Jan. 23, 1951 L. G. SIMMS 2,538,850

WASHING APPARATUS

Filed Sept. 19, 1947 2 Sheets-Sheet 1

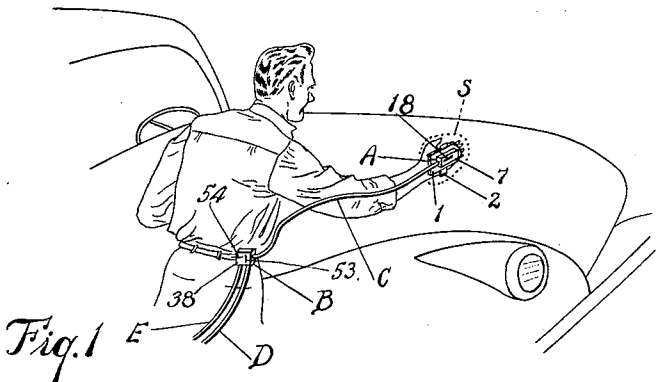

Fig. 1

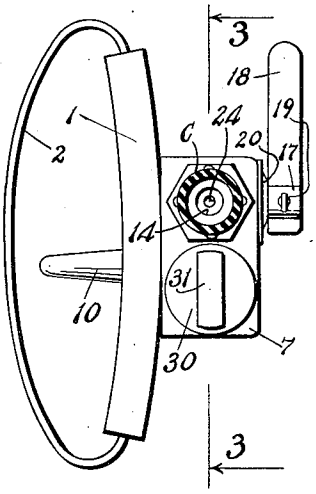

Fig. 2

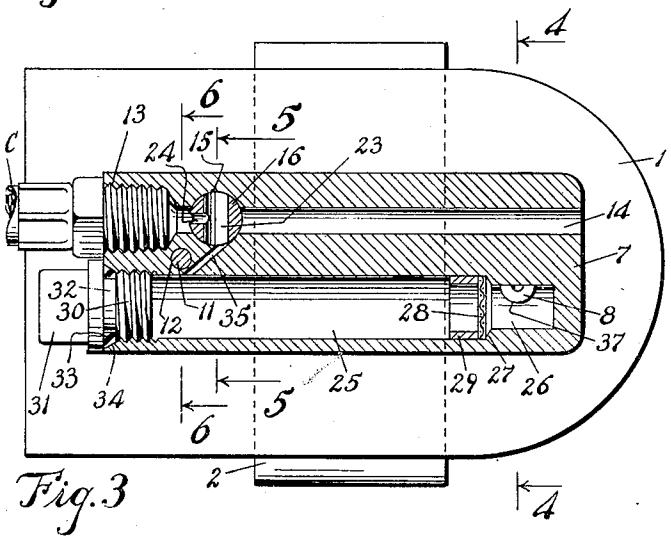

Fig. 3

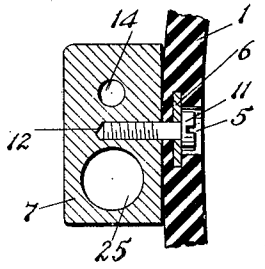

Fig. 6

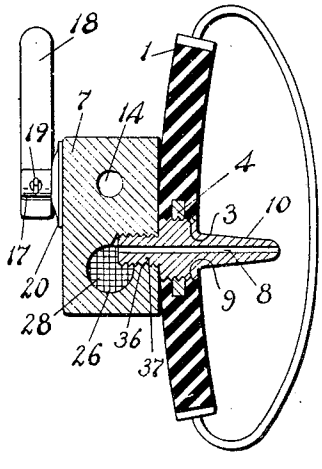

Fig. 4

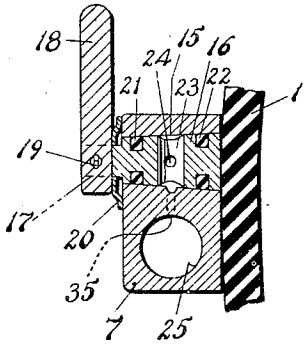

Fig. 5

INVENTOR,
Leo G. Simms
BY
Harold J. LeVesconte
ATTORNEY.

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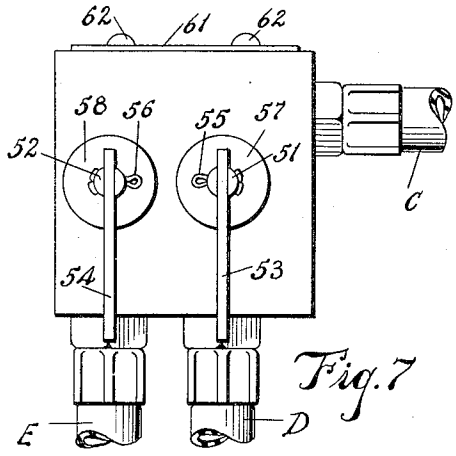

Fig. 7

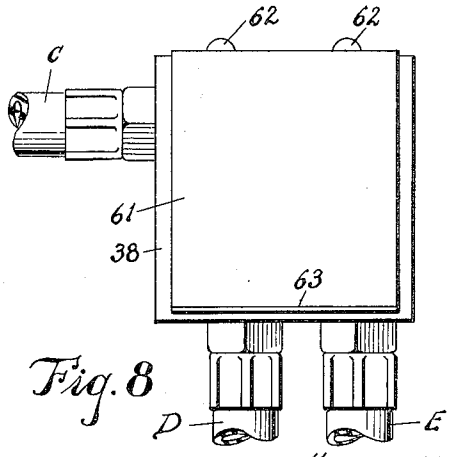

Fig. 8

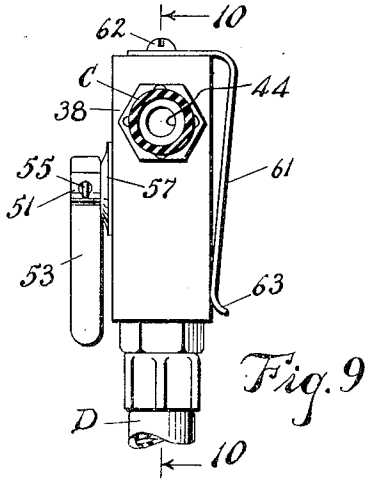

Fig. 9

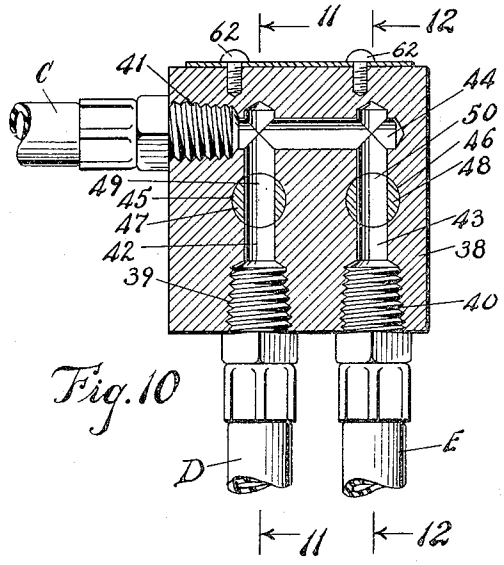

Fig. 10

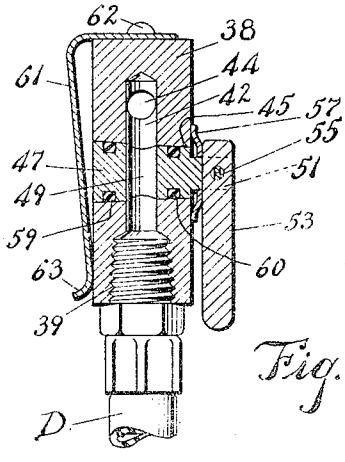

Fig. 11

INVENTOR,
Leo G. Simms
BY
Harold J. Lelescomte
ATTORNEY.

Patented Jan. 23, 1951 2,538,850

UNITED STATES PATENT OFFICE

2,538,850

WASHING APPARATUS

Leo G. Simms, Glendale, Calif., assignor to Winkitty Products, Inc., Kansas City, Mo., a corporation of Missouri

Application September 19, 1947, Serial No. 774,965

3 Claims. (Cl. 299—83)

1

This invention relates to washing apparatus of the type adapted to facilitate the washing of large objects such as automobiles and while in the specification it is particularly described in connection with such use, it not so limited and may be used with equal advantage for the washing of other large objects.

An object of the invention is to provide an apparatus for washing vehicles and the like in which means for shifting from the soaping and washing to the rinsing operation and back again is mounted on the hand of the user.

Another object of the invention is to provide a washing apparatus in which the entire apparatus is carried by the user and in which by the manipulation of the controls, permits soaping, rinsing and drying operations to be performed at the will of the user.

Still another object of the invention is to provide a washing apparatus for vehicles or other large objects in which the soap or detergent supply is carried by the hand of the user.

A still further object of the invention is to provide an apparatus for washing vehicles or the like in which the soap or detergent containing chamber and the control means therefor is detachably mounted on the back of the hand of the user; leaving the hand free to grasp either a sponge or the like for the washing operation or a rag for the drying operation.

A still further object of the invention is to provide a washing apparatus for vehicles or the like which is so constructed and arranged that the discharge of soap or detergent is into and through a sponge or rag grasped by the user and in which the rinsing and drying operations employ a discharge outlet remote from the point of soap or detergent discharge.

Still another object of the invention is to provide a washing apparatus carried to the back of the hand of the user which is constructed and arranged to be connected by a single flexible tube to a valve structure attached to the waist line of the user, which valve structure is adapted to supply either water or compressed air or combinations thereof through said tube to the portion of the apparatus mounted on the hand of the user.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, the invention resides in the parts and in the construction, combination and arrangement of parts hereinafter described, by way of example, in the following specification and illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of the apparatus as mounted on or carried by a user,

Fig. 2 is an enlarged, inlet end view of that portion of the apparatus carried by the hand of the user,

Fig. 3 is a longitudinal, sectional, view taken on the line 3—3 of Fig. 2,

Fig. 4 is a transverse, sectional view taken on the line 4—4 of Fig. 3,

Figs. 5 and 6 are fragmentary, transverse, sectional end elevations taken, respectively, on the lines 5—5 and 6—6 of Fig. 3,

Figs 7 and 8 are front and rear elevations respectively, of that portion of the apparatus carried at the waistline of the user,

Fig. 9 is an elevation of the outlet or discharge side of that portion shown in Figs. 7 and 8,

Fig. 10 is a vertical section taken on the line 10—10 of Fig. 9, and,

Fig. 11 is a vertical section taken on either of the lines 11—11 of Fig. 10; the valve being shown in open position. Referring first to Fig. 1, the apparatus consists of a hand unit A, a unit attached to the waistline of the user, hereinafter called the belt unit B and a flexible tube C connecting the units A and B. The unit B is further provided with a pair of inlet ports adapted to be connected to flexible lines or hoses D and E which at their other ends are connected respectively to supply sources of water and compressed air.

Referring next to Figs. 2 to 6, inclusive, the hand unit A includes a rubber pad 1 adapted to fit on the back of the hand of the user; the pad being formed with an elastic strap portion 2 extending from side to side of the pad and fitting across the hand of the user with sufficient tightness to hold the pad 1 securely in place on the back of the hand as clearly shown in Fig. 1. Adjacent its forward end (see Fig. 4) the pad is provided with a transverse hole 3 and midway of the length of this hole an internally threaded washer 4 is embedded and vulcanized in place with its threaded portion disposed concentric with the hole 3. Adjacent its rear end (see Fig. 6) the pad 1 is further provided with a counterbored hole 5 having a washer 6 embedded at the bottom of the counterbore.

Secured to the side of the pad remote from the hand of the user is the body 7 of a valve and soap unit provided with a soap outlet nozzle 8 having an exteriorly threaded portion 9 engaging the threads of the washer 4 and having an exteriorly tapered portion 10 positioned and adapted to extend between the second and third fingers of the hand on which it is mounted. A screw 11 having its head engaging the washer 6 and threaded into a hole 12 in the body member 7 connects the rear ends of the body member and the pad 1. To assemble the body member to the pad, the body member is first screwed down into the washer 4 as far as it will go with the holes

5 and 12 in alignment, after which the screw 11 is inserted and tightened.

The body member 7 of the valve and soap unit is formed of a bar of metal of rectangular cross section somewhat shorter than the pad 1 and, as shown in Fig. 3, is disposed substantially centrally of the pad. At the end adjacent the wrist of the user the body member is provided with a threaded inlet port 13 adapted to be connected to one end of the flexible tube C. Extending from the inlet port 13 to the opposite end of the body member and disposed on the same axial line as the inlet port is a bore 14 which, adjacent the port 13, is intersected by a transversely disposed, tapered bore 15 in which is journalled a tapered plug valve member 16. As best shown in Fig. 5, this valve member is disposed with its large end adjacent the pad 1 and flush with the face of the body 7 and at its other end is provided with a slotted extension 17 in the slot of which a handle 18 is secured by a cotter pin 19. A spring washer 20 interposed between the adjacent faces of the handle 18 and the body member 7 serves to hold the valve member seated in the bore 15, and resilient ring gaskets 21 and 22 seated in peripheral grooves in each end of the valve member and engaging the wall of the bore 15 serve to prevent leakage.

The valve member 16 is provided with a transverse bore 23 of the same diameter as the bore 14 and in line therewith and with a smaller bore 24 disposed at right angles to and intersecting one side of the bore 23. The body member 7 is further provided with a soap chamber 25 comprising a relatively large bore extending parallel to the bore 14 from the same end as the inlet port 13 and terminating adjacent the other end of the body member in a slightly smaller, coaxial bore 26; the juncture of the bores forming a shoulder 27 on which a screen 28 carried by a collar 29 closely fitting within the bore 26 is seated. The entrance end of the soap chamber is threaded to engage a closure plug 30 having a flat sided extension 31 adapted to be engaged by a wrench and having a groove 32 in which is seated a gasket 33 of the outer face of which engages a conical surface 34 on the body member 7 between the threaded portion of the soap chamber and the end of the body member. The body member 7 is further provided with an angularly disposed bore 35 connecting the open end of the soap chamber with the valve bore 15 at a point at right angles to the axis of the bore 14 whereby, as will be later explained, water may be directed into the soap chamber. At the other end of the soap chamber, the body member 7 is provided with a threaded hole 36 which extends from the side of the body member adjacent the pad 1 into the side of the bore 26 into which threaded hole the threaded end 37 of the soap discharge nozzle is screwed prior to assembly with the pad 1.

Thus when the valve 16 is in the position shown in Fig. 4, water entering through the inlet port 13 will be directed through the bores 24, 23 and 35 into the soap chamber 25 and thence through the screen 28 and bore 26 out the soap discharge nozzle 8. In this connection it is to be noted that the jet of water passing through the bore 35 is directed toward the rear or plug end of the soap chamber, thus insuring that all of the soap placed therein will be used up. When the valve 16 is turned a quarter turn in a clockwise direction as viewed in Fig. 3, the bores 24 and 35 will be cut off and the bore 23 will be in line with the

bore 14, permitting the discharge of a stream of rinsing water or of a blast of air through the bore 14 out of the end of the body member 7 as will be later explained in more detail.

Referring now to the belt unit B shown in Figs. 7 to 11, inclusive, the unit comprises a body member 38 having a water inlet port 39, an air inlet port 40 and an outlet port 41; all of which are threaded for connection with hoses D and E and the flexible tube C respectively. Extending inwardly from and coaxially of the inlet ports 39 and 40 respectively are parallel bores 42 and 43 which at their inner ends, as shown in Fig. 10, are intersected by a bore 44 extending inwardly from and coaxially of the outlet port 41. Intermediate their ends, the bores 42 and 43 are intersected by tapered valve bores 45 and 46 respectively in which are seated taper plug valve members 47 and 48 having transverse bores 49 and 50 adapted to be brought into and out of registry with the bores 42 and 43 respectively. As best shown in Fig. 11, these valve members are arranged with their large ends flush with one side of the body member 38 and at their other ends are provided with slotted extensions 51 and 52 in which handles 53 and 54 are secured by cotter pins 55 and 56. Spring washers 57 and 58 disposed between the handles and the body member 38 serve to hold the valve members seated in their bores and resilient gasket members 59 and 60 near each end of each of the valve members and engaging the walls of the valve bores 45 and 46 serve to prevent leakage.

It will be seen that by opening the valve 47 and closing the valve 48 a stream of water will be delivered through the flexible tube C, and that by closing the valve 47 and opening the valve 48 a blast of air will be delivered in the same manner. Additionally, in cleaning mud and the like from the under side of fenders and other parts of a vehicle where additional velocity is desired both valves may be opened to the desired degree to produce a blast of combined air and water.

The belt unit B is provided with a spring clip 61 which is attached by screws 62—62 to the upper face of the body member 38 and thence extends downwardly along the side face of the body member opposite the valve handles 53 and 54 and terminates in an outwardly turned lip portion 63. This spring clip permits the belt unit to be quickly attached to the belt of the user and to be as quickly detached. Positioned at the side of the user as shown in Fig. 1, the valve handles 53 and 54 are located so as not to interfere with the use of the apparatus and at the same time are easily reached for such adjustment and manipulation as the use of the apparatus may require.

Apparatus of this character is particularly useful in service stations and the capability of quick attaching and detaching of the apparatus makes it desirable in that the attendant may quickly stop washing a car and serve a customer and as quickly re-attach the apparatus and continue the washing operation. The mounting of the unit B on the belt of the user is desirable in that only a short light weight single hose or tube need extend to the hand unit thus relieving the hand of the necessity of dragging the weight of the air and water hoses if they were attached directly to the hand and contributing to the ease of manipulation of the hand unit. Additionally the danger of marring the surface by dragging a heavy hose across it is eliminated.

In use, the soap chamber is first filled with

soap; the soap preferably being in a solid or semi-solid cake in the form of a cylinder of such size that it will loosely fit the soap chamber, the plug 30 is then inserted and tightened after which the belt and hand units are attached to the belt and hand of the user. Then the user grasps a sponge or rag with the hand on which the hand unit is mounted and opens the valve 47 and adjusts the valve 16 to deliver water through the soap chamber with resultant discharge of soapy water out of the nozzle onto and through the sponge or rag and onto the surface being washed. The user then proceeds to wash an area of the car or other object being washed and after a sufficient area has been washed, the valve 16 is adjusted to cut off the soap chamber and to project a stream of rinsing water on the washed area after which the valve 47 is closed and the valve 48 is opened to deliver a blast of air through the tube C and the bore 14 of the hand unit to blow off surplus water and to dislodge water from crevices and from behind trim strips preparatory to final drying and polishing of the surface. Then the apparatus may be turned off completely and the sponge exchanged for a polishing cloth to complete the cleaning of that area.

The foregoing description of the operation is the usual sequence of procedure, but in practice it may be necessary, for example, to wash off an accumulation of mud or other dirt from the surface to be cleaned by the use of the water alone or by the combination of water and air before proceeding with the use of soap. Whatever the requirements of a particular surface may be, the user of the apparatus has fingertip command of the necessary elements to do the job. In the foregoing specification reference has constantly been made to "soap" and "soap chamber" but it will be understood that these terms are intended to include detergent compounds other than soap.

While I have shown and described a specific embodiment of my invention, I do not limit myself to the exact details of construction set forth, and the invention embraces such changes, modifications, and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

I claim:

1. In a washing apparatus for cleaning vehicles and the like, a unit adapted to be attached to the hand of the user and having an inlet port adapted to be connected to a source of water supply; said unit comprising a pad element formed to lie on the back of the hand, a strap portion connected to said pad and adapted to extend across the palm of the hand and operative to hold said pad on the back of the hand of the user, body member fixed to said pad at the side thereof opposite the side in contact with the hand and having an inlet port at one end adapted to be connected to a source of water supply, a bore extending from said inlet port to the opposite end of said body member, a three way valve in said bore, a soap chamber in said body member, a discharge nozzle extending from said soap chamber through said pad, a removable filler plug closing one end of said soap chamber, and a fluid passage connecting said soap chamber with said valve said valve being manually operable to direct fluid received from said inlet port to said bore or to said soap chamber through said passage or to shut off the flow of fluid.

2. In a washing apparatus for cleaning vehicles and the like, a unit adapted to be attached to the hand of the user and having an inlet port adapted to be connected to a source of water supply; said unit comprising a pad element formed to lie on the back of the hand, a strap portion connected to said pad and adapted to extend across the palm of the hand and operative to hold said pad on the back of the hand of the user, a body member fixed to said pad at the side thereof opposite the side in contact with the hand and having an inlet port at one end adapted to be connected to a source of water supply, a bore extending from said inlet port to the opposite end of said body member, a three way valve in said bore, a soap chamber in said body member, a discharge nozzle extending from said soap chamber through said pad, a removable filler plug closing one end of said soap chamber, and a fluid passage connecting said soap chamber with said valve; said valve comprising a rotatable frusto-conical plug seated in a frusto-conical bore and having a series of transverse interconnecting ports disposed in a plane containing said inlet port, bore, and the fluid passage leading to the soap chamber and arranged that in one position of said valve water entering said inlet port will be directed through said passage into said soap chamber and thence out of said discharge nozzle, and when in another position, water entering said inlet port will be directed through said bore and out of the end of the body member.

3. In an apparatus for washing vehicles and the like, a unit adapted to be attached to the back of the hand of the user and having an inlet port at one end adapted to be connected to a source of water supply, a rinsing water nozzle at the other end of said unit, arranged to direct a stream of water in the direction of the outstretched fingers of the hand to which the unit is attached, a soap chamber in said unit extending from said inlet port end to a point adjacent the other end of said unit, a soap solution discharge nozzle communicating with said soap chamber at said other end of said unit and extending outwardly therefrom at right angles to said first nozzle and terminating between two of the fingers of the hand on which the unit is mounted and manually operable valve means adjacent said inlet port constructed and arranged to direct the flow of water from either said inlet port through said rinsing water nozzle or through said soap chamber and said soap solution discharge nozzle.

LEO G. SIMMS.

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