April 10, 1962 M. W. HELM 3,028,615

COMBINED POLISHER AND SHAMPOOER

Filed Dec. 1, 1959 3 Sheets-Sheet 1

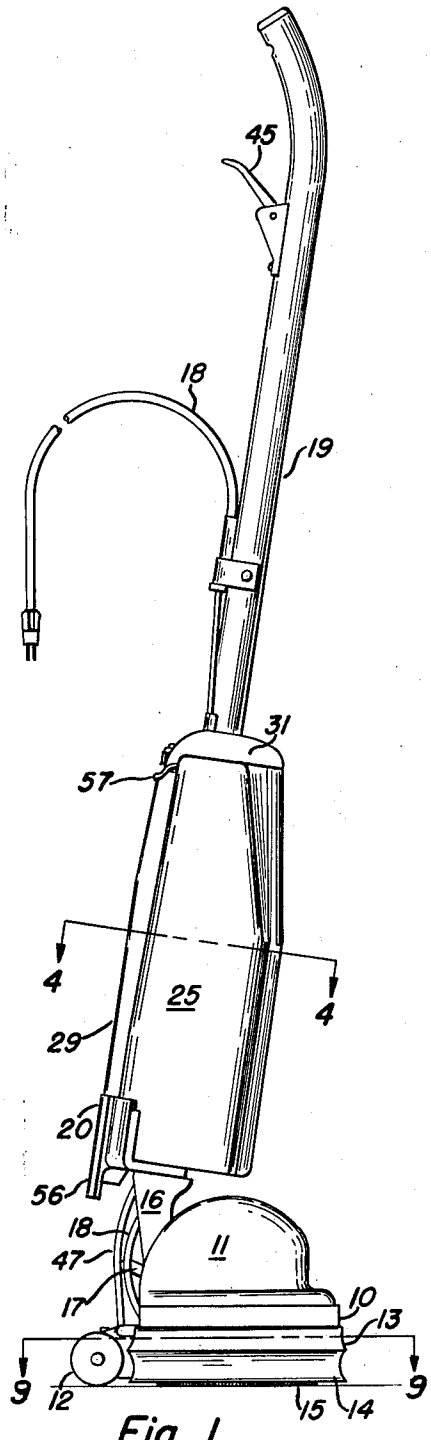


Fig. 1

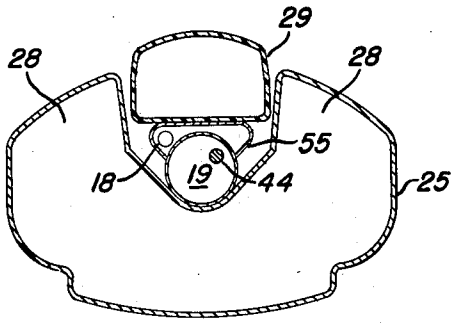


Fig. 4

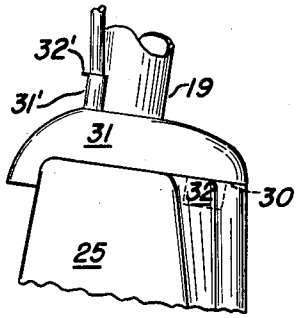


Fig. 3

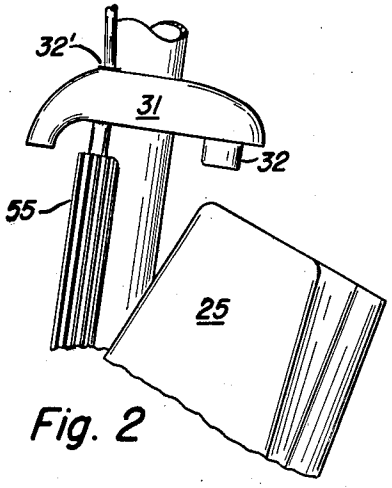


Fig. 2

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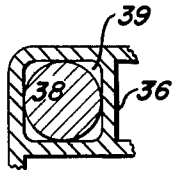


Fig. 7

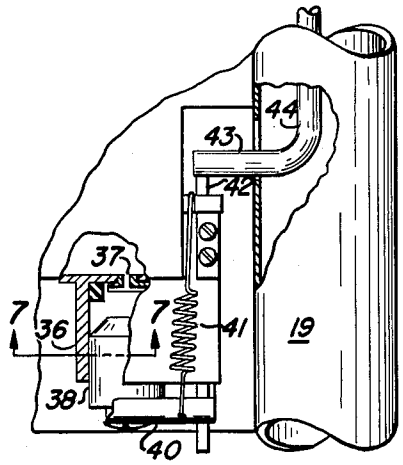
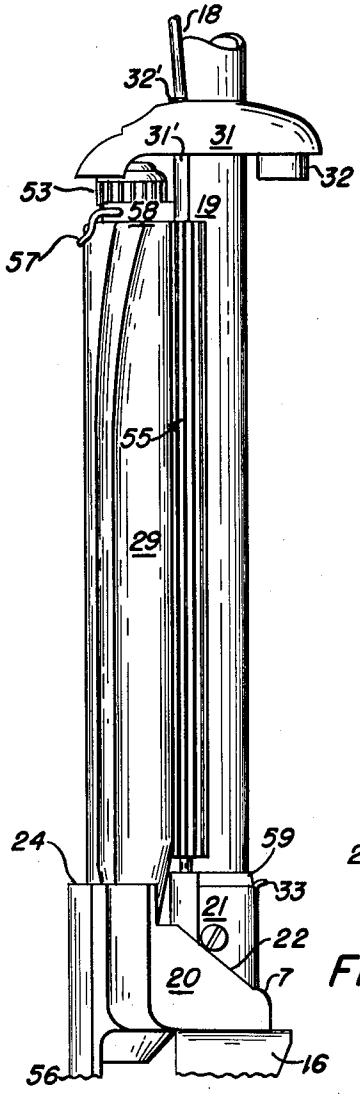


Fig. 6



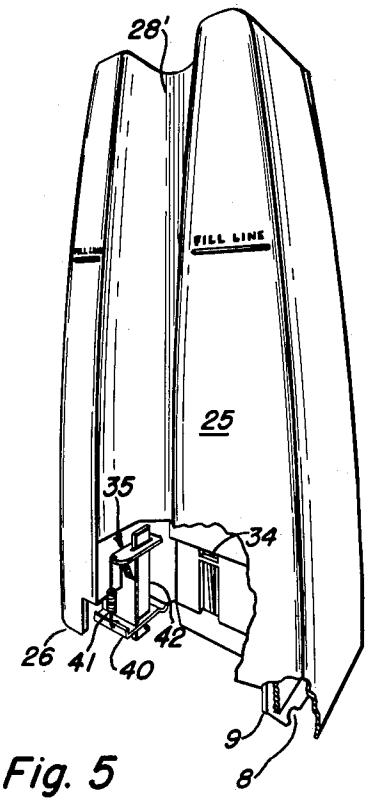


Fig. 5

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COMBINED POLISHER AND SHAMPOOER

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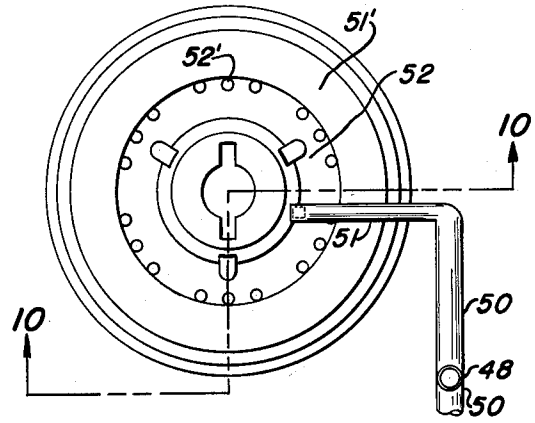


Fig. 9

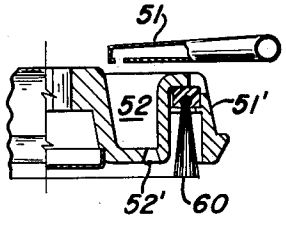


Fig. 10

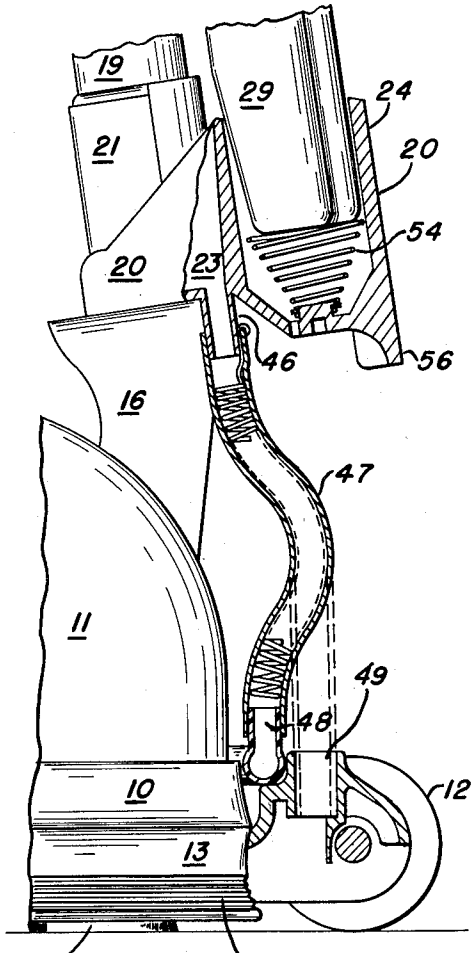


Fig. 8

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3,028,615

COMBINED POLISHER AND SHAMPOOER

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Filed Dec. 1, 1959, Ser. No. 856,543
14 Claims. (Cl. 15—50)

The present invention relates to a combined floor polisher and piled fabric or rug shampooer which may be used as a floor polisher and may be quickly converted to a device for shampooing rugs, carpets or other piled fabrics.

The device of the present invention is provided with a removable tank or receptacle attached to the handle of the machine which may be used to dispense a detergent solution or to dispense a water based liquid polishing wax. Also a hand held dispenser bottle for a liquid polishing wax is removably carried by the device so that a different kind of wax may be dispensed by hand, in polishing hard surfaced floors.

Specifically according to the present invention a polisher provided with two vertical axis polishing brushes is constructed to have the two usual polishing brushes replaced by two detergent dispensing shampoo brushes with means incorporated into the polisher for dispensing a detergent solution to the shampoo brushes.

A handle bail is pivoted to the body of the device as is usual practice and the handle and bail are modified to support the entire dispensing apparatus including the detergent solution tank which may be used alternately to dispense a detergent solution or a water based liquid wax. The handle bail is also provided with means for removably supporting a squeeze bottle for a solvent based polishing wax so that the floor may be manually waxed as it is polished.

Specifically the top of the handle bail is flattened off to form a support for the dispensing containers from which the containers may be easily removed. A special plastic support is provided having pockets on either side of the handle socket into which fit specially constructed supports extending downwardly from the detergent dispensing container. One of the pockets has an opening therethrough through which liquid is dispensed when needed.

The detergent dispensing tank is sort of U-shaped in cross sectional outline and the legs of the U straddle the handle which extends upwardly from the handle socket supported by the bail between the aforementioned pockets.

The special plastic support is also provided with a pocket to the rear of the handle socket for receiving the lower end of a liquid wax dispensing squeeze bottle, the socket being provided with a spring for forcing the top of the bottle into a retaining latch.

The legs of the detergent dispensing tank are made long enough to also straddle the wax bottle as well as the handle.

The detergent tank has a centrally located fill opening in front of the handle and a closure for the opening is slidably mounted on the handle so that with the detergent tank in place the closure may be slid down to close the fill opening and also lock the tank in place. A lug extends rearwardly from the handle and interfits with a notched recess in the detergent tank to hold the latter from upward movement when the tank is locked in place.

At one of its lower corners, above the socket having the dispensing opening, the detergent tank is provided with a valved opening for dispensing liquid into the pocket and ultimately onto the detergent dispensing shampoo brushes or for dispensing a water based liquid wax onto the floor to the rear of the polisher.

The valve is normally spring biased to closed position

and is opened by means of a rod which is reciprocally mounted within the interior of the handle and actuated by means of a handle lever adjacent the hand grip at the upper end of the handle.

The electric cord extends downwardly along the handle to a handle actuated switch within the motor housing. The cord is housed within a conduit which lies between the handle and the wax dispensing bottle. The loose end of the cord is stored by being wrapped about the hand lever at its upper end about a lug extending downwardly from the special plastic support at its lower end.

An auxiliary protecting sleeve is provided for the cord at the point where it passes beneath the slidable closure cap. That sleeve also forms a guide for the slidable closure cap and prevents it from rotating about the handle to thus assure that the closure plug and fill opening are always in alignment when the parts are assembled.

Transport wheels, which are free of the floor when the appliance is in use, are provided at the rear of the appliance, back upon which it may be tipped when it is desired to move it from place to place.

The bracket which attaches the transport wheels to the rear of the appliance also acts to hold the dispensing tubes which lead to the shampoo brushes in assembled relationship.

A flexible tube is provided leading from the liquid dispensing pocket of the supporting bracket to an opening in the wheel supporting bracket for dispensing a water based polish to the rear of the appliance. The lower end of the tube is removable from the opening in the wheel support and adapted to be attached to the tubes which conduct detergent to the shampoo brushes.

The primary purpose of the appliance of the present invention is for shampooing rugs and its supplemental purpose is for applying either a water based polish or a solvent based hard drying wax when the shampoo brushes are replaced by polishing brushes. In the latter case the appliance may be used as a simple polisher. In other words the appliance of the present invention is intended to replace the ordinary household floor polisher and also to perform its rug shampooing function as well as to dispense and spread different kinds of floor polishing compounds.

Other objects and advantages of the present invention will become apparent as the description proceeds when taken in connection with the accompanying drawings in which:

FIG. 1 is a side view of the completely assembled shampoo appliance of the present invention;

FIG. 2 is a fragmentary view showing the detergent tank in the process of being assembled;

FIG. 3 is a fragmentary view showing the top end of the detergent tank in assembled position;

FIG. 4 is a cross-sectional view taken on line 4—4 of FIG. 1;

FIG. 5 is a view showing the detergent tank in perspective and about to be assembled to the handle support;

FIG. 6 is a fragmentary view partly in section and showing the valve arrangement for the detergent tank;

FIG. 7 is a sectional view taken on line 7—7 of FIG. 6;

FIG. 8 is a fragmentary view showing the dispensing arrangement;

FIG. 9 shows the arrangement of the dispensing tube with relation to one of the shampoo brushes; and

FIG. 10 is a fragmentary sectional view showing how the detergent is dispensed to the shampoo brush.

Referring to FIG. 1, the shampoo appliance of the present invention includes a main frame **10**, a motor hood **11**, transport wheels **12**, a furniture guard **13** provided with a splash skirt **14**, vertical axis brushes **15** and the usual handle bail **16**.

The main frame 10 supports the driving motor and provides the necessary gearing to drive the brushes 15, in a manner known to the art.

The motor is controlled by a switch which is actuated to off position when the handle bail 16 is moved to storage position as shown in FIG. 1 and actuated to on position when the handle 19 is moved to its operating range after release of the foot pedal 17. Those features are also known in the art and form no part of the present invention. Electric current is provided by the usual electric cord 18 which is led downwardly along the handle 19, in a manner which will presently appear.

A supporting bracket 20 of plastic material is riveted or otherwise secured to the top of the bail 16. It extends on either side of the handle socket 21 as well as to its rear as shown in FIGS. 5 and 8. Pockets 22 and 23 are formed in bracket 20 on opposite sides of handle socket 21 and pocket 24 (FIG. 5) is formed to the rear thereof, for purposes which will presently appear.

As shown by FIG. 5 the tank 25 is provided with extension 26 which houses supporting strips 9 having semicircular recesses 8 which interfit with rounded portions 7 formed on the interior side walls of the pockets 22 and 23 when the parts are in assembled position.

As shown by FIG. 4, the tank 25 is of a generally U shape in cross-sectional outline with the legs 28 of the U straddling the handle 19 and extending well to the rear thereof to form a pocket 28' for receiving a squeeze dispensing bottle 29 mounted to the rear of handle 19 in a manner which will be later described and for a purpose which will presently appear.

The tank 25 is provided with a fill opening 30 adapted to be closed by a combined closure cap and lock 31 which is slidably mounted on the handle 19. A protecting sleeve 31' is provided for the electric cord 18 at the point where the closure cap 31 is slidably mounted on the handle 19.

The closure cap 31 is provided with a plug 32 which enters the fill opening 30 and holds the top end of tank 25 against outward movement when the cap 31 is moved downwardly to engage the plug 32 in the fill opening 30. The sleeve 31' is provided with a flange 32' which forms the upper limit for movement of the closure cap 31.

A tab 33 extends forwardly from the handle socket 21 and interfits with a small recess 34 formed in the rear wall of the pocket 28' of tank 25. That prevents upward movement of tank 25 when the parts are fully assembled and does not permit such movement until the top end of tank 25 is pulled out far enough to disengage the elements 33 and 34.

In assembling the tank 25 to the handle 19 and bracket 20, the recesses 8 of strips 9 are engaged over the rounded portions 7 with the tank 25 sloped forwardly. The top of the tank 25 is then moved rearwardly against the handle 19 which will cause the tab 33 to enter recess 34 to hold the tank 25 against vertical movement relative to the handle 19. The closure cap 31 is then moved downwardly to engage the plug 32 into the fill opening 30 to close that opening and to lock the tank 25 from forward movement until the closure cap 31 is raised. The sleeve 31' prevents the cap 31 from rotating and the plug 32 is always aligned with the fill opening 30 when the cap 31 is moved downwardly. To remove the tank 25, it is only necessary to raise the cap 31, move the top of the tank 25 forwardly, and lift it from the supporting bracket 20.

At its lower end the tank 25 is provided with a valve assembly generally indicated by the reference numeral 35 which includes a square housing 36, FIGS. 6 and 7, having an outlet opening 37, closed and opened by a reciprocating valve plug 38, leaving openings 39 at the corners through which liquid flows when the valve is open.

The plug 38 is attached to a flexible arm 40 and a spring 41 biases the valve 35 to its closed position. The valve 35 is adapted to be opened by an actuator 42 of insulating material, the lower end of which engages the valve arm 40 so that downward movement thereof will open the valve 35 and upon release of actuator 42, the valve 35 will be returned to closed position by spring 41.

The lower outturned end 43 of an actuator rod 44 actuates the valve 35 to its open position against the bias of spring 41. The actuator rod 44 extends upwardly through the handle 19 and is moved downward by an inward pull on hand lever 45.

When the tank 25 is assembled the valve assembly 35 is positioned within the pocket 23, FIG. 8. A nipple 46 extends downwardly from the bottom wall of pocket 23. A reinforced flexible hose 47 is connected to the nipple 46 at its upper end and at its lower end selectively to a nipple 48 or to an opening 49 in the bracket on which the transport wheels 12 are mounted.

The nipple 48 is connected to a pair of sidewardly extending arms 50 having forward extensions 51 which discharge into an annular recess 52 in each of the rotary shampoo brushes 51', FIG. 10.

The squeeze bottle 29 is provided with a wax dispensing closure cap 53 and its lower end fits into the pocket 24 against a compression spring 54. The bottle 29 rests against an electrical conduit 55 in which the cord 18 is housed and thus separated from the fluid containers 25 and 29.

During storage the free length of electric cord 18 is wound about an extension 56 on the back lower end of bracket 20, at its lower end, and about the lever 45 at its upper end.

The upper end of squeeze bottle 29 is held in place by a releasable latch 57 pivoted to the legs of a spring clip 58. In order to remove the squeeze bottle 29, the latch 57 is raised, the bottle 29 pushed down against spring 54 and its top end moved outward whereby it may be easily raised out of pocket 24.

The handle 19 is insulated from the handle socket 21 by means of an electrically insulating sleeve 59.

Operation

The device of the present invention is a multiple purpose appliance and has three separate and distinct modes of operation.

For shampooing operations the ordinary polishing brushes are replaced by special shampoo brushes which form the subject matter of a separate application and need not be discussed in detail herein.

It is well known that different types of hard surface floors for different uses require different types of polish or wax.

The appliance of the present invention in addition to being specially designed as a shampooer for napped fabrics is also designed to apply a water based wax to one type of floor and to apply a solvent based liquid hard drying wax to other types of floor surfaces.

For the latter operation the squeeze bottle 29 is used. The bottle 29 is removed in the manner described above, the valve opened and the bottle 29 squeezed to apply the hard drying wax wherever desired. The appliance with ordinary polishing brushes 15 is then applied until the floor is thoroughly polished. When the wax is all used from bottle 29, the cap 53 is removed and the bottle refilled with the proper amount of wax.

The reason why the tank 25 is not used for applying solvent based wax is that the tank 25 and valves 35 etc. would soon become so soiled that the machine could not be used for shampooing without a thorough cleaning.

The tank 25 is provided with a fill line marked "Fill Line," FIG. 5, to provide for the proper level of detergent in the tank. The space above the marked line is to provide for any suds or foam which may form in the top of tank 25 due to filling or to splashing about during operation. The tank 25 should always be rinsed after each use when a different liquid is to be used.

When it is desired to shampoo a napped fabric, the cap **31** is raised against the flange **32'** of sleeve **31'**, the tank **25** removed, as previously described, and filled with a detergent solution to the proper level which may be marked "Fill Line" as shown by FIG. 5. It may be here noted that the tank **25** is preferably made of a "translucent thermoplastic" so that the level of liquid therein may be readily observed.

The tank **25** may then be replaced, it being noted that the upper end of insulated valve actuator **42** will fall into place beneath the end **43** of actuator rod **44**. The hose **47** is then connected to the nipple **48**, the motor actuated and the lever **45** actuated intermittently to open valve opening **37**, whereby detergent solution will flow through openings **39** and into the pocket **23**. From the pocket **23** the detergent will flow through nipple **46**, hose **47**, nipple **48** and pipes **50** and **51** into the annulus **52** of brushes **51'**.

As the brushes rotate, the detergent will flow through dispensing openings **52'** onto the floor on the inside of the bristles **60**. a sudsy foam will be formed and the napped carpet thoroughly cleansed. Care should be taken not to apply too much detergent as the carpet may become too wet.

After shampooing, the carpet may be permitted to dry naturally or a suction cleaner may be used immediately to accelerate the drying action and to pick up any loose dirt loosened by the shampooing operation.

The appliance of the present invention may then be used for applying a water based polish to bare floors etc. The tank **25** is removed, as previously explained, rinsed to remove the detergent, partly filled with the preferred water based wax and the tank **25** replaced in its proper position. The hose **47** is disconnected from the nipple **48** and placed in the opening **49**. The shampoo brushes **51'** of FIG. 10 are replaced with ordinary polishing brushes **15**. The motor may then be energized, the appliance moved about and the hand lever **45** intermittently operated to open and close the outlet opening **37**. The liquid wax will flow through hose **47** and opening **49** onto the floor back of the appliance. As the appliance is moved about the wax will be spread and the floor polished by the rotating brushes.

According to the present invention, the usual polisher may be easily converted to a shampoo appliance. All that is necessary is to substitute the handle **19** and its appurtenances according to the present invention for the usual forked handle of a known polisher, to assemble the ducts **48**, **50** and **51** to the main frame **10** as shown by FIGS. 9 and 10 and to hold them in place by means of the transport wheels **12** as shown by FIG. 8.

From the foregoing it can be seen that the device of the present invention provides a multiple purpose appliance to replace the usual household polisher, to replace the old hand wax applicators and which may also be used to shampoo napped fabrics such as rugs and carpets.

While I have shown and described but a single embodiment of my invention it is to be understood that that embodiment is to be considered as illustrative only and not in a limiting sense. I do not wish to be limited to the particular structure shown and described but wish to include all equivalent variations thereof except as limited by the scope of the claims.

I claim:

1. A shampoo appliance comprising, a main frame, rotary surface contacting brush means normally supporting the weight of the appliance, a handle pivoted to said main frame, bracket supporting means on said handle adjacent to its lower end, said bracket means including a liquid receiving pocket, a liquid dispensing tank having liquid dispensing valve means in its bottom end, the bottom end of said tank being detachably supported by said bracket means with said valve means positioned over said liquid receiving pocket, latch means for detachably holding the top end of said tank to said handle, conduit means for leading liquid from said liquid receiving pocket to said brush means and means actuatable from the upper end of said handle and engageable with said valve means operable to open said valve means.

2. An appliance according to claim 1 in which said tank is provided with a fill opening in its upper end and said latch means is in the form of a closure for said fill opening and is slidably mounted on said handle to open and close said fill opening and to unlatch and latch the upper end of said tank from and to said handle.

3. An appliance according to claim 2 including an electrical cord for said appliance extending downwardly along said handle between said latch and handle and forming a guide for said latch to align said closure with said fill opening.

4. An appliance according to claim 1 in which said tank is U shaped in outline to form legs which straddle said handle and a rear vertically extending pocket in which said handle is positioned.

5. An appliance according to claim 4 in which said bracket means includes a rear pocket at the rear of said handle, a squeeze bottle having its lower end supported in said rear pocket and means for detachably latching the upper end of said bottle to the rear of said handle, said bottle being received in the rear vertically extending pocket of said tank.

6. An appliance according to claim 4 including coacting means on said handle and the wall of the vertically extending pocket of said tank for preventing vertical movement of said tank relative to said handle when said tank is clamped in position.

7. An appliance according to claim 1 in which said conduit means includes a pair of ducts extending forwardly from the rear of said main frame and terminating over said brush means, said ducts terminating at their rear ends in a single duct and a flexible tube connecting said single duct to said liquid receiving pocket.

8. An appliance according to claim 7 including transport wheels, means for attaching said wheels to the rear of said main frame and said attaching means serving to hold said ducts assembled to said appliance.

9. An appliance according to claim 1 including transport wheels, means for attaching said wheels to the rear of said main frame, and means for dispensing liquid through said attaching means to the supporting surface in front of said wheels.

10. An appliance according to claim 9 in which said conduit means includes tubing leading from the rear of said main frame to a position to dispense liquid onto said brush means and a flexible hose extending downwardly from said liquid receiving pocket and selectively connectible to said tubing and to the means for dispensing liquid through said wheel attaching means.

11. A shampoo attachment for a floor polisher comprising, a handle, an accessory support attached to said handle, a detergent dispensing tank having its lower end removably supported on said support, a fill opening formed in the upper end of said tank, a closure cap slidably mounted on said handle for closing said fill opening and operable to latch the upper end of said tank to said handle, and means for dispensing detergent from said tank and leading it to the polisher to which said attachment is applied.

12. An attachment according to claim 11 in which said dispensing means includes a dispensing pocket formed in said support and valve means in the bottom of said tank operable to dispense detergent from said tank into said pocket and means actuatable for the upper end of said handle and operable to open said valve means.

13. An attachment according to claim 11 including an electric cord extending downwardly along said handle between said closure cap and handle and a protecting sleeve surrounding said cord, said sleeve forming a guide for said closure cap to maintain it in alignment with said fill opening.

14. A shampoo attachment for a floor polisher comprising, a vertically extending handle for attachment to a floor polisher, a detergent dispensing tank generally of a U shape in cross sectional outline to form a pair of vertically extending legs and vertically extending recessed pocket in the back of said tank, means for supporting said tank on said handle with the legs of said tank straddling said handle to position the latter in said vertically extending pocket, means for dispensing liquid from said tank and leading it to the polisher to which said attachment is applied, the legs of said tank extending backwardly beyond said handle to form a space between said legs to the rear of said handle and means for supporting a squeeze bottle on said handle and positioned in said space.

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