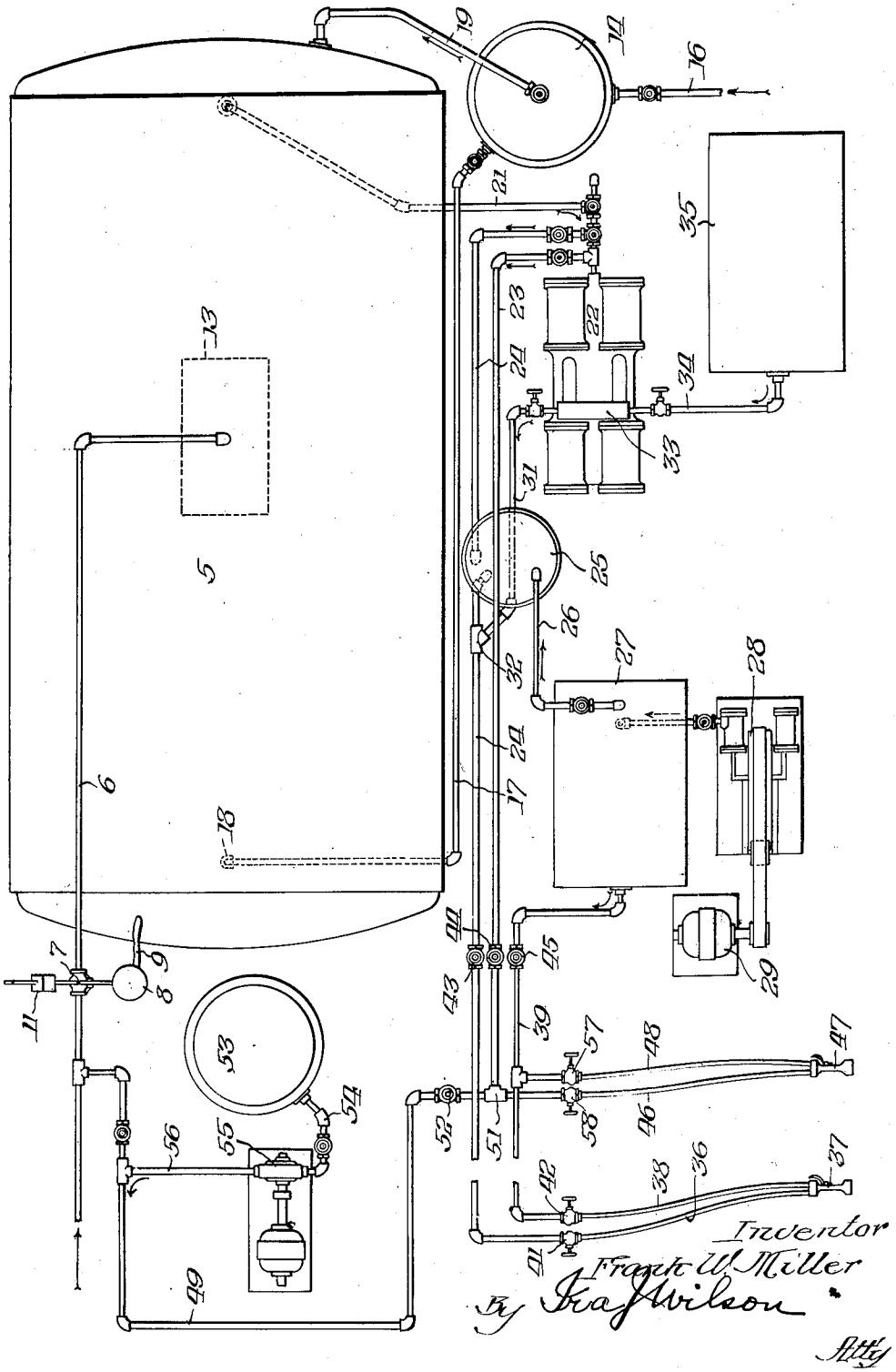
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CLEANING APPLIANCE

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FRANK W. MILLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO HARRY S. HART AND CHARLES F. FITTS, TRUSTEES, BOTH OF CHICAGO, ILLINOIS

CLEANING APPARATUS

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This invention pertains to cleaning apparatus in general, and while capable of many uses, the particular embodiment herein disclosed is designed for the cleaning of automobile bodies and chassis.

Experimentation has shown that the highly finished bodies of automobiles, which are customarily not as dirty as the running gear, can best be cleaned and with the least liability of injury to the finish by the application of cold water mixed with a soap solution, and sprayed under a moderate pressure over the surfaces of the body. The chassis and running gear, however, are usually much dirtier than the body and are often caked with mud and grease which are very difficult to remove. The cleaning of the running gear and chassis can most effectively be accomplished by the use of warm water mixed with a predetermined proportion of oil in a finely divided state, approximating a colloidal condition, which when delivered against the dirty parts of the running gear and chassis under considerable pressure, not only mechanically cleans the parts by knocking the mud and dirt therefrom, but the colloidal mixture penetrates between the mud and the surface to which it adheres and by its action, partially chemical and partially mechanical, loosens up the dirt and mud so that it is readily removed.

One of the primary objects of my present invention is to provide an apparatus which will be effective and efficient in cleaning both the bodies and the chassis of motor vehicles.

Another object of the invention is the provision of an apparatus which will be capable of supplying for cleaning purposes, clear water, either hot or cold or of any intermediate temperature, water carrying oil in a finely divided state, or water carrying a cleaning solution such as a suitable soap, and which will be capable of delivering the water or any of the solutions against the surface to be cleaned at any desired and regulatable pressure.

A further object is to provide an apparatus which will be largely automatic in its operation and which can be easily and quickly regulated to deliver water at the desired temperature and with the desired quantity of soap or oil mixed therewith and at any desired pressure against the surface to be cleaned.

Other objects and many of the attendant advantages of this invention should be readily appreciated as the same becomes better understood by reference to the following description when considered in connection with the accompanying drawing, the single figure of which illustrates somewhat diagrammatically an apparatus embodying my invention in one of its preferred forms.

Referring to the drawing more in detail, reference character 5 indicates a closed tank of considerable capacity to which water is supplied from a supply pipe 6 connected with the city main, a predetermined water level being maintained in said tank by a float controlled valve of any preferred type, a suitable valve being indicated by reference character 7, the opening and closing of which is controlled by float ball 8 connected by a flexible hose 9 to the tank, and counterbalanced by a weight 11. In order that the cold water which enters at the top of the tank may be distributed throughout the tank, a deflector or distributing plate 13 is mounted within the tank in the path of the inflowing water.

The water in this tank is warmed and maintained at a desired temperature by means of a suitable water heater 14 to which fuel either oil or gas, is delivered through a fuel pipe 16. The heater which may be of any preferred type, but preferably a coil heater, has the lower end of its coil connected by a pipe 17 with the bottom of the tank at 18 and the water heated by the heater is returned to the tank through a pipe 19 which enters the tank a considerable distance above the bottom thereof.

The heated water is withdrawn from this tank through a pipe 21 connected to the suction side of a duplex pump 22 by which the water is discharged through either of the delivery pipes 23 or 24, valves being provided near the pump for controlling and directing the discharge.

Both the lines 23 and 24 extend to the

vicinity of the washing rack on which the cars are cleaned. The line 24 has interposed therein a pressure equalizing tank 25 in which the pulsations of the pump are absorbed and the pressure on the water is equalized and made uniform. The portion of the line 24 leading from the pump is connected with the tank either at the top or bottom and the portion extending between the tank and the washing rack is connected to the bottom of the tank. A pressure is maintained in the tank by the delivery of compressed air thereto through a pipe 26 from a compressed air reservoir 27. The pressure in this reservoir is maintained by an air compressor 28 operated from a motor 29 or in any suitable manner.

Oil of a suitable character is delivered to the line 24 beyond the tank 25 and in regulated quantities through a pipe 31 which connects at one end with the line 24 at the point 32 and at its other end with an oil pump 33 which is connected with and operated by the water pump 22 so that oil is delivered in regulated quantities and in predetermined proportions to the quantity of water delivered by the pump. The suction side of the oil pump 33 is connected by a pipe 34 to an oil supply tank 35.

The line 24 extends to a point near the washing rack where it is connected by a flexible hose 36 with a nozzle 37 which is also connected by a hose 38 with an air pressure line 39 leading from the compressed air reservoir 27. The proportions of air and water and the pressure under which the same are delivered from the nozzle may be regulated by the valves 41 and 42. The nozzle may be of any preferred type, but is preferably like that disclosed in Patent No. 1,135,001, granted April 13, 1915.

Each of the lines 24, 23 and 39 are provided with hand valves 43, 44 and 45, respectively. The line 23 is connected by a hose 46 with the body washing nozzle 47 similar in all respects to the chassis washing nozzle 37 and an air hose 48 connects this nozzle also with the air line 39. A branch line 49 leading from the water supply pipe 6 is connected with the line 23 at 51 and a valve 52 interposed in this line may be manipulated in conjunction with the valve 44 to admit water either from the pipe 49 or the pipe 23 or regulated quantities from each to the nozzle 47.

A tank 53 adapted to contain a cleaning solution such as a soap is connected by a pipe 54 with the suction pump 55, the discharge side of which is connected by a pipe 56 with the branch line 49. By this construction, soap, or a cleaning fluid may be admixed with the cold water in the line 49 to facilitate the cleaning of the car bodies.

When a car is to be cleaned, it is run onto the rack near the nozzles 37 and 47 and water of suitable temperature obtained by manipulating the valves 44 and 52, is delivered either with or without soap solution from the tank 53 to the nozzle 47 from which it is discharged under pressure which may be regulated by manipulation of the valves 57 and 58 against the body to be cleaned. Customarily, when the body has been washed with soap solution and warm water, it is rinsed off with cold water from the line 49 in which case the valve 44 is closed, as is also the connection between the tank 53 and the branch line 49.

The chassis is cleaned from the nozzle 37 to which warm water, admixed with a suitable quantity of oil, as previously explained, is delivered through the line 24, and this oil and water may be discharged against the surfaces of the chassis to be cleaned under any desired pressure controlled by manipulation of the valve 42 in the compressed air line. It will be apparent that by manipulating the various valves, all cleaning conditions encountered both on the body and chassis of an automobile may be met and both body and chassis may be quickly and easily cleaned without injury to the finish.

While I have shown and described a preferred embodiment of my invention, the structural details illustrated and described may be varied within wide limits without departing from the essence of the invention as defined in the following claims.

I claim:

1. In a cleaning apparatus, the combination of a tank adapted to contain a supply of water, a pipe for supplying water thereto, means within the tank for distributing the water delivered to the tank, a water heater connected to the tank for heating the water therein, a pump having its suction side connected with the tank, a discharge line leading from said pump, a pressure equalizing tank interposed in said line and means for pumping air into said tank to maintain pressure on the water therein contained, means for delivering oil in regulated quantities to the line beyond the pressure equalizing tank, and a nozzle through which said water and oil admixed therewith are discharged.

2. In a cleaning apparatus, the combination of a water supply tank, means for heating the water therein, a pump having its suction side connected with said tank, a discharge line leading from said pump, a pressure equalizing tank interposed in said discharge line, means including an air pump for exerting air pressure upon said equalizing tank, and means for mixing oil with the water in the line beyond the tank in quantities proportional to the quantity of water discharged.

3. In a cleaning apparatus, the combination of a water supply tank, a pump having its suction side connected to said tank, a discharge line from said pump, a pressure equalizing tank interposed in said line, an air com-

pressor and a reservoir connected thereto for containing a supply of air under pressure, a connection between said reservoir and said equalizing tank normally open during operation of the apparatus, means for delivering oil in regulated quantities to the water in the discharge line, a nozzle connected with the discharge line, and a connection between said air reservoir and said nozzle.

4. In a cleaning apparatus, the combination of a water tank, means for maintaining a predetermined water level therein, an oil tank, a discharge line, means for delivering oil and water in predetermined proportions from said tanks to said line, means for heating the water in the tank, a reservoir containing air under pressure, a nozzle, means for delivering oil and water from said discharge line and air from said reservoir to said nozzle, a second nozzle, a cleaning fluid supply tank, and means for delivering water from said water tank mixed with a cleaning fluid from said fluid tank and compressed air from said air reservoir to said second nozzle.

In witness of the foregoing I affix my signature.

FRANK W. MILLER.