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3,229,703

SELF-SERVICE CAR WASH

Filed April 22, 1963

2 Sheets-Sheet 1

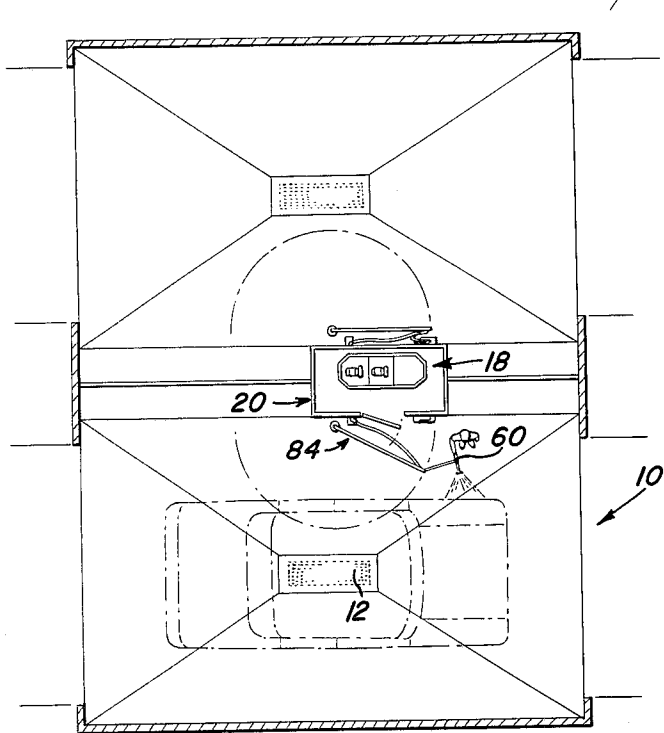
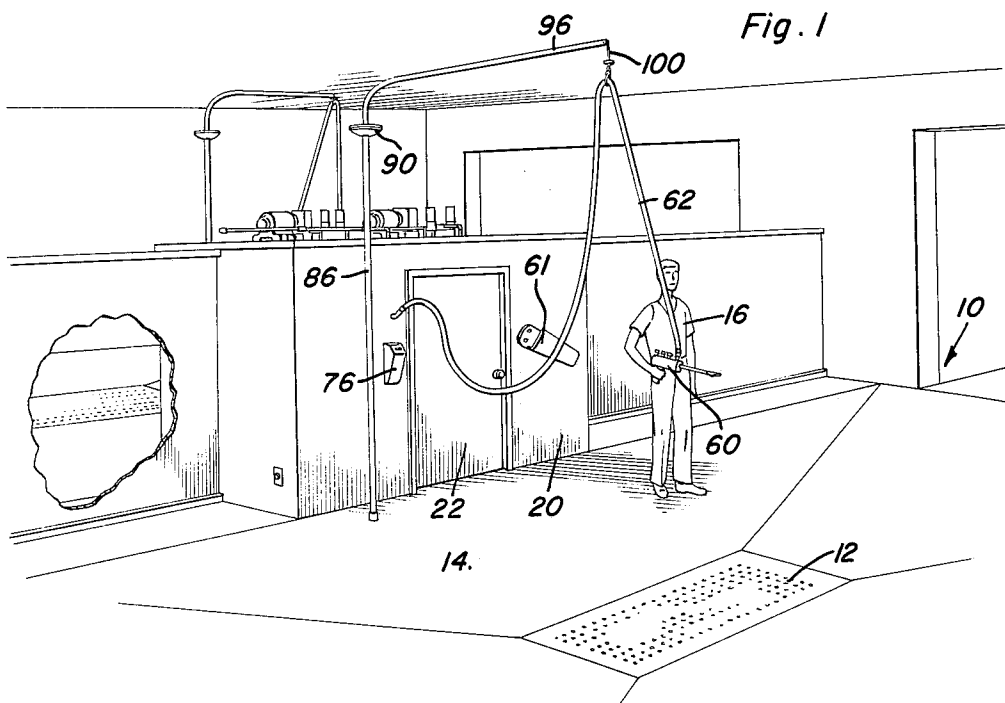


Fig. 2

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Fig. 3

2 Sheets-Sheet 2

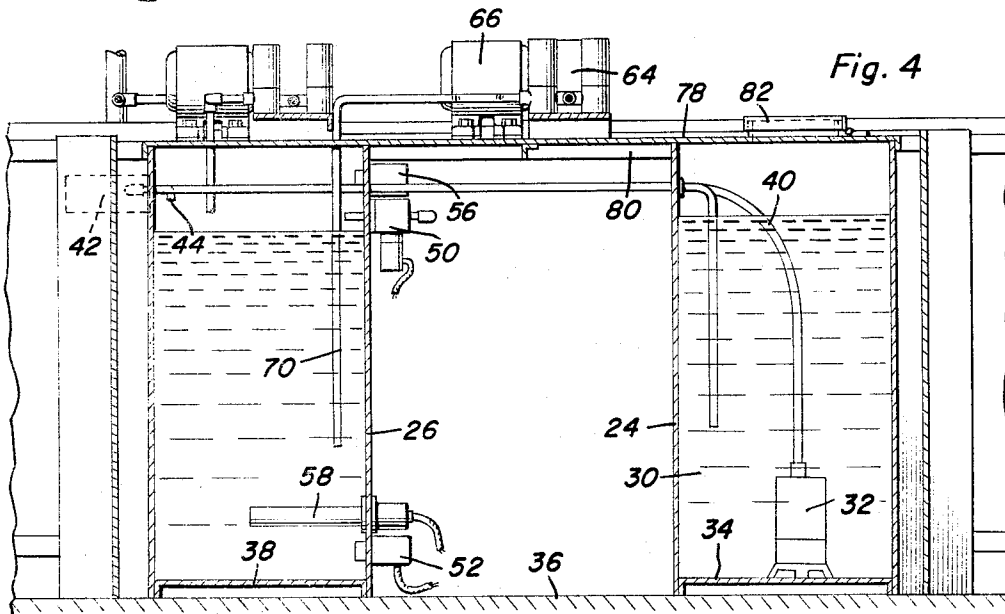
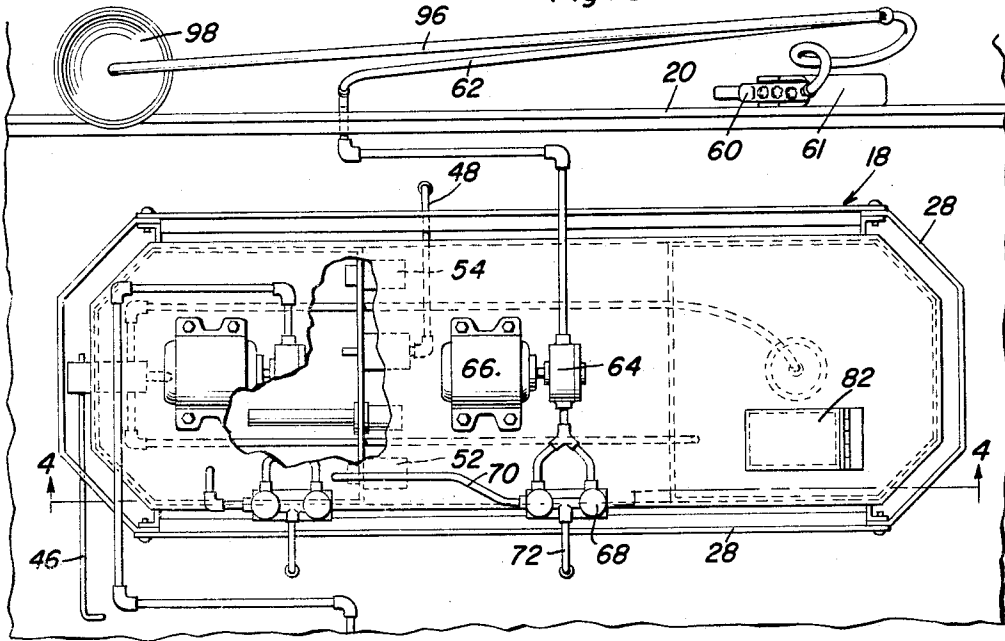


Fig. 4

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3,229,703

**SELF-SERVICE CAR WASH**

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11 Claims. (Cl. 134-100)

The instant invention generally relates to washing apparatus, and is more particularly concerned with a novel coin-operated car cleansing unit.

It is one of the primary objects of the instant invention to provide a car wash wherein the owner of the car, upon the deposit of a predetermined amount of money, has placed at his disposal a supply of both detergent and clear water in order that he might personally wash his car, or any particular portion thereof such as for example the automobile motor or the undersurface of the automobile.

In conjunction with the above object, it is also an object of the present invention to provide that the detergent and water be selectively discharged through a gun type dispensing unit, under pressure, the gun type dispensing unit being provided with a nozzle producing a single fan type spray. This wash gun is to be of a size so that it might be conveniently held in one hand, thus leaving the other hand free for other tasks such as the physical rubbing, for example with a chamois cloth, of particularly dirty portions of the vehicle.

In addition to the gun being conveniently held in one hand, it is also an object of the instant invention to provide for a means whereby the central portion of the fluid line to the gun is maintained at all times in an elevated position, preferably a substantial distance above the top of the vehicle, this means, while constantly maintaining the fluid line in an out-of-the-way position, allowing for a substantially complete freedom of movement of the gun within the limits of the length of the fluid line.

A further object of the instant invention is to provide a supply unit for the wash fluids wherein a constant supply of a hot water and detergent mix is assured regardless of the frequency or infrequency of the use of the device.

It is also an object of the instant invention to provide a supply unit incorporating various safety means so as to insure a proper constant supply without the necessity of a person being in attendance at all times.

In conjunction with the above object, it is also an object of the present invention to provide a supply unit wherein an enlarged tank for a concentrated fluid detergent is provided, this concentrated detergent being selectively mixed, in predetermined proportions, with hot water, whereby a continuous supply of detergent over extended periods of time is assured.

Likewise, it is a significant object of the instant invention to provide a car wash which, while generally simple in construction, is an extremely efficient unit enabling the individual car owner to, in a most convenient and clean manner, wash his own automobile or any particular portion thereof as he might desire.

In addition, it is also an object of the present invention to provide a quick drain floor upon which the car can be positioned during the washing thereof, this floor containing a centrally located sand trap drain to which the floor gradually slopes thus eliminating the presence of any puddles.

In conjunction with the supply unit referred to supra, it should also be pointed out that the instant invention further contemplates the utilization of a second dispensing unit.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accom-

panying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of a two stall car wash in accordance with the instant invention;

FIGURE 2 is a top plan view of the two stall car wash;

FIGURE 3 is an enlarged top plan view, with portions broken away, of the supply unit;

FIGURE 4 is an elevational cross-sectional view taken substantially on a plane passing along line 4-4 in FIGURE 3.

Referring now more specifically to the drawings, it will be appreciated that a two stall car wash has been illustrated. However, inasmuch as both stalls are similar in structure and are supplied from a single central source through similar though separate dispensing units, the following detailed description will be directed solely toward one stall and its relationship to the supply unit.

Each stall, generally referred to by reference numeral 10, this stall 10 consisting of any suitable enclosure such as either a building or fenced off area, includes an enlarged floor area with a centrally located sand trap drain 12, the floor 14 sloping, at all sides thereof, gradually toward the drain 12 so as to maintain the stall 10 in a puddle-free relatively dry state thus eliminating the necessity of the user 16 of the car wash having to stand in water.

The supply unit 18 is positioned at one side of the stall 10 within a suitable walled enclosure 20, this enclosure 20 being provided with suitable access means, such as a door 22, so as to allow restricted access to the supply unit 18 for maintenance and servicing purposes. The supply unit 18 consists basically of a pair of enlarged tanks 24 and 26, these tanks 24 and 26 being positioned in spaced aligned relation with each other and surrounded by rigidified and insulating individually removable wall sections 28.

The tank 24 is to contain a supply of concentrated liquid detergent 30 which is to be selectively directed at a predetermined rate into the tank 26 wherein the detergent 30 will be mixed with warm water which is also introduced at a predetermined rate. The flow of detergent 30 from the detergent tank 24 to the mixing tank 26 is effected by means of a submersible type pump 32 mounted on the bottom 34 of the tank 24, this bottom 34, incidentally, being positioned slightly above the floor 36, as is the bottom 38 of the mixing tank 26, so as to provide for air pockets therebetween thus reducing any tendency for the tanks to rust or corrode. Extending from the pump 32 is a detergent line 40, this line 40 extending from the detergent tank 24 through the mixing tank 26 and into communication with a regulating valve 42 on the far side of the tank 26, this regulating valve 42 siphoning or bleeding off a predetermined amount of detergent 30 for introduction into the tank 26 through a suitable pipe 44, the remainder of the detergent flow continuing through the detergent line 40 which extends back through the tank 26 and into the interior of the tank 24, this return flow of detergent 30 effecting a constant agitation of the concentrated detergent 30 within the tank 24 so as to avoid any undesirable settlement or accumulation of sediment which might tend to clog the detergent line. The valve 42 is to be manually adjustable so as to regulate the amount of detergent 30 flowing into the tank 26 through the pipe 44, this manual regulation of the valve 42 being effected in any convenient manner such as by the rod 46.

The hot water which is to be mixed with the detergent within the mixing tank 26 is provided from a conventional pressurized source of hot water through the water line 48, the flow of hot water through the line 48 being regulated by an electrically operated valve 50, the valve 50 and pump 32 being simultaneously activated so as to provide for an introduction of both the hot water and the

detergent at the same time and in predetermined proportions thus maintaining the consistency of the washing mix within the tank 26.

The activation of the valve 50 and pump 32 is controlled by one main electrically operated water level control switch 52 and two auxiliary control switches 54 and 56, these control switches 52, 54 and 56 being preferably of the rubber diaphragm type though not necessarily limited thereto. The main control switch 52 is located adjacent the lower end of the tank 26 as is the auxiliary control switch 54, the auxiliary switch 54 being operative at a slightly smaller pressure than the main control switch 52, this being done so as to insure the activation of the valve 50 and pump 32 even if the main control switch 52 should, for some reason, fail to properly function. The auxiliary control switch 56 is provided adjacent the upper end of the tank 26 and includes a very low pressure spring, this control switch 56 being provided so as to prevent an overflow in the event that the main control switch 52 fails to deactivate the valve 50 and pump 32, this switch 56 acting so as to completely cut off the electric current to the valve 50 and the pump 32. Inasmuch as it is contemplated that the car wash of the instant invention operate for extended periods of time without any one in attendance, the provision of these auxiliary control switches is deemed essential in order to insure that the tank 26 be neither completely emptied nor allowed to overflow.

Inasmuch as it is conceivable that there will be periods of non-use of the car wash, in order to insure a proper supply of heated detergent mix to the first user after such a period of non-use, it is contemplated that a thermostatically controlled heating element 58 be provided within the tank 26, this heating element 58 maintaining the temperature of the mix within the tank 26 automatically.

The selective dispensing of the mix from the tank 26 is effected through a gun-type dispensing device 60 which is of a size so as to conveniently be held in one hand of the user 16, this wash gun 60 including a single spray nozzle producing a fan type spray. This wash gun or dispensing device 60, which during periods of non-use is mounted upon a suitable bracket or holder means 61, is in fluid communication with the mixing tank 26 by means of an elongated fluid line 62, flexible in nature and of a length so as to allow movement of the gun 60 so as to reach all portions of a vehicle received within the stall 10. The flexible fluid line 62 extends from the gun 60 through the housing 20, at which point it is preferably secured against longitudinal movement, to a suction pump 64, this suction pump 64 driven by a motor 66, the portion of the hose 62 between the housing wall and the pump 64 being either flexible or formed of interconnected rigid pipe sections.

In order that the wash gun 60 might selectively dispense either the detergent mix from tank 26 or clear water, a pair of solenoid valves 68 are provided in communication with the intake side of the pump 64, a first fluid line 70 extending from the solenoid valves 68 into the interior of the tank 26, and a second fluid line 72 extending from the solenoid valves 68 to an external source of water, preferably cold water. The control of the solenoid valves 68 is effected from control means provided directly on the wash gun 60, this control means allowing for a complete stoppage of any flow or a selective dispensing of either the detergent mix or fresh water. It will be noted that this control means is indicated by a series of three buttons 74 on the wash gun 60. Inasmuch as the car wash of the instant invention is to be of the self-service type, a coin-operated timer mechanism is provided whereby an electrical current switch is activated upon the insertion of a coin, as at the receptacle 76, so as to deliver the power to the pump motor 66 and solenoid valves 68.

With reference to FIGURE 4, it will be noted that a unitary top has been provided for the tanks 24 and 26, this top 78 spanning the space between the tanks 24 and 26 and being additionally braced as by braces 80 in order

that the pump 64, motor 66, and solenoid valves 68 might be mounted on this intermediate portion. It will also be noted that a suitable hatch covered opening 82 has been provided to the detergent tank 24 so as to allow for a refilling thereof.

Inasmuch as the hose 62 is to extend from the housing 20 a sufficient length so as to allow convenient access to every portion of the automobile, a support or mounting tower 84 is provided so as to maintain the hose in a raised position thus to in no way interfere with the movement of either the gun 60 or the user 16 thereof. This support 84 consists of a vertically extending elongated hollow standard 86, the lower end of which is rigidly embedded within the supporting base or floor 14. A horizontally extending hollow arm 96 is rotatably mounted on the upper end of standard 86 so as to provide for pivotal rotation of arm 96 thus allowing for a semi-circular range of movement as illustrated in FIGURE 2. Extending through both the standard 86 and the arm 96 is a weight loaded cable 100, the outer end of which is connected to conduit 62 to normally hold the conduit in the elevated out of use position shown. As will be noted from FIGURES 1, and 3, it is contemplated that the hose 62 be joined to the gun 60 near the longitudinal center thereof so as to assist in balancing the gun 60, the fluid being dispensed from the gun 60 under a pressure of approximately 550 pounds so as to be capable of removing even the most stubborn dirt.

While not having been specifically described supra, it will be appreciated that a second stall including a separate dispensing device can be provided, this second dispensing device, while being supplied from the same supply unit as the first dispensing device described supra, having its own pump, motor, solenoid valves and support means, the motor, pump and solenoid valves of this second dispensing device being mounted, for example, above the mixing tank 26.

Additionally, although not illustrated, it is also contemplated that a suitable vacuum device be provided for use by the car owner in cleaning the interior of the car, this vacuum device including a nozzle and an elongated suction hose, the hose being supported in an elevated position in the same manner as the fluid line 62.

In operation, the user of the device positions his vehicle within the stall directly over the centrally located drain trap. After the vehicle has been properly positioned, the user inserts the necessary coin or coins within the coin receptacle thus, for a limited time, activating an electric current switch so as to deliver power to the pump 64 and solenoid valves 68, the user then taking the washing gun and directing, at his option, either a detergent mix or clear water toward the automobile, the user also being capable of preventing any flow whatsoever through the wash gun if desired. Inasmuch as the wash gun is of relatively small construction, capable of being conveniently held in one hand, and, through the slack support means for the hose, capable of being moved so as to direct the fluid to any portion of the automobile, the user can effectively clean those portions of his automobile not normally reached by the commercially available automatic washers, such as for example, the motor or the undersurface of the vehicle. Further, while the fluid from the mixing tank is being dispensed through the wash gun, the level and proportions of the mix is being maintained by a simultaneous introduction, in predetermined proportions, of hot water and concentrated detergent so as to insure a constant supply of detergent mix.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and

equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In a vehicle washing device, a fluid supply unit, said unit including a detergent tank for concentrated liquid detergent, a mixing tank, a water line extending from an external pressurized water source to said mixing tank, a valve for regulating the flow of water through the water line, a detergent line extending from the detergent tank through an adjustable regulator valve and back to the detergent tank, a pump means for inducing a flow of detergent through the detergent line, said regulator valve diverting a portion of the flow into the mixing tank, control means for automatically simultaneously regulating the opening and closing of the water line valve and the activating and deactivating of the detergent line pump so as to maintain both the level and the proportion of the water and detergent mix within the mixing tank, a second external water source, a portable fluid dispensing unit, valve means, a fluid line extending from the dispensing unit to the valve means, fluid lines extending from both the mixing tank and the second water source to the valve means, said valve means regulating the flow from the mixing tank and second water source to the fluid dispensing unit, and valve control means for the valve means mounted directly on the dispensing unit.

2. The device of claim 1 including a second portable fluid dispensing unit, second valve means, a second fluid line extending from the second dispensing unit to the second valve means, second fluid lines extending from both the mixing tank and the second water source to the second valve means, said second valve means regulating the flow from the mixing tank and second water source to the second fluid dispensing unit, and second valve control means for the second valve means mounted directly on the second dispensing unit.

3. The structure of claim 1 including thermostatically controlled heating means in the mixing tank.

4. The structure of claim 3 including a pump in the fluid line between the dispensing unit and the valve means.

5. A car wash structure consisting of a vehicle stall, a fluid supply unit located adjacent to said stall, said unit comprising a container for a detergent supply, a mixing tank, a source of water, and means for selectively introducing detergent from the container and water from the supply in predetermined proportions into the mixing tank; a portable dispensing device, and a flexible fluid transmitting conduit extending from the mixing tank to the dispensing device, said conduit also being in communication with a clean water supply, normally closed valve means for selectively allowing a flow of either the detergent mix or water through the conduit, and valve control means on the dispensing device operable to regulate the fluid flow from the container or water source to the dispensing device.

6. The car wash structure recited in claim 5, in which the means for introducing detergent into the mixing tank includes a pump.

7. The car wash structure recited in claim 5, in which heating means is provided in the mixing tank.

8. A car wash structure consisting of a vehicle receiving stall, a fluid supply unit located at one side of the stall, said unit including a detergent supply, a mixing tank, a source of water, means for selectively introducing the detergent and water in predetermined proportions into the mixing tank, a portable dispensing device, a fluid transmitting hose extending from the mixing tank to the dispensing device, said hose also being in communication with an unmixed water supply, valve means for selectively allowing a flow of either the detergent mix or water through the hose or preventing any flow whatsoever, and control means for said valve means on said dispensing device so as to enable a selection of the fluid flow directly from the dispensing device.

9. In a vehicle washing device, a fluid supply unit, said

unit including a detergent tank for concentrated liquid detergent, a mixing tank, a water line extending from an external pressurized water source to said mixing tank, a valve for regulating the flow of water through the water line, an adjustable regulator valve, detergent lines extending from the detergent tank to the adjustable regulator valve and back to the detergent tank, pump means for inducing a flow of detergent through the detergent lines, said regulator valve diverting a portion of the flow into the mixing tank, control means for automatically simultaneously regulating the opening and closing of the water line valve and the activating and deactivating of the detergent line pump so as to maintain both the level and the proportion of the water and detergent mix within the mixing tank, a second external water source, a portable fluid dispensing unit, valve means, a fluid line extending from the dispensing unit to the valve means, fluid lines extending from both the mixing tank and the second water source to the valve means, said valve means regulating the flow from the mixing tank and second water source to the fluid dispensing unit, and valve control means for the valve means mounted directly on the dispensing unit.

10. A coin actuated car wash structure comprising a vehicle stall, a fluid supply unit located adjacent said stall, said unit including a container for a detergent, a source of water, means for mixing detergent with water, and valve means for introducing predetermined quantities of detergent from the container into said mixing means, a portable dispensing device adaptable to being held and transported within said stall by a user of said car wash structure, a fluid transmitting conduit at least a part of which is flexible extending from said mixing means to said dispensing device, said conduit also being in flow communication with said source of water, electrically operated valve means for selectively allowing a flow of either water or mixed detergent through said conduit, valve control means on said dispensing device operable to actuate said valve means to regulate the fluid flow to said dispensing device, pump means operable to induce a flow of either mixed detergent or water to said dispensing device at high pressure, an electric circuit connecting said valve means with a current supply, and a coin actuated normally open switch in said circuit.

11. In a car wash structure, a fluid supply unit, said unit including a detergent supply tank, a mixing tank, a source of water, means for selectively introducing the detergent and water in predetermined proportions into the mixing tank, a portable dispensing device adapted to be held by a user, a fluid transmitting conduit extending from the mixing tank to the dispensing device, said conduit also being in flow communication with an unmixed water supply, electrically operated valve means for selectively allowing a flow of either the detergent mix or water through the conduit, pump means to assist the flow of detergent mix or water through said conduit, separate control means for said valve means so as to enable a selection of the fluid flow, and control means for said pump means, all of said control means being arranged for easy access by the user.

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