the guard or casing and into which said flexible means extends.

3. In an apparatus of the character described, a manifold having two conduits extending in side by side relation, injector devices on the manifold and each comprising two concentric tubes or nozzles extending one within the other in communication with the two conduits respectively, a hollow guard or casing extending over and secured to the manifold and having openings axially aligned with the injectors and through which a mixture of liquid and gas may be discharged therefrom into liquid and against the body of a person therein, flexible means connected with one manifold conduit and adapted for connection with a source of liquid under pressure to deliver the same to the inner tubes or nozzles through said conduit, and means in said flexible means connected with the other manifold conduit and adapted to deliver gas to the outer tubes or nozzles through said last named manifold conduit.

4. In an apparatus of the character described, a manifold having two conduits extending in side by side relation, injector devices on the manifold and each comprising two concentric tubes or nozzles extending one within the other in communication with the two conduits respectively, a hollow guard or casing for the manifold and the injector devices and provided with openings through which a mixture of air and water may be discharged from said devices under water and against the body of a person therein, and a flexible hose connected with the manifold and including means adapted for connection with a source of water under pressure to deliver the same to the inner tubes or nozzles through the conduit in communication therewith and means adapted to communicate with the atmosphere and deliver air to the outer tubes or nozzles through the conduit in communication therewith.

5. In an apparatus of the character described, a manifold having two compartments of substantially rectangular cross section extending one on

- or beside the other, injector devices on the manifold and each comprising two concentric nozzles extending one within the other in communication with the two compartments respectively, a hollow guard or casing for the manifold and the injector devices and provided with openings through which a mixture of gas and liquid may be discharged under liquid in a tub or pool and against the body of a person therein, and flexible means for connecting the manifold compartments with two sources of fluid respectively one of which is delivered under pressure through the inner nozzles and the compartment connected therewith.
6. In apparatus of the character described, a manifold having air and water compartments of substantially rectangular cross section extending one on or beside the other, injector devices on the manifold and each comprising two concentric nozzles communicating with the two compartments respectively, a cylindrical guard or casing for the manifold and the injector devices and provided with openings through which a mixture of air and water may be discharged from said devices against the body of a person, and flexible means for connecting the manifold compartments with the atmosphere and a source of water under pressure respectively, to supply the injector devices with air and water and enable the guard or casing and the parts therein to be moved about the body of the person as desired to discharge the mixture of air and water against various portions of the body of the person.
7. In apparatus of the character described, a manifold of substantially rectangular cross section comprising two superposed coextensive conduits or compartments, and a plurality of means adapted to mix and discharge gas and liquid received from the two manifold conduits or compartments respectively, each of said means comprising two tubes of different diameters extending one within the other and each tube communicating with one of the manifold conduits or compartments and being secured to a wall thereof independently of the other manifold conduit or compartment.
8. In apparatus of the character described, a manifold comprising two conduits or compartments one in superposed relation with the other, and means adapted to mix and discharge gas and liquid received from the two manifold conduits or compartments respectively, said means comprising two tubes of different diameters extending one within the other, one of said tubes communicating with the upper manifold conduit or compartment and being secured to the upper wall thereof and the other tube communicating with the lower manifold conduit or compartment and being secured to the upper wall thereof.
9. In apparatus of the character described, a manifold including two conduits or compartments one extending in superposed relation with the other, the upper and lower conduits or compartments being provided with means for admitting gas and liquid therein respectively and the liquid admitting means on the lower conduit being adapted for connection with a source from which said liquid is delivered under pressure, and a plurality of injectors mounted on the manifold and adapted to mix and discharge gas and liquid received from the gas and liquid conduits thereof respectively, each of said injectors comprising two tubes of different diameters extending one within the other, the outer tubes communicating with the uppermost conduit and being secured on the upper wall thereof and the inner tubes communicating with the lowermost conduit and being secured to the upper wall thereof.
10. In apparatus of the character described, a manifold including two conduits or compartments one extending in superposed relation with the other, the upper and lower conduits or compartments being provided with means for admitting liquid and gas therein respectively and the gas admitting means on the lower conduit being adapted for connection with a source from which said gas is delivered under pressure, and a plurality of injectors on the manifold for mixing and discharging liquid and gas received from the upper and lower compartments or conduits respectively, said injectors each including two tubes of different diameters extending one within the other, the outer tubes communicating with the uppermost conduit or compartment through the upper wall thereof and the inner tubes communicating with the lowermost conduit or compartment through the upper wall thereof.
11. In apparatus of the character described, a manifold having two elongated superposed coextensive conduits of rectangular cross section, and a plurality of means on the manifold for mixing and discharging gas and liquid received from the superposed conduits respectively, said means each comprising a pair of short tubes of different lengths and diameters extending one within the other, the outer tubes communicating with the uppermost conduit through the upper wall thereof and the inner tubes communicating with the lowermost conduit through the upper wall of the latter.
12. In apparatus of the character described, a manifold having two conduits or compartments one in superposed relation with the other, and a plurality of means on the manifold for mixing and discharging gas and liquid received from the superposed conduits or compartments respectively, said means each comprising two axially aligned nozzles of different diameters extending one within the other, the outer nozzles communicating with the uppermost conduit or compartment through the upper wall thereof and the inner nozzles communicating with the lowermost conduit or compartment through the upper wall of the latter.
13. In apparatus of the character described, a manifold comprising a box of substantially rectangular cross section and a cover coextensive with the box and secured thereon in spaced relation with one wall thereof, and means on the manifold for mixing and discharging gas and liquid received from the interior of the box and the space between the latter and the cover respectively, said means comprising two nozzles of different diameters extending one within the other, one nozzle communicating with the space between the cover and the box and being secured to said cover, and the other nozzle communicating with the interior of the box and being secured to the wall thereof opposite the cover.
14. In apparatus of the character described, a manifold comprising an elongated box of substantially rectangular cross section and a cover coextensive with the box and fitted thereon in spaced relation with a wall thereof, and a plurality of means mounted on the manifold at intervals along the same and adapted to mix and discharge liquid and gas received from the space between the cover and the box and the interior of the latter respectively, each of said means com-

prising two short tubes of different diameters extending one within the other, the outer tubes communicating with the space between the cover and the box and being secured to the cover, and the inner tubes communicating with the interior of the box and being secured to the wall thereof opposite said cover.

15. In an invigorating bath appliance in a container adapted to hold a bath fluid, a perforated element supported in the container, a manifold beneath the element comprising a plurality of upper and lower passages, a plurality of jet nozzles carried by the manifold and registering with the perforations of the element, each jet nozzle comprising inner and outer jet tubes, the inner jet tubes arranged in telescopically spaced relation of the outer jet tubes and creating an entraining or injector action on the bath fluid, one ingredient passing through the inner jet tube and entraining the other bath ingredient through the outer jet tube, the outer jet tube entraining the combined bath ingredients through the perforations, whereby a thorough mixture of the two bath fluid ingredients is created, thereby agitating the entire bath solution.

16. In an invigorating bath appliance in a container adapted to hold a bath fluid, a perforated element supported in the container, a manifold beneath the element comprising a plurality of upper and lower passages, a plurality of jet nozzles carried by the manifold and registering with the perforations of the element, each jet nozzle comprising inner and outer jet tubes, the inner jet tubes arranged in telescopically spaced relation to the outer jet tubes and creating an entraining or injector action on the bath fluid, one ingredient passing through the inner jet tube and entraining the other bath ingredient through the outer jet tube, the outer jet tube entraining the combined bath ingredients through the perforations, whereby a thorough mixture of the two bath fluid ingredients is created, thereby agitating the entire bath solution, and means for supplying pressure to one of the bath ingredients for causing a thorough agitation on the bath fluid, thereby creating a massaging action to the bather.

JOHN S. MARTIN.

30

35

40

45

50

55

60

65

70

75

80

85

90

95

100

105

110

115

120

125

130

135

140

145

150