

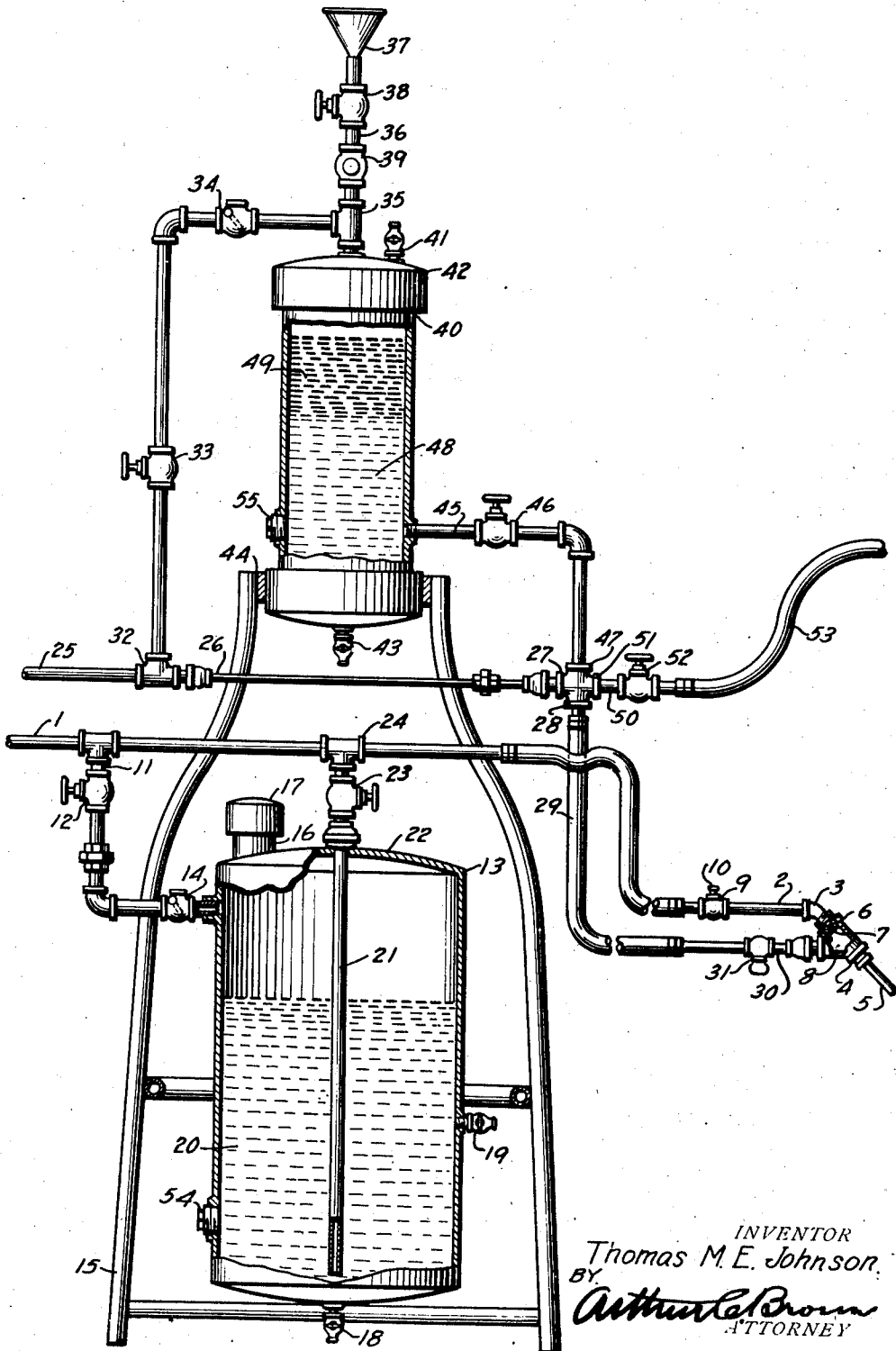
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APPARATUS FOR TREATING THE SURFACE OF VEHICLES

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APPARATUS FOR TREATING THE SURFACE OF VEHICLES

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This invention relates to apparatus for treating the surfaces of vehicles, and more particularly to a series of steps and a combination of elements for cleaning and/or waxing automobile bodies and the like, the principal objects of the present invention being to provide a convenient, economical and highly efficient arrangement for carrying out such operations.

It has heretofore been the practice in waxing automobiles to first wash the car in any suitable manner and follow the washing operation by cleaning the surface of the car with a paste or hand cleaner. This is ordinarily done by hand and a paste wax is next manually applied over the surface of the car. These steps obviously require a great deal of time and work.

Further important objects of the present invention are, therefore, to minimize the time and expense in washing and waxing cars; to apply to the car a water-proof wax luster during, and as an incident to, the washing operation; to provide for applying a wax liquid evenly and in a uniform manner over the surface of the vehicle being treated; to provide for bringing together air as an impelling medium, water as an impelling and carrying medium, a cleaning element, such as kerosene or water soluble chemical, and a wax liquid as a water-proof sealing and luster producing agent for the vehicle being treated in various combinations of the specified mediums and agents; to provide for drying the vehicle with a wet chamois or other polishing element, as distinguished from the practice heretofore employed of polishing the surface of the vehicle with a dry cloth; to provide for thoroughly mixing air with kerosene and/or water and applying the same in controlled quantities and under controlled pressures to a vehicle being treated; to provide for thoroughly mixing a wax liquid with water and applying the mixture to the vehicle being treated; to provide for mixing a wax liquid with water and air and applying the same to a vehicle being treated; to provide for applying air and water, alone or in combination, to a vehicle being treated; to provide an improved arrangement of detergent, water and wax liquid containers relative to each other for occupying the minimum amount of space; to provide for apportioning water and air to a detergent and wax liquid in such a manner as to obtain best results in the vehicle treating operations; to greatly simplify the operations and equipment necessary to efficiently clean and wax vehicles; and to provide improved structural elements and arrangements of them, in a method

and apparatus for treating the surface of vehicles.

The single figure of the drawing is a side elevational view of the apparatus, with parts of the detergent, water and wax liquid containers being broken away to better illustrate the construction and arrangement of the apparatus.

Referring more in detail to the drawing illustrating the apparatus:

Assuming a vehicle, not shown, to be positioned adjacent the apparatus, and assuming further that the body of the vehicle is dirty, and the chassis fouled with grease, the chassis of the vehicle is preferably first washed with air, water and a detergent, such as kerosene or other suitable water soluble chemical. The air, water and kerosene may be applied to the vehicle by the provision of an air line 1 leading from a suitable source of supply, such as a compressor, not shown, and terminating at its outer end in a fitting 2 engaged with one arm 3 of a Y-type gun 4, provided with the usual nozzle 5, a plug 6 preferably being provided in the arm 3 of the gun, having an orifice 7 for apportioning air admitted from the line 1 into the mixing chamber 8 of the gun. The air line 1 is also provided with a valve 9 adjacent the gun 4, which may be controlled by a resiliently compressible control device 10.

In order to entrain a detergent, such as kerosene, for example, in the air stream flowing through the air line 1, portions of the air are bypassed through a pipe connection 11 in the air line 1 under control of a valve 12, the pipe connection 11 leading to a container 13 and being provided with a check valve 14 for maintaining desired pressures in the container.

The container 13 may be of any suitable size, and is preferably supported on a rack 15 adapted to rest upon a floor or the like in a garage, for example, where the vehicle treating operations are being carried out. The container 13 is provided with a fill opening 16 having a protective cap 17 thereon, a drainage device 18, preferably being provided in the bottom of the container, and a pet-cock 19 also preferably being provided on the side wall of the container above the bottom thereof for testing the tank to determine quantity of detergent such as kerosene 20 in the tank. An outlet for the tank 13 is also provided, which preferably consists of a pipe 21 extending to a point adjacent the bottom of the container and leading out of the top wall 22 of the tank under control of a valve 23, the pipe 21 terminating in a connection 24 mounted in the air line 1.

In order to apply water to the air stream and

to detergent entrained in the air stream, a water line 25 is provided which leads from the city water source or other source capable of supplying sufficient pressure to impel the water through the line 25. The water line 25 is preferably reduced as at 26 in the proportions of approximately a three-quarter inch line at the connection to the source of supply of water to a three-eighths inch line at the reduced portion 26 of the water line. The reduced portion 26 of the water line preferably terminates in a four-way connection 27, one arm 28 of which is provided with a water line extension 29 terminating at the arm 30 of the gun 4, and being provided with a control valve 31 adjacent the gun.

With the construction thus far described, it is apparent that, when a detergent such as kerosene is placed in the container 13, and air is applied to the air line 1, and water is applied to the water line 25, air and water approach the mixing chamber of the gun 4 under control of the valves 9 and 31 to fill the lines. Air may then be by-passed under control of the valve 12 into the container 13 to build up a pressure sufficient to force detergent through the pipe 21 into the air line for entraining the detergent in the air. The valves 9 and 31 may then be actuated to allow passage of water and detergent entrained air into the mixing chamber of the gun where they are mixed and ejected forcibly from the nozzle 5 of the gun onto the chassis of the vehicle, the air acting as a carrying agent for the detergent, and the water cooperating with the air and detergent as a carrying agent for the mixture of air and detergent.

If the chassis of the vehicle being treated is not particularly dirty, it may simply be washed with air and water by closing the valves 12 and 23 which control the entrance and exit to the container 13, and by manipulating the valves 9 and 31 in the air and water lines to allow ejection of mixed air and water from the nozzle of the gun.

Upon completion of the cleansing operation on the chassis of the vehicle, the body of the vehicle is preferably sponged with water and a wax liquid in a manner now to be described.

The water line 25 is provided with a by-pass connection 32 leading under control of an inlet valve 33 and a check valve 34 to a connection 35 with a fill pipe 36. The fill pipe 36 is preferably vertically arranged and has a filling device 37 at its upper end, a control valve 38 in the body thereof, and a check valve 39. The fill pipe opens into a container 40 which is provided with a pet-cock 41 in a cover 42 for its upper end for relieving the container of pressures and breaking a vacuum therein to allow drainage of the container preferably by means of a pet-cock 43 in the bottom of the container. The container 40 is preferably of smaller size than the detergent container 13, and is preferably supported directly above the detergent container 13 by the upper end of the rack 15 supporting the container 13, suitable bearings 44 being provided for this purpose. An outlet 45 from the container 40 is provided which leads under control of a valve 46 to an arm 47 of the four-way connection 27 in the water line 25 previously referred to.

Water 48 may be applied to the tank 43 by opening the valve 33 and closing the valve 38, the water 48 preferably being applied to the container to a height approximately half that of the container, whereupon a wax liquid 49 may be applied to the container by opening the valve 38

and merely pouring the wax liquid into the filling device 37.

The wax liquid 49 is preferably made by blending oils which have cleaning, drying and mixing properties with a suitable wax or waxes capable of efficiently treating the surface of vehicles with a sealing, water-proof wax luster. The blend is balanced relative to the water in such a manner that, as water is applied to the container through the by-pass 32, a mixture with water is effected and carried through the outlet 45, four-way connection 27, and water line 29 to the gun 4. In this instance, additional amounts of water from the water line 25 may be added to the water and wax liquid mixture, the additional water passing through the reduced portion 26 of the line into the water line 29. Air may also be added to the mixture, if desired, by closing the valve 12 in the air line by-pass and passing air through the air line to the gun 4 where it is mixed with water and liquid wax entrained in the water for ejection from the nozzle 5.

Due to the blend of wax liquid with water and/or air, it has been found convenient to merely rub the blend into the surface of the vehicle with a sponge or the like, the purpose of which is to put a water-proof wax luster on the finish of the vehicle.

It has also been found preferable to provide for applying water and a wax liquid to the surface of the vehicle being treated without the necessity of employing the gun for ejecting the water and wax liquid from the container or water line and to this end, a fitting 50 is connected to another of the arms 51 of the four-way connection 27, and which, under control of a valve 52, is provided with an extension 53 of a length sufficient to effectively apply water and wax liquid entrained in water to the surface of the vehicle being treated. With this structure, it is merely necessary to open the valve 33 in the water line and the valve 46 in the by-pass from the container 40, together with the valve 52 for causing water from the water line to mix and pick up wax liquid and carry the same through the extension 53 to be ultimately impelled into contact with the vehicle under hydrant pressures. It will be noted in this connection that the valve 31 adjacent the gun 4 prevents loss of water and wax liquid from the apparatus.

After the application of detergent, air and water to the chassis of the vehicle, and the application of water and wax liquid to the body of the vehicle, the windows, if any, may be chammoised and the body of the vehicle may subsequently be chammoised. If the vehicle is new, or the finish in good condition, it has been found that the operations noted leave a water-proof wax luster on the finish of the vehicle. It sometimes happens that the finish is slightly dull and in such instances, it has been found desirable to effect an application of water, air and wax liquid over the finish of the body of the vehicle before it is chammoised.

As a matter of practice, where road haze or traffic film has dulled the finish of the vehicle, it has been found desirable to remove the cause of such haze or film with a paste or liquid hand cleaner prior to application of the wax liquid, this being a precaution only and for the purpose of obtaining the most effective results from my apparatus.

Also, as a matter of practice, it may be found desirable to provide the containers with plugged hand openings 54 and 55 to facilitate cleaning

and draining the interior of the containers for maintaining them in good condition.

With the apparatus disclosed herein, it is apparent that air alone may be applied to a vehicle being treated for the purpose, for example, of drying the same; that kerosene or other detergent may be entrained in air and applied to a vehicle for thoroughly cleaning the chassis of the same; that air and water may be applied to the vehicle for cleaning operations; that air, water and a detergent, such as kerosene, may be applied to the vehicle; that water alone may be applied to the vehicle; that water and wax liquid may be applied to the vehicle, together with additional quantities of water; that air, water, wax liquid and additional quantities of water may be applied to the vehicle; and, should the occasion arise calling for such an operation, that air, detergent, water, wax liquid and additional quantities of water may be applied to the vehicle—all through the same gun, where mixtures are effected and from which the noted mediums and agents are forcibly ejected onto the surface of the vehicle for efficiently cleaning the same.

It is also apparent that the extension 53 may be independently employed in the form of a rinse hose or the like for applying water alone to the surface of a vehicle being treated or that water having liquid wax entrained therein, together with additional quantities of water, may be effectively applied to the vehicle being treated.

It will be further apparent that many advantages result from the employment of my apparatus, among which are that I am enabled to carry out many more operations with a much more simple apparatus in accordance with my invention, as compared with other systems for the same purpose, of which I am aware. The arrangement of containers, inlets and outlets provide a compact unit which requires a minimum amount of space and equipment and is easy to operate. My apparatus eliminates the necessity for manually applying paste cleaners and treating waxes in most instances, in that a water-proof sealing lustrous wax may be applied to the surface of the vehicle with a sponge during the process of washing the vehicle. My apparatus is not dependent upon a particular temperature of water or air, although where hot water is provided at the source of water supply, it may be sometimes used to advantage, for example, during cold weather for enhancing the comfort of the operator.

It is apparent, therefore, that I have provided apparatus which is convenient in installation, easy and economical to operate, and which produces beneficial results in a highly efficient manner.

What I claim and desire to secure by Letters Patent is:

1. In an apparatus of the character described, a container adapted to carry a detergent, an air line, a by-pass from the air line leading into the container adjacent the top thereof, an outlet from the container leading from a point adjacent the bottom of the container out adjacent the top thereof into the air line, a second container adapted to carry a wax liquid, a water line, a by-pass from said water line leading to said second container adjacent the top thereof, an outlet from said second container leading from adjacent the bottom thereof back into said water line, a mixing element joining said water and air lines, nozzle means for ejecting the contents of said element under the force of air and water in said lines, and valve means for selectively segregating said air and water lines and said detergent and wax liquid containers respectively and collectively.

2. In an apparatus of the character described, an air line, a water line, a mixing element having a discharge nozzle, said lines terminating in said mixing element, and means for introducing separate liquids into the air line and the water line respectively and allowing introduction of said liquids, air and water into said mixing element collectively for discharge from said nozzle.

3. In an apparatus of the character described, a container adapted to carry a detergent, an air line, a by-pass from the air line leading into the container, a second container adapted to carry a wax liquid mounted on a support above the detergent container, a water line, a by-pass from said water line leading to said second container, a mixing element joining said water line and air line, nozzle means for ejecting the contents of said element under force of air and water in said line, and valve means for respectively confining said detergent and wax liquid containers relative to the air and water lines and the by-passes thereof, whereby air, air and detergent, water, and water and wax liquid may be dispensed collectively and respectively from said apparatus.

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