Aug. 22, 1939. G. J. RODIECK 2,170,730

APPARATUS FOR DETERGING RADIATORS

Filed Sept. 6, 1938 2 Sheets-Sheet 1

Fig. 1.

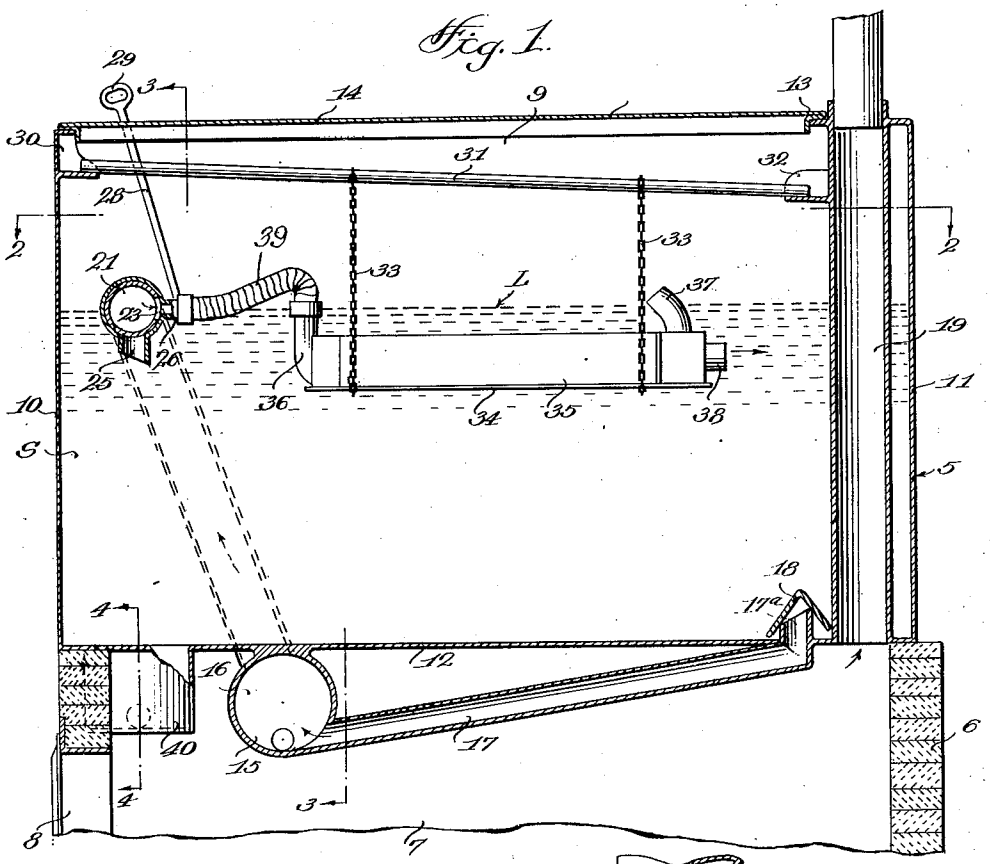


Fig. 5.

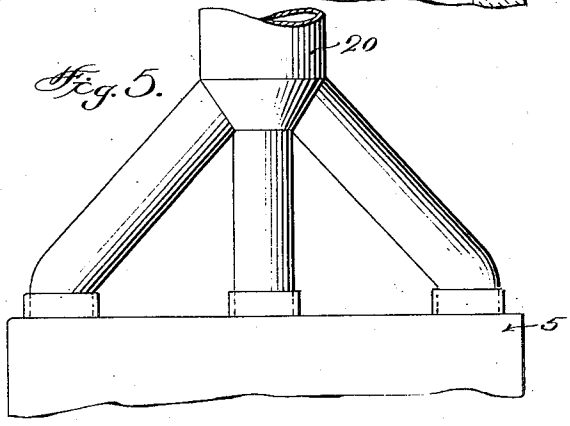
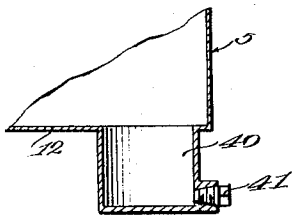


Fig. 4.



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Filed Sept. 6, 1938 2 Sheets-Sheet 2

Fig. 2.

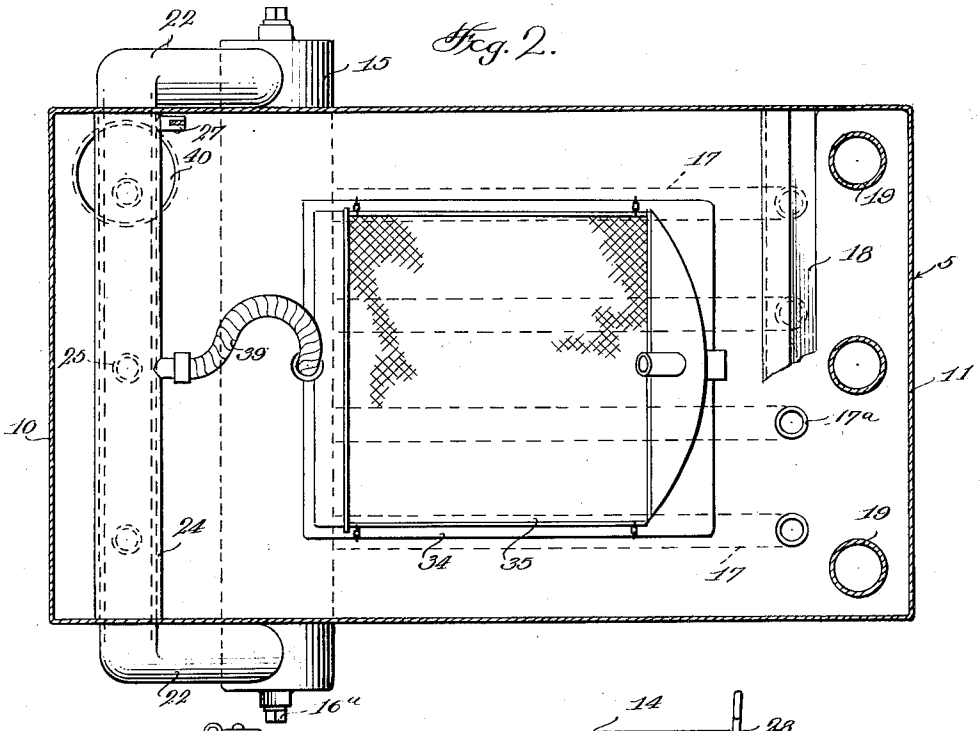
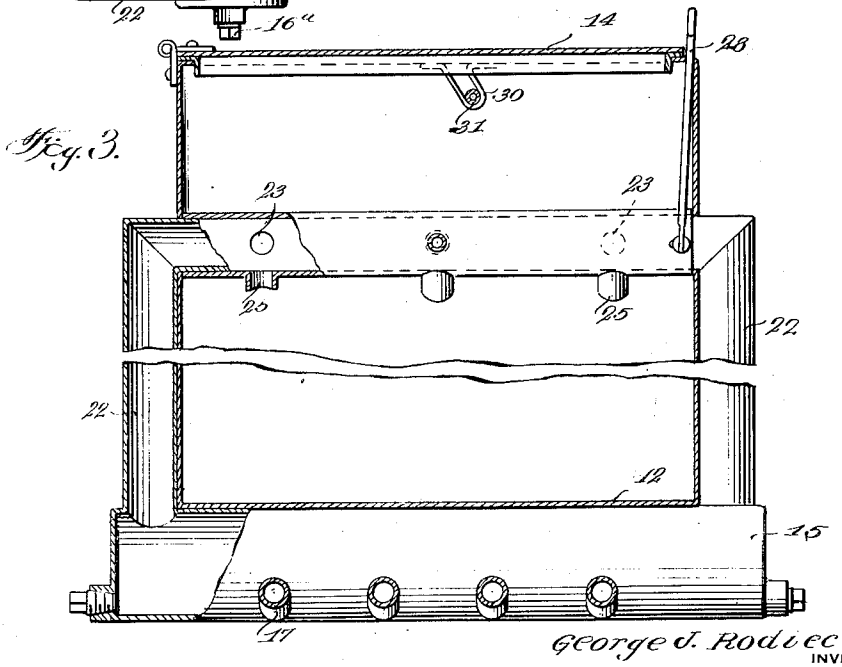


Fig. 3.



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UNITED STATES PATENT OFFICE

2,170,730

APPARATUS FOR DETERGING RADIATORS

George J. Rodieck, Tyler, Tex.

Application September 6, 1938, Serial No. 228,718

2 Claims. (Cl. 141—1)

My invention relates to improvements in apparatus for deterging radiators or the like, and has for an important object thereof the provision of an apparatus of such character that the deterging may be done under conditions wherein the radiator is submerged in a detergent solution and said solution heated and circulated through the radiator.

Another object of my invention is to provide an apparatus of the above described character which is simple in construction, durable in use, efficient in operation, and economical in manufacture.

A further object of my invention is to provide an apparatus of the above described character so constructed and arranged as to accommodate radiators of different sizes.

Other objects and advantages will be apparent from the following description, appended claims and annexed drawings.

Referring to the drawings wherein like reference characters designate like parts throughout the several views:

Figure 1 is a longitudinal sectional view of my invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 1, certain of the parts being illustrated partly in elevation.

Figure 4 is a detail sectional view of the sediment trap taken on the line 4—4 of Figure 1.

Figure 5 is a fragmentary end elevation of the lower end of the chimney construction illustrating the latter in connected relation with the flues.

In practicing my invention I provide a tank 5 supported on the upper faces of the walls 6 of a fire-box construction 7, one of said walls being provided with a door 8.

The tank is fashioned with side, front, and rear walls 10 and 11 respectively and formed with a closed bottom 12 and an inwardly flanged top 13 defining an opening covered by a lid 14 hinged to said top.

Secured to the bottom 12, adjacent the front wall 10 and subjacent said bottom is a transversely extending boiler or cylindrical shaped heating chamber 15, the ends 16 of which are closed and extend laterally of the side walls 9. Secured to the lower peripheral face of the boiler 15 are a plurality of inclined tubes 17 having communication with the boiler and extending upwardly and rearwardly therefrom. The rear ends of the tubes 17 are angularly disposed and extend vertically through the bottom 12 and are provided with inclined upper and outer faces 17a. A substantially V-shaped guard transverses the bottom of the tank and serves as a cover for the angularly disposed open ends of the tubes 17, the apex of said guard being disposed above the faces 17 and the upper and lower edges of the faces engaging the inner inclined faces of the guard to permit circulation of liquid from the tank into the tubes 17. The lower ends of the guard 18 are disposed above the bottom 12 of the tank as clearly illustrated in Figure 1.

Extending vertically through the tank are a plurality of flues 19, the lower ends of which communicate with the fire-box 7 and the upper ends connected to the lower trifurcated ends of a chimney 20 whereby gases, smoke, or the like, are relieved from the fire-box. Transversing the tank 5 adjacent the front wall 10 and spaced below the top 13 is a hollow cylindrical shaped valve member 21, the outer ends of which extend beyond the side walls 10 and have communication with the boiler 5 by means of conduits 22, and said valve member 21 is formed with a tierce of a line discharged ports 23.

Rotatably mounted on the valve member 21 is a valve sleeve 24 transversing the interior of the tank between the side walls 9, and said sleeve is provided with a tierce of outlet pipes 25 adapted for registry with the ports 23 to permit discharge of liquid from the valve member into the tank when in registry with the ports 23. The sleeve 24 is also provided with a pipe section 26 adapted for registry with the intermediate port 23 of the tierce supports when the sleeve has been rotated to close communication between the ports 23 and pipes 25, as clearly illustrated in Figure 1 of the drawings. One end of the sleeve 24 is provided with a laterally extending arm 27 having pivoted thereto the lower end of a sleeve operating handle 28, the upper section of which extends through a slot formed in the flange top 13 laterally of the lid 14, and said upper section is provided with a handle grip 29 whereby to raise and lower the handle 28 and thus rotate the sleeve 24 in selected positions with the pipe 25 and pipe section 26.

Secured to the wall 10 and top 13, and centrally of the wall and top, is a U-shaped bracket 30 for accommodating the upper end of an inclined supporting rod 31 disposed longitudinally of the tank. The lower end of the rod 1 is mounted within a similar shaped bracket 32 secured to the intermediate flue 19, as illustrated in Figure 1 of the drawings.

Secured to the rod 31 by means of a pair of spaced depending chains 33 is a supporting plate 34 on which is positioned a radiator 35, the latter being of the automotive type. The radiator 35 is provided with the usual outlet and inlet connections 36 and 37 in the lower and upper ends thereof respectively together with the filler connection 38 in said upper end. The outlet connection 36 of said radiator is detachably connected by means of a flexible conduit 39 to the pipe connection 26 and the inlet connection 37 is disposed above the level L of a detergent solution S contained in the tank and the connection 38 together with the radiator 35 maintained submerged in said solutions. The bottom 12 of the tank adjacent the front wall 10 and to one side thereof is fashioned with a depending sediment trap 40 equipped with a clean-out opening closed by a plug 41, and said trap is adapted to accumulate foreign matter therein for subsequent removal therefrom upon removal of the plug 41.

In operation, a radiator is positioned upon the plate 34 and the tank filled with a suitable detergent solution, the level of said solution being disposed above the upper face of the radiator and below the port of the connection 37 and said radiator is connected by means of the conduit 39 to the pipe connection 26 of the sleeve. When the radiator is thus positioned within the tank, the sleeve is operated to effect communication between the pipes 5 and interior of the valve member 20 through the ports 23 and the boiler is operated, through the medium of a suitable source of heat energy within the fire-box 7, to heat the solution within the boiler thereby causing a circulation of said solution upwardly through the conduits 22, into the valve member 21, out into the tank through the pipes 25 and returned to the boiler 15 through the tubes 17. When the solution has been sufficiently heated, the sleeve 24 is operated by the handle 28 to effect communication between the interior of the valve 21 and the conduit 39 thereby causing the solution to be circulated through the coils of the radiator and discharged through the connection 38, the connection 37 serving to permit entrance of air to the radiator to effect a free flow of the solution therethrough. Obviously, as a heated solution is circulated through the radiator, it serves to cleanse and purge the radiator of foreign matter and the like.

Upon completion of the cleansing operation, the lid is raised, and the flexible connection 9 detached from the radiator to permit removal of the radiator from the tank. The ends of the boiler 16 in the lower sections thereof are fashioned with clean-out ports closed by plugs 16a whereby said boiler may be readily cleaned or the tank drained of the solution therein. It being also noted that removal of the plug 41 of the trap 40 will also function to drain the tank.

From the foregoing it will be apparent that I have provided a simple and efficient apparatus for deterging radiators, and while I have described the apparatus as being utilized in connection with deterging automotive radiators, it is to be distinctly understood that other type radiators may be introduced within the tank for cleaning and likewise similar articles.

What is claimed is:

1. An apparatus of the class described, comprising, a tank, a rotatable valve unit within said tank, means having communication with said tank and unit for heating and circulating a solution through said tank and unit, a support carried by said tank and adapted to support a radiator within the solution contained within the tank, said valve unit provided with an outlet port adapted for communication with said radiator to effect circulation of the solution through the latter from said means, said valve unit formed with discharge ports communicating with the interior of the tank for circulating said solution from said means about said radiator and through said tank, and means connected to said unit for controlling said ports to selectively circulate said solution through and about said radiator.

2. An apparatus of the class described, comprising, a tank, a rotatable valve unit within said tank, means having communication with said tank and unit for heating and circulating a solution through said tank and unit, a support carried by said tank and adapted to support a radiator within the solution contained within the tank, said valve unit provided with an outlet port adapted for communication with said radiator to effect circulation of the solution through the latter from said means, said valve unit formed with discharge ports communicating with the interior of the tank for circulating said solution from said means about said radiator and through said tank, and a handle connected to said valve unit and extending without said tank for operating said valve unit in a manner to effect selective circulation of said solution through and about said radiator.

GEORGE J. RODIECK.