

[54] **LIQUID CONCENTRATE AND WATER MIXING AND DISPENSING DEVICE**

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[51] Int. Cl. **B05b 7/26**

[58] Field of Search 239/310, 312, 311, 318, 239/335, 436, 443, 444, 446

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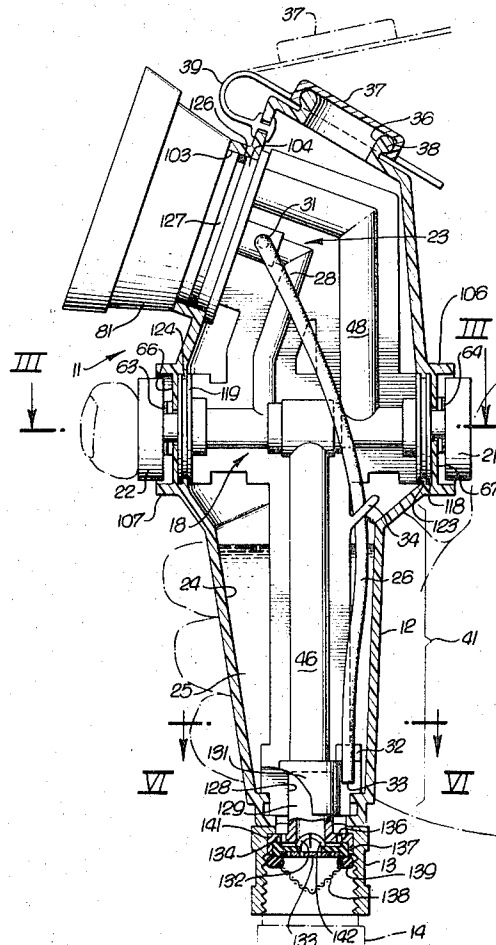
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[57] **ABSTRACT**

A hand held spray gun device adapted to be attached to a garden hose is provided for washing automobiles, garden furniture, pets, or spraying insecticide, disinfectant, etc. The body of the gun forms a reservoir for containing a liquid concentrate, such as soap, insecticide, disinfectant, etc. A pair of buttons are mounted on the gun for actuation by the thumb and index finger of the hand holding the gun body for selectively controlling a pair of fluid valves. Actuation of one button and its associated valve causes a discharge of a clean water shower-like rinsing spray, whereas operation of the other button discharges a strong jet of water and liquid concentrate useful, for example, as a cleaning jet with liquid soap. An aspirator device provides for adding and mixing the liquid concentrate with the water jet.

10 Claims, 8 Drawing Figures



II ← **FIG. 1.**

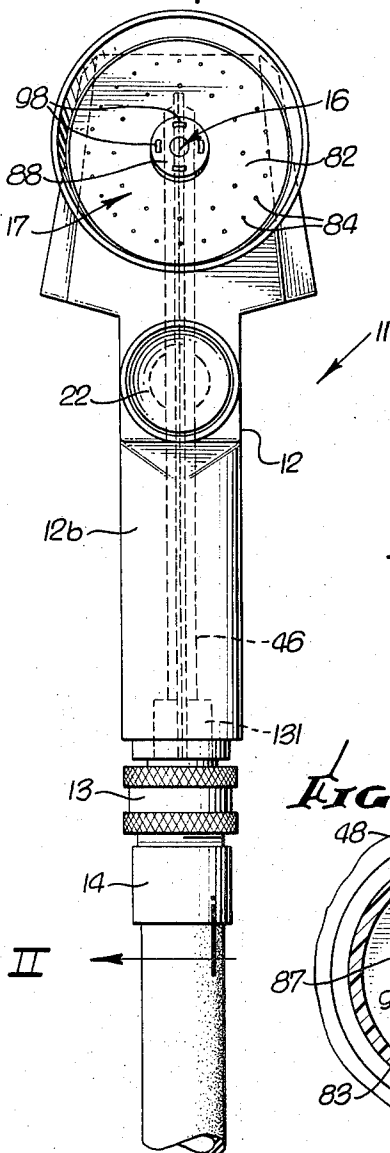


FIG. 2.

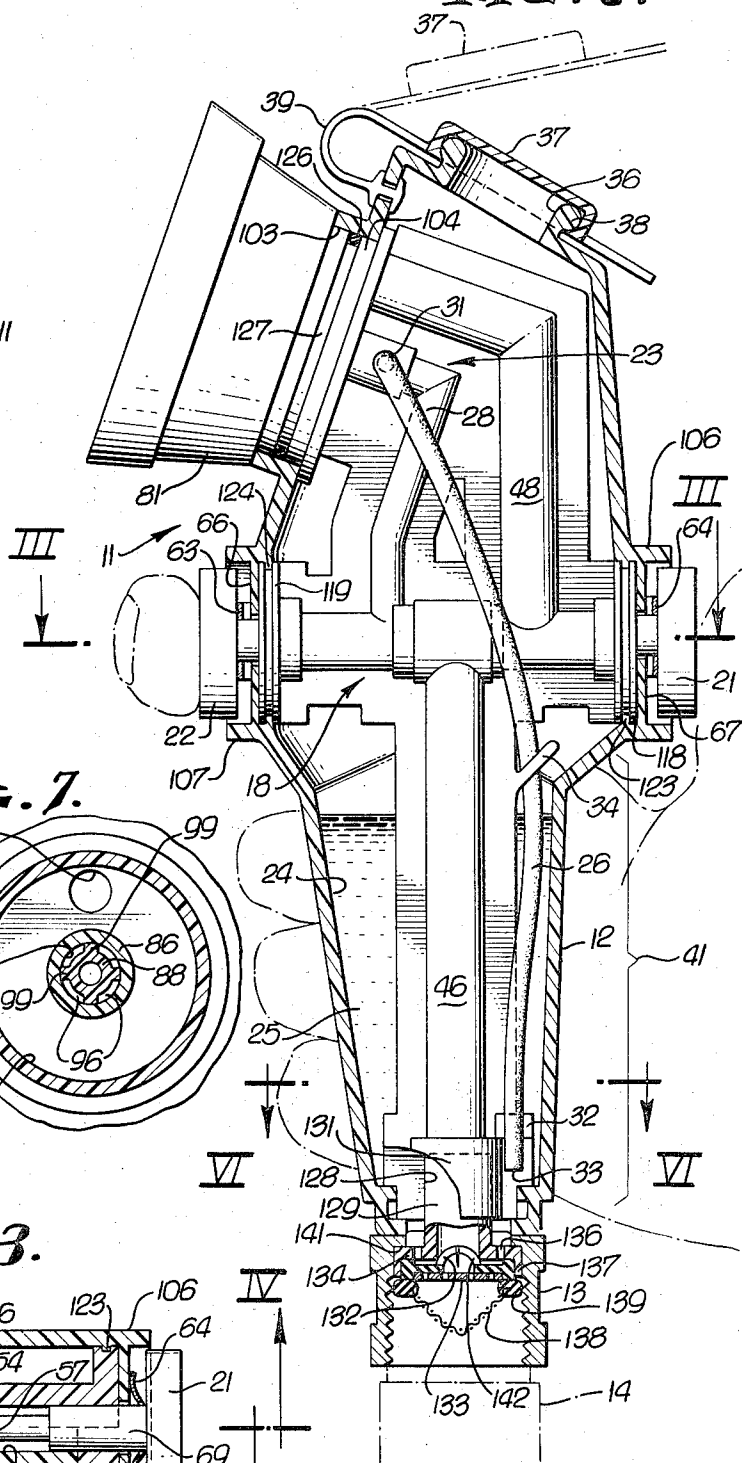


FIG. 7.

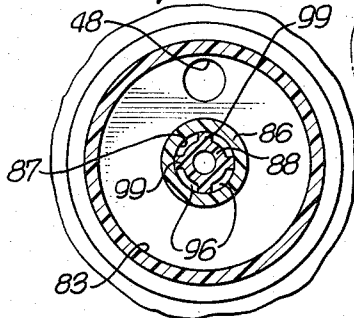
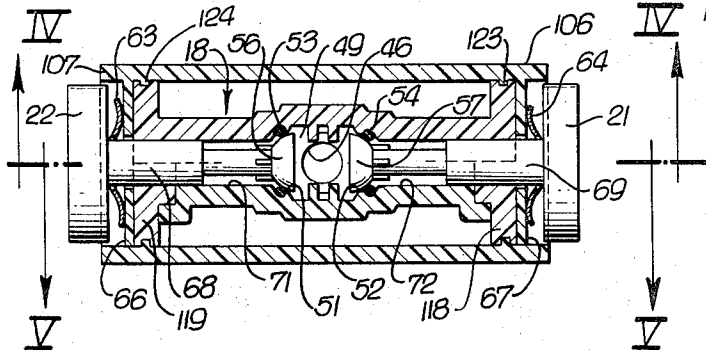
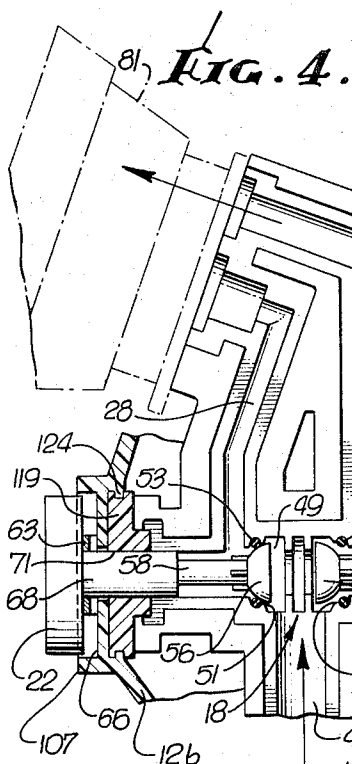
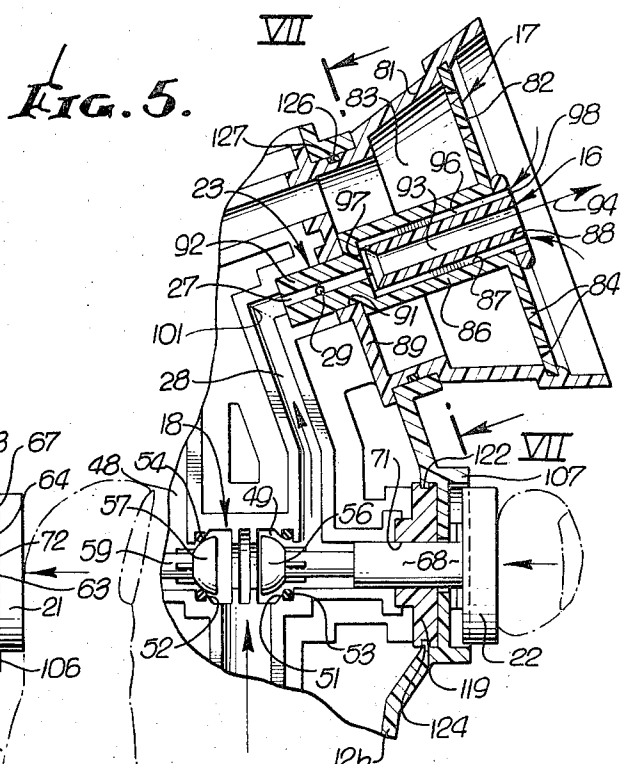
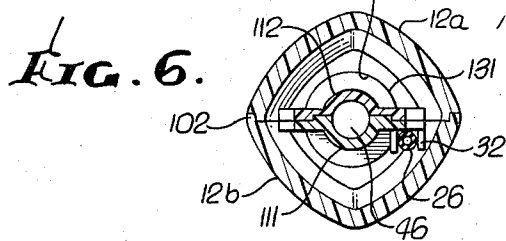
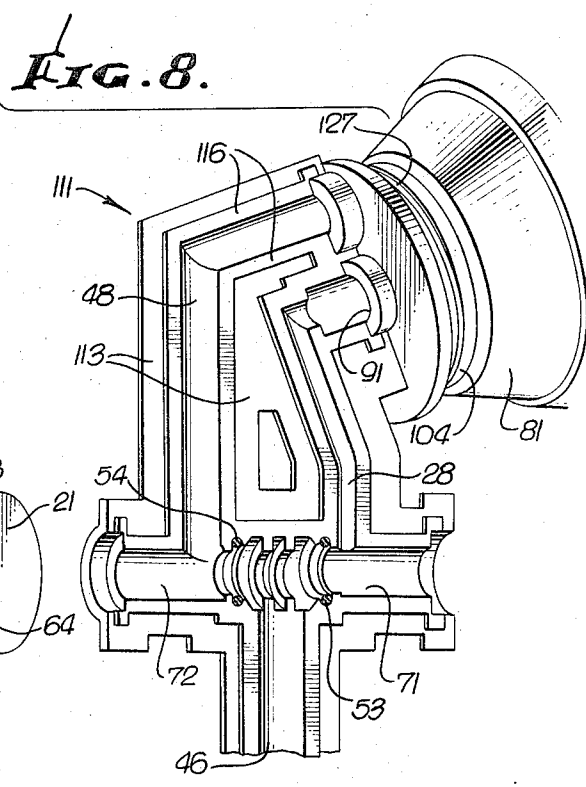


FIG. 3.





LIQUID CONCENTRATE AND WATER MIXING AND DISPENSING DEVICE

BACKGROUND OF THE INVENTION

In general the present invention relates to water discharge control devices and especially to devices which may be attached to a flexible water hose for selectively discharging water mixed with a liquid additive, such as soap, wax, insect spray, disinfectant or any other desired liquid concentrate.

SUMMARY OF THE INVENTION AND ITS OBJECTIVES

Although numerous spray devices for various applications exist, there is nevertheless a need for a simple, reliable rugged, ready to use spray device capable of being attached to a standard garden hose for washing automobiles, garden furniture, house sidings and windows, patios, pets etc. For efficiency, such a spray gun should have a jet of water which is strong enough to effectively dislodge dirt from the article to be cleaned. For additional cleaning efficiency, a soap or detergent solution should be added to the water of the cleansing jet.

While this strong, stiff jet of water is effective for cleaning the article, it is not an optimum water discharge for rinsing. Accordingly, it is desirable to provide a spray gun capable of generating both a strong cleansing jet of water and soap solution and a relatively soft spray of clean rinsing water. Furthermore, the user should be able to select either the cleansing jet or the rinse spray at will.

Such a spray gun in order to be commercially successful must be capable of economical mass manufacture. It must be rugged, reliable and easy to attach and operate. The number of parts used in forming the spray gun must be held to a minimum, not only to keep the manufacturing cost at a low limit, but also to provide a simple construction having trouble-free operation.

It is an object of the present invention to provide such a water spray and liquid concentrate dispensing device. In general, the spray gun in accordance with the present invention includes a body shaped somewhat in the form of a pistol grip for convenient holding by the user. The body has a hollow portion serving as a reservoir for a liquid concentrate, such as soap. At a lower end of the spray gun body, a fitting is mounted for attachment of the gun to a source of water such as provided by a standard garden hose. At an opposite end from this fitting, the spray gun includes first and second water discharge elements, one of which provides a soft fanned-out rinsing spray while the other generates a strong cleansing jet of water. These two different water discharges may be selectively actuated by push button valve mechanisms located on the gun body for actuation by a thumb and forefinger respectively of the operator. The valve mechanisms selectively communicate water from the fitting at one end of the gun body to either the rinsing spray head or the cleansing jet nozzle. An aspirator device is connected between the cleansing jet nozzle and the reservoir containing the liquid concentrate so as to mix the concentrate into the cleansing jet by suction.

For overall reliable operation and low cost mass manufacture, the gun body is formed of two split half parts

connecting the intake fitting with the jet nozzle and spray head are similarly provided by integral split half molded plastic assemblies which are mounted inside the hollow gun body so as to extend between the hose fitting at one end of the body and the spray head and jet nozzle at the other end. To afford selective manual operation of the valve mechanisms, a pair of spring loaded movable buttons are mounted on opposite lateral sides of the spray gun body for mutually opposed axially aligned actuation.

These features and further objects and various advantages of the spray gun according to the present invention will become apparent to those skilled in the art from a consideration of the following description of one particular embodiment of the invention. Reference will be made to the appended sheets of drawings in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of the spray gun disclosed herein shown attached to a standard garden hose.

FIG. 2 is a vertical sectional view of the spray gun of FIG. 1 taken therein along the plane II—II.

FIG. 3 is a horizontal sectional view of the spray gun of FIG. 2 taken therein along the plane III—III.

FIG. 4 is a fragmentary, vertical sectional view taken generally along the section plane IV—IV of FIG. 3 and illustrating the valve mechanisms and associated conduits mounted within the hollow spray gun body.

FIG. 5 is another fragmentary, vertical sectional view taken along the plane V—V of FIG. 3 and illustrating the valve mechanisms, conduits and water discharge devices of the spray gun.

FIG. 6 is a horizontal sectional view of the spray gun of FIG. 2 taken therein along the plane VI—VI.

FIG. 7 is a sectional view taken along the plane VII—VII of FIG. 5 and illustrating the nozzle which generates the dirt dislodging cleansing jet of water.

FIG. 8 is a perspective view showing separately molded mated half part of the valve mechanisms and associated conduits before being secured together and mounted within the hollow spray gun body.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the drawings, this particular embodiment of the present invention takes the form of a manually held device or spray gun 11 for discharging water and dispensing a liquid concentrate. In general, spray gun 11 is provided with a generally elongated hollow body 12 equipped at one end with fitting means 13 adapted for connection to a source of water under pressure. Fitting means 13 for example may be adapted for attachment to the end of a standard garden hose 14. With gun 11 so attached, it may be held in one hand as best illustrated in FIG. 2 for selectively discharging water from either a first discharge means, in this instance provided by a jet forming nozzle 16, or from a second discharge means provided in this case by a shower-like spray head 17.

In order to select either a water spray from spray head 17 or a strong water jet from nozzle 16, or both, manually operated valve means 18 serves to selectively communicate the first and second water discharge means, namely nozzle 16 and spray head 17, to the source of water supplied to fitting 13 under pressure.

Valve means 18 as best shown in FIG. 3, is manually operable in response to thumb and forefinger actuation of a pair of push buttons 21 and 22 mounted on laterally opposed sides of body 12.

Although spray gun 11 may be used for many varied purposes, one use is as a utility for cleaning items such as automobiles, garden furniture, windows, etc. In such case, the first water discharge means provides nozzle 16 for generating a strong, stiff cleansing jet of water for dislodging dirt from the item to be cleaned. To enhance the efficiency of this cleaning jet, spray gun 11 is provided with an aspirator means for dispensing a liquid concentrate, such as soap, into the jet of water issued from nozzle 16. For this purpose, spray gun body 12 is generally hollow as indicated in FIG. 2 to provide a reservoir means 24 for containing a liquid concentrate 25. The concentrate may be a soap, detergent other cleaning solution, garden or insect spray, disinfectant, etc.

The aspirator means for adding concentrate 25 to the jet stream associated with nozzle 16 may take many forms. In this instance a venturi means is provided in the conduit connected between valve means 18 and nozzle 16 for drawing the liquid concentrate from reservoir 24 up through flexible tubing 26 by suction. As indicated in FIG. 5, venturi means 23 is provided by a relatively constricted passage 27 connecting a conduit 28 with nozzle 16. A relatively small suction port 29 extends transversely to and communicates with passage 27 substantially at a midpoint thereof. The opposite end of port 29 is coupled to flexible tubing 26 at 31.

The lower end of tubing 26 is anchored by a bracket 32. This secures the intake end 33 of the tubing at the lowermost region of reservoir 24 when spray gun 11 is held in an upright position as indicated in FIG. 2. An additional bracket 34 may be provided between anchor bracket 32 and coupling 31 to secure the tubing at a midpoint thereof.

The liquid concentrate may be introduced into reservoir 24 through a fill opening 36 provided in body 12 at an upper end thereof remote from reservoir 24 and fitting 13. A cap 37 formed of a resilient or flexible plastic may be provided as a closure for opening 36 and may be removably secured thereto by a suitable expedient such as the annular bead 38 shown here. An anchor strap 39 may be provided for holding cap 37 to the body when removed as illustrated in the phantom position of FIG. 2.

For ease in handling, body 12 may be formed with an elongated hand or pistol grip portion 41 adjacent hose fitting 33. In this instance grip portion 41 is coextensive with reservoir 24 and forms a lower body portion of the spray gun. The water discharge means provided by jet nozzle 16 and spray head 17 are mounted at an upper portion of body 12 and arranged so as to direct their discharges generally laterally of the longitudinal axis of the body. In this manner spray gun 11 may be handheld at the grip portion 41 and supported in a generally upright orientation to direct the water discharges generally laterally from an upper end portion of the gun body. In this position, hose 14 depends downwardly and out-of-the way of operation of the spray gun. Furthermore, the liquid concentrate flows by gravity out-of the upper hollow regions of body 12 and into the lower reservoir means 24 defined by the grip portion 41 of body 12.

The manually operated valve means including push buttons 21 and 22 are disposed intermediate grip portion 41 and spray head 17 and nozzle 16. Furthermore, buttons 21 and 22 are mounted on laterally opposed sides of body 12 and have inwardly opposed actuating modes. Accordingly, spray gun 11 may be handled at grip portion 41 and the manually operated valve means actuated by the thumb and a finger respectively of the same hand.

Valve means 18 are in this instance mounted internally of hollow body 12 in axial registration with push buttons 21 and 22. Conduit means are also mounted within the hollow chamber of body 12 to connect fitting 13 with valve means 18 and to connect valve means 18 with nozzle 16 and spray head 17. In particular, an intake conduit 46 is coupled at a lower end to fitting 13 and extends upwardly therefrom coaxially with grip portion 41 to valve means 18. From valve means 18, the conduit means further includes first and second branch conduits 28 and 48 for selectively supplying water to the first and second discharge means, herein nozzle 16 and spray head 17 respectively.

An upper end of intake conduit 46 opens into a valve chamber 49 as best shown in FIGS. 4 and 5. From valve chamber 49 water may be selectively directed into either branch conduit 28 or branch conduit 48. For this purpose, first and second valve openings defined by valve seats 51 and 52 communicate chamber 49 with branch conduits 28 and 48 respectively. Valve seats 51 and 52 which may be provided with sealing means such as O-rings 53 and 54 respectively, cooperate with a pair of valve members 56 and 57 for selective opening and closing of the communication between chamber 49 and the branch conduits. Members 56 and 57 are movable by means of push buttons 22 and 21 to which the respective valve members are connected by valve stems 58 and 59.

The valve members are biased in a normally closed condition by means of leaf spring members 63 and 64. Spring members 63 and 64 are respectively mounted between body walls 66 and 67 and an inwardly facing surface of push buttons 22 and 21 to continuously urge these push buttons laterally outwardly of body 12. This forces valve members 56 and 57 to seat and seal against O-rings 53 and 54 forming valve seats 51 and 52. To afford axial displacement of members 56 and 57 and push buttons 22 and 21, stems 58 and 59 are provided with relatively enlarged cylindrical portions 68 and 69 slidable within axial aligned bores 71 and 72 of valve means 18. Stems 58 and 59 have a reduced cross-section adjacent valve members 56 and 57 to permit the flow of water through the valve seat openings and into branch conduits 28 and 48 which connect with bores 71 and 72 in this region. Water is prevented from escaping outwardly through bores 71 and 72 by a close fitting seal between the inside cylindrical surface of these bores and the outer cylindrical surface of enlarged portions 68 and 69 of valve stems 58 and 59.

The valve operation is best illustrated in FIGS. 4 and 5. In FIG. 4, push button 21 has been actuated to communicate intake conduit 46 with branch conduit 48 for supplying water to spray head 17. In FIG. 5, push button 22 has been inwardly depressed, displacing valve member 56 to communicate intake conduit 46 with branch conduit 28 for discharging a jet of water from nozzle 16.

Spray head 17 is designed to provide a fanned-out spray of clean rinsing water for use following a cleaning pass provided by the jet of water and soap solution from nozzle 16. The configuration of spray head 17 may assume many different and varied forms. In the presently disclosed embodiment, head 17 is provided by a hollow annular shower head like structure 81 of frusto conical shape having a relatively planar transverse wall or plate 82 enclosing a larger end of structure 81 to define an annular chamber 83 therein communicating with branch conduit 48. Chamber 83 is thus adapted to receive water under pressure from conduit 48 upon actuation of push button 21. Transverse wall or plate 82 is slightly recessed adjacent the larger end of Structure 81 as best shown in FIG. 5. This plate or wall is provided with a plurality of tapered openings 84 convergent in the direction of discharge. As chamber 83 is filled with water under pressure from branch conduit 48, a multi-stream spray of clean rinsing water is generated by the outward discharge water through openings 84.

Jet nozzle 16 is in this instance disposed centrally of spray head 17 coaxial with structure 81. To facilitate the mounting of nozzle 16, a hollow cylindrical structure 86 is provided as an integral stem portion of plate 82. Structure 86 extends inwardly of head 17 when mounted within hollow structure 81 as best illustrated in FIG. 5. Structure 86 defines a nozzle receiving bore 87 open at a forward end thereof connected to plate 82 for receiving an elongate nozzle member 88 therein. The opposite or rearward end of structure 86 defines the constricted passage 27 forming the venturi means 23 discussed above. Constricted passage 27 is axially aligned with bore 87 and communicates therewith as illustrated. Structure 81 may be provided with a rear transverse wall 89 having a mounting bore 91 centrally thereof for receiving a reduced diameter outer circumferential portion 92 of structure 86.

In this manner structure 86 provides a hollow generally cylindrical body extending through chamber 83 and having an open end communicating with branch conduit 28 from valve means 18.

Elongate nozzle member 88 is provided with a centrally located discharge passage 93 having a rearward end in water stream receiving relationship with passage 27 and conduit 28. A second and forward end of passage 93 is open and provides a jet discharge of water in the direction of arrow 94 of FIG. 5.

Aerator means are provided in association with jet nozzle 16 for introducing air into the stream of water after the liquid concentrate, such as soap, has been added thereto for creating a sudsing effect. The aerator means may be provided as in the presently disclosed embodiment by the provision of air duct means 96 as shown in FIGS. 5 and 7.

Air duct means 96 extends longitudinally of member 88 in a free space or air duct region formed between the outer circumference of member 88 and the interior surface of bore 87 by longitudinally extending vanes 99, in this instance integral with member 88. Air duct means 96 communicate with the junction between passage 27 and the rearward end 97 of member 88 by beveling or otherwise shaping the edge of member 88 for this purpose at end 97. The forward end of air duct means 96 communicate to the exterior of the gun body as indicated by the openings at end 98 of member 88. In operation, the stream of water discharged through

passages 27 and 93 cause a suction or venturi effect at end 97 of member 88 drawing air in through the openings of air duct means 96 at end 98. This air is injected into the water jet and soap solution to create the sudsing effect. This effect is further enhanced by the particular configuration of conduit 28. Conduit 28 is here provided with a sharp bend as indicated at 101 just prior to constricted passage 27. This sharp bend which may be approximately at right angle, causes an abrupt turn of the water stream flowing out of nozzle 16 and thus creates turbulence in the discharge. This turbulence increases the sudsing effect and thereby enhances the cleaning ability of the jet stream.

To facilitate mass manufacture of spray gun 11, a preferred construction of the various component parts has been devised. First, hollow body 12 is formed of first and second molded halves 12a and 12b mated along a plane as best indicated in FIG. 6. The plane along which body halves 12a and 12b are mated may include a longitudinal axis of body 12 and the axis of nozzle 16, spray head 17 and valve means 18. Confronting edges of body halves 12a and 12b may be provided with half lap joints as indicated at 102 and may be secured together by a suitable adhesive. When assembled, molded halves 12a and 12b define a flanged opening 103 as shown in FIG. 2 for receiving a mated rear exterior circumferential portion 104 of structure 81. Similarly, molded halves 12a and 12b when mated define raised annular ring portions 106 and 107 projecting laterally outwardly from body walls 63 and 67 for cooperatively receiving and nesting push buttons 21 and 22.

Hollow structure 81, intake conduit 46, branch conduits 28 and 48, valve chamber 49 and valve seats 51 and 52 are formed of an integrated construction of molded parts. One of the parts includes the head structure 81 and one half of the conduit means and valve structure. In FIG. 8 this is illustrated as integral molded part 111. The portion of part 111 forming one half of the conduit means and valve means is mated with part 112 which forms the remaining half of these components. Parts 111 and 112 are formed to mate along a plane which is substantially coincident with the plane along which body halves 12a and 12b are joined.

It is observed that part 111 defines the full annular shape of head structure 81 whereas only one longitudinal half of the conduit means and valve means are provided by this part, with the latter portion being asymmetrical with head structure 81.

Each of molded parts 111 and 112 define peripheral flanges 113 adjacent the conduit and valve means which strengthen the parts and afford a means for securely joining the mated half members. The parts may be secured together by a suitable adhesive and tongue and grooving may be provided as indicated at 116 and 117 on the respective parts, running along the edges of the various conduits and valve chambers.

One of molded parts 111 or 112 may be provided with integral annular flange structures 118 and 119, in this instance provided on part 112, for sealingly engaging mated recesses defined in body 12 adjacent walls 66 and 67 thereof. Flange structures 118 and 119 facilitate sealing of the reservoir and thoroughly reinforce the assembly. In particular, flange structures 118 and 119 are complete annular structures, asymmetrical with the conduit portions of part 112. Bores 71 and 72 extend axially through flange structures 118 and 119 and thus

these structures in part serve as means for receiving and guiding the enlarged diameter portions 68 and 69 of valve stems 58 and 59. Circumferential grooves 121 and 122 may be provided about the outer circumferential edge of structures 118 and 119 for mated sealing engagement with annular tongue portions 123 and 124 of spray gun body 12. Annular tongue portions 123 and 124 are disposed slightly inwardly of body walls 66 and 67 such that the axial end faces of flange structures 118 and 119 abut against the inside surfaces of walls 66 and 67. Together with a suitable adhesive, this tongue and grooving associated with structures 118 and 119 permits valve ends 58 and 59 to extend exteriorly of body 12 for manual operation of push buttons 21 and 22 and yet prevent leakage of the liquid concentrate contained within the hollow body.

A suitable seal may also be provided between flanged opening 103 of body 12 and the outer circumferential portion 104 of structure 81. In this instance, an O-ring 126 fitted in circumferential groove 127 of portion 104 serves this purpose.

The lower end of conduit 46 is provided with a relatively enlarged inside cylindrical bore 128 as shown in FIG. 2 for receiving a tubular part 129 of fitting 13. To mount fitting 13 to spray gun 11, part 129 is fitted into bore 128 and sealed therein by a suitable adhesive. An outer circumferential portion 131 of parts 111 and 112 adjacent bore 128 is received by a mated annular mounting flange 132 formed integrally with body halves 12a and 12b adjacent the lower end thereof. As shown in FIG. 6, exterior surface portion 131 of parts 111 and 112 may be secured and sealed to the inside edge of flange 132 by an adhesive. This seal prevents the leakage of liquid concentrate 25 from the lower end of the spray gun body.

Fitting 13 may be equipped with an anti-siphon device. This prevents the backflow of liquid concentrate 25 into the main water supply via hose 14. In the absence of this anti-siphon device, transitory forces caused by aspiration, siphoning, etc. might draw some of the liquid concentrate 25 back through hose 14 where it might possibly pollute the household water supply. In situations where reservoir 24 of spray gun 11 carries a garden spray or pet spray containing a poisonous substance, the anti-suction device is particularly desirable.

Anti-suction devices are known per se. In this instance a device is used which mounts neatly and compactly into fitting 13. With reference to FIG. 2, the device includes a flexible diaphragm member 132 and a perforated baffle 133 mounted against a circumferential flange 134 of part 123 having a series of axial openings 136 therein. Diaphragm 132 and baffle 133 are mounted into a recess defined by an axially extending raised annular ring portion 137 provided about the perimeter of flange portion 134 of part 129. A filter screen 138 may be provided, in this instance held in place by a resilient sealing ring 139. All of these parts are mounted within fitting 13 which is secured to spray gun 11 by the abutment of flange 134 against an interior annular shoulder 141 of fitting 13 as illustrated. This prevents axial dislodgement of fitting 13 and yet affords free rotation of the fitting relative to body 12 to permit threaded attachment to a complementary fitting of hose 14.

In operation, water is permitted to flow upwardly as shown in FIG. 2 through the perforations of baffle 133

to create a pressure at the rear of a raised semi-spherical portion 142 of the diaphragm. This portion 142 of the diaphragm is purposefully slit so as to open under this pressure and allow water to flow upwardly into intake conduit 46. In the event a suction is developed in hose 14 tending to draw water or any other liquid back into the hose, the anti-suction device prevents this reverse flow. One side of openings 137 is in communication with atmospheric pressure via the open end of fitting 13 adjacent annular shoulder 141. Should the pressure within hose 14 drop below atmospheric pressure and thereby cause a suction on the water within conduit 46, this air pressure acts against the upper surface of diaphragm 132 forcing the slitted semi-spherical portion 142 of the diaphragm to remain closed.

The spray gun device may be assembled in the following manner. First, the valve and push-button components may be installed in molded part 112. Here, valve member 56 and 57 and their associate stems 58 and 59 are integral pieces adapted to be secured to buttons 21 and 22 which are integral with portions 68 and 69. Enlarged stem portions 68 and 69 are provided with axial bores into which the ends of valve stems 58 and 59 are inserted and secured in place by a suitable adhesive.

Thus these parts are mounted by disposing the valve members and stems in valve seat recesses of part 112 and inserting the integral portions 68 and 69 of buttons 21 and 22 through bores 71 and 72 with spring members 63 and 64 in place. During this operation, the ends of valve stems 58 and 59 are received within the provided bores in portions 68 and 69 and are secured therein.

Next, the pair of mated parts 111 and 112 are secured together along with fitting 13. This subassembly is now mounted inside of body halves 12a and 12b with the aspirator tube 26 in place. Upon securing halves 12a and 12b together, the assembly can be completed by installing the plate 82 and structure 86 followed by nozzle member 88. Closure 37 may be mounted at any time after the body is assembled.

While only a limited number of embodiments of the present invention have been disclosed herein, it will be readily apparent to persons skilled in the art that numerous changes and modifications may be made thereto without departing from the spirit of the invention. Accordingly, the foregoing disclosure and description thereof are for illustrative purposes only and do not in any way limit the invention which is defined only by the claims which follow.

We claim:

1. A manually held device for discharging water and dispensing a liquid concentrate, such device being adapted for attachment to a hose supplying a source of water under pressure, comprising:

reservoir means for containing a liquid concentrate and a generally elongated body defining a chamber therein serving as said reservoir means, and having fitting means for connection to said hose mounted adjacent one end of said body;

a first water discharge means and a second water discharge means, said first and second discharge means mounted at the other end of said body;

manually operated valve means for selectively communicating the first and second discharge means with said source, and said valve means comprising

manually engageable means disposed at laterally opposed exterior locations on said body and valve member means interiorly of said body connected to and actuated by said manually engageable means; and conduit means within said chamber connecting said valve means between said fitting means and said discharge means.

2. The device of claim 1, said body comprising an elongate hand grip portion adjacent the end having said fitting means, and said manually engageable means disposed on said housing intermediate said grip portion and said discharge means whereby such manually engageable means can be operated by the thumb and a finger respectively of the hand holding said grip portion.

3. The device of claim 2, said manually engageable means comprising push button means having inwardly opposed actuating modes.

4. The device of claim 2 said discharge means mounted on said body so as to direct their discharges generally laterally of the body axis, and said reservoir means being located in the body chamber defined by said grip portion, whereby said body can be held by said grip portion in a generally upright orientation to direct the discharge laterally from an upper end portion thereof with said reservoir means being oriented in the lower end grip portion.

5. A manually held device for discharging water and dispensing a liquid concentrate, such device being adapted for attachment to a hose supplying a source of water under pressure and comprising:

reservoir means for containing a liquid concentrate and a generally elongated body defining a chamber therein serving as said reservoir means and having fitting means for connection to said hose mounted adjacent one end of said body;

a first water discharge means and a second water discharge means, said first and second discharge means mounted at the other end of said body;

manually operated valve means for selectively communicating the first and second discharge means with said source; and

conduit means within said chamber connecting said valve means between said fitting means and said discharge means; and

said body comprising first and second molded halves mated along a plane which includes the axis of said body, said first and second discharge means and said conduit means comprising an integrated construction of molded parts, one of said parts having annular structure providing said first and second discharge means and structure integral and asymmetrical with said annular structure providing one half of said conduit means and another of said parts having structure providing the other half of said conduit means mated with the former half along the above defined plane, and said body halves having mated portions for cooperatively receiving and securing said molded parts.

6. The device of claim 5, said molded parts structure providing said conduit means further having structure providing mated halves of valve seats of said valve means.

7. The device of claim 6, said molded parts structure providing said conduit means and said valve seats comprising structure defining mated halves of an intake conduit having one end communicating with said fit-

ting, structure defining mated halves of a valve chamber communicating with the remaining end of said intake conduit and with said valve seats, and structure defining mated halves of first and second branch conduits each communicating at one end with said chamber through said valve seats and having their other ends connected to said first and second discharge means respectively.

8. The device of claim 6 wherein said valve means is provided by a pair of valve members cooperating with said valve seats and a pair of valve stems for displacing said valve members, and said molded parts structure providing said conduit means further comprising structure receiving and guiding said valve stems of said valve means, and flange structure sealingly engaging mated recesses in said body halves through which said valve stems extend for manual operation exteriorly of said body.

9. A manually held device for discharging water and dispensing a liquid concentrate, such device being adapted for attachment to a source of water under pressure, comprising:

a first water discharge means and a second water discharge means, said first discharge means comprising a jet nozzle means for delivering a jet of water with concentrate and said second discharge means comprising a spray nozzle means for delivering a water spray, said jet nozzle means comprising aerator means for mixing air with the water and liquid concentrate;

reservoir means for containing a liquid concentrate;

manually operated valve means for selectively communicating the first and second discharge means with said source; and

aspirator means extending between said reservoir means and the first discharge means for aspirating liquid concentrate from said reservoir means into the discharge stream associated with the first discharge means;

said jet nozzle means comprising structure defining an elongate discharge passage with a first end thereof in water stream receiving relation with conduit means from said valve means and a second end providing the jet discharge, said aerator means comprising air duct means extending adjacent said discharge passage from the second end thereof to the first end and communicating with said passage thereat, whereby air is drawn into and mixed with the water stream by aspiration at the first end of said passage.

10. A manually held device for discharging water and dispensing a liquid concentrate, such device being adapted for attachment to a source of water under pressure, comprising:

a first water discharge means and a second water discharge means, said first discharge means comprising a jet nozzle means for delivering a jet of water with concentrate and said second discharge means comprising a spray nozzle means for delivering a water spray, said jet nozzle means comprising aerator means for mixing air with the water and liquid concentrate;

reservoir means for containing a liquid concentrate;

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manually operated valve means for selectively communicating the first and second discharge means with said source;
 aspirator means extending between said reservoir means and the first discharge means for aspirating liquid concentrate from said reservoir means into the discharge stream associated with the first discharge means, and
 said spray nozzle means comprising a chamber having an opening connected to conduit means from said valve means, a wall of said chamber having a plurality of discharge openings so as to generate a spray, and said jet nozzle means and aerator means comprising a hollow generally cylindrical body portion extending through said chamber and having an open end in registration with an opening provided in said wall and having an opening at the other end

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communicating with conduit means from said valve means, an elongate generally cylindrical nozzle member having an axial discharge passage therein being coaxially mounted with said cylindrical body, said discharge passage of said member having a first end in water stream receiving relation with said body portion opening and a second end providing the discharge jet, means forming an air duct extending from the second end of said member to the discharge passage at the first end thereof between the outer circumference of said cylindrical nozzle member and the inner surface of said cylindrical body portion whereby air is drawn into and mixed with the water stream by aspiration at the first end of said member passage.

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