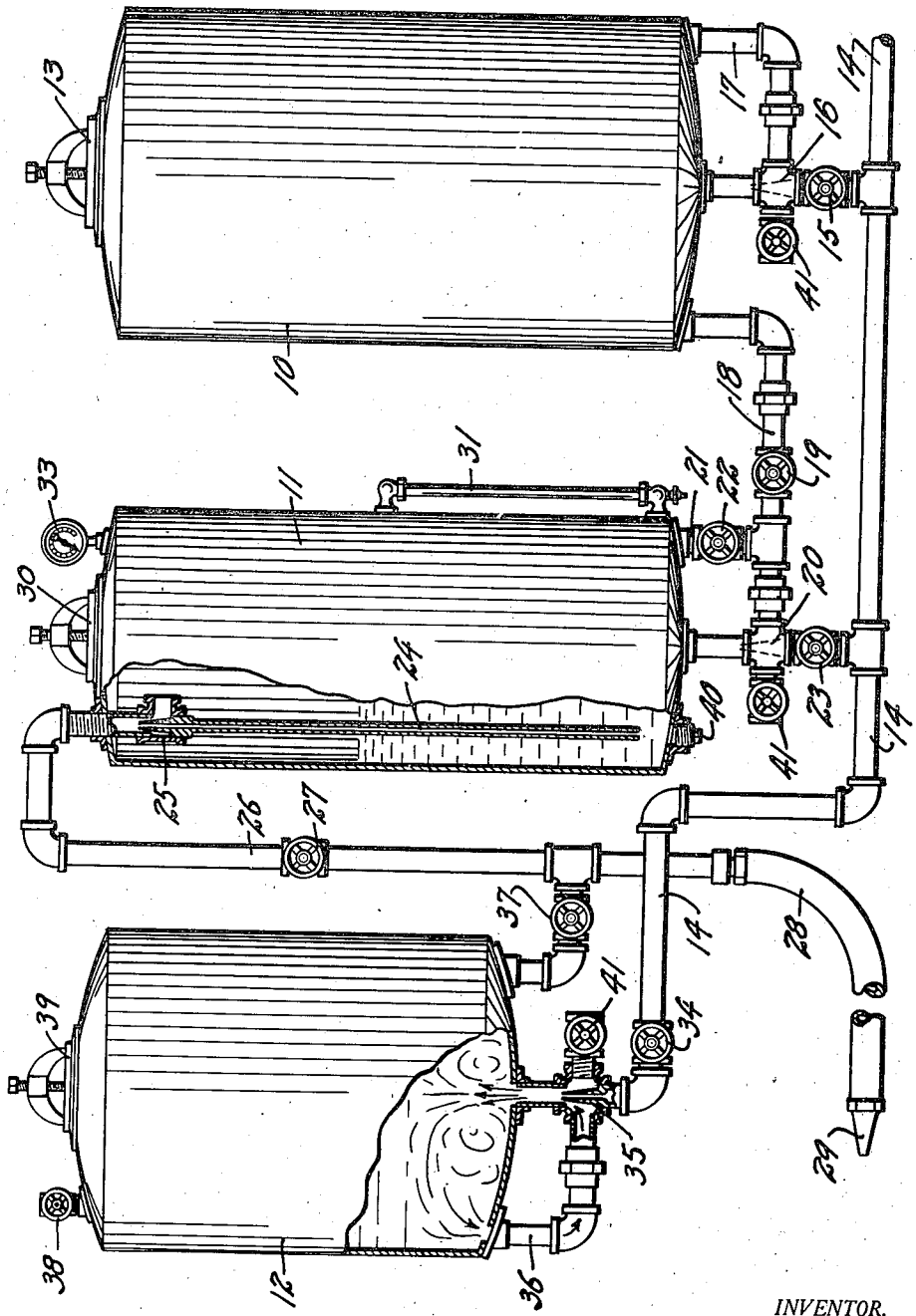
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DEVICE FOR SUPPLYING CLEANING SOLUTION

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DEVICE FOR SUPPLYING CLEANING SOLUTION.

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This invention relates to a device for use in removing oils, greases and paints from surfaces, and is particularly applicable for use in cleaning automobiles, locomotives, machinery, etc.

Heretofore, devices of this character have employed steam and introduced a cleaning liquid into the flow of steam which was carried along and deposited by the steam, thus applying the liquid to but a limited area.

The principal object of this invention is to provide a device of this character which will combine a cleaning solution, in vapor form, with saturated steam and deliver this vapor solution to a nozzle for direct application to the work, thus resulting in the application of cleaning fluid simultaneously and uniformly to a very large area.

Another object of this invention is to provide means whereby the cleaning chemical is kept in constant agitation in its solution so that it will be intimately and uniformly mixed at all times.

A further object is to combine in the device, mediums for use in either the removal of paint or the removal of grease so that the device may be readily adapted to either use.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

The drawing illustrates a side elevation of the complete device, partly broken away to show the interior construction.

My improved installation comprises a storage or receiving tank 10, a delivery tank 11 and paint solution tank 12. The chemicals at present on the market for removing grease and oil are usually in powdered or crystal form. These chemicals are introduced into the tank 10 through a man-hole 13 and the tank is supplied with sufficient water to make a proper solution thereof. Steam may be turned into the tank 10 from a steam main 14 by means of a valve 15. This steam flows in a jet from an injector 16 at the bottom of the tank.

The injector 16 draws solution from the tank through a by-pass line 17 and forces it back through the tank in a strong stream. This causes an intimate mixing action to take place within the tank, there being a rising column of the solution in the center of the tank, over the injector 16, and a downward flow through the by-pass 17. The valve 15 and injector 16 are only used when mixing a new batch of solution or to agitate a batch which has been standing a considerable length of time.

Solution flows from the tank 10 through a feed line, 18, controlled by means of a valve 19, to the delivery tank 11. The tank 11 is provided with a similar injector 20 and a similar by-pass valve 22, controlled by means of a by-pass valve 22, so that, a similar agitating or mixing action can be obtained in the solution in tank 11. Steam is admitted to the injector 20 from the steam main 14 through a valve 23.

Within the tank 11, a vertical discharge tube 24 is arranged, extending from a point immediately above the bottom of the tank to an ejector 25 adjacent the top thereof. The ejector 25 discharges through a discharge pipe 26, controlled by means of a control valve 27, to a flexible hose 28 terminating in a nozzle 29 from which, the solution is applied to the work. The delivery tank 11 is also provided with a man-hole 30 for cleaning purposes and with a water-glass 31 to show the liquid level therein.

In use, the valves 19 and 23 are opened, causing the injector 20 to draw solution from the storage tank 10 and discharge it into the delivery tank 11. When sufficient solution has been placed in the tank 11 for the job on hand, the valve 19 is closed and the valve 22 opened. The solution will circulate through the by-pass 21, constantly rising in temperature until it has attained substantially the temperature of the steam in the steam main 14, when it will also vaporize. When the pressure in the delivery tank 11 has reached a pre-determined point, determined from a pressure gauge 33, the control valve 27 is opened and the vaporized solution flows through the ejector 25 to the nozzle 29, thence to the work.

In flowing through the ejector 25, a vacuum is formed which draws the liquid solution through the discharge tube 24 and introduces it in the form of a fine spray into the solution vapor. The system will operate, however, without the discharge tube 24 since

the vapor itself carries vaporized solution, the tube being only employed to supply additional solution to the nozzle.

The tank 12 contains a paint dissolving solution and is only employed for removing paint, under which conditions, the control valve 27 is closed and a steam valve 34 opened to admit steam to an injector 35, similar to the injectors previously described. This injector operates a by-pass 36 for mixing and heating the solution and keeping it in suspension. A valve 37 admits the solution into the discharge pipe 26, thence to the nozzle 29. The solution can, depending upon its nature, be introduced as a vapor under pressure or as a solution simply by gravity. When being discharged by gravity, the steam valve 34 is closed and an air relief valve 38 opened to break the vacuum and allow the solution to flow from the tank. The tank 12 is also provided with a man-hole 39 for cleaning and filling purposes.

It is desired to call attention to the convenient arrangement of the system whereby it can be immediately adapted for either the removal of grease or paint and whereby only sufficient solution need be introduced to the delivery tank for a particular job, so that no excess solution will stand after the cleaning operation has been completed.

A plug 40 is placed in the delivery tank 11 to allow easy access to the discharge tube 24 for cleaning or removal. All of the tanks are provided with drain valves 41.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what I claim and desire secured by Letters Patent is:—

1. A device for supplying a solution to a nozzle comprising a tank adapted to contain a solution; an injector arranged to discharge into said tank; means for supplying pressure to said injector; a feed passage supplying solution to said injector from an exterior source; a by-pass arranged to supply solution to said injector from said tank; and means for discharging the solution from said tank.

2. A device for supplying solution to a nozzle comprising the combination of a storage tank; a delivery tank; an injector arranged to discharge into said delivery tank; means for supplying pressure to said injector; a passage for supplying solution to said injector from said storage tank; a second passage for supplying solution to said injector from said delivery tank; and a third passage communicating between said delivery tank and said nozzle.

3. A device for supplying solution to a nozzle comprising a storage tank; a delivery tank; an injector arranged to discharge into said delivery tank; means for supplying pressure to said injector; a passage for supplying solution to said injector from said storage tank; a by-pass communicating between said delivery tank and said passage and means for discharging solution from said delivery tank to said nozzle.

In testimony whereof, I affix my signature.

WALTER C. RUSHMORE.