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W. J. ROGERS

2,244,574

AUTOMOBILE RADIATOR WATER CLEANER

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Fig. 1.

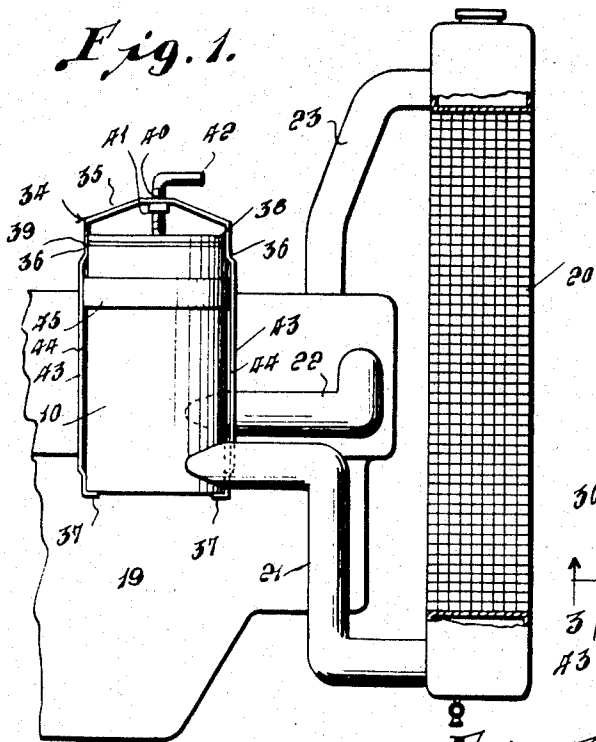


Fig. 2.

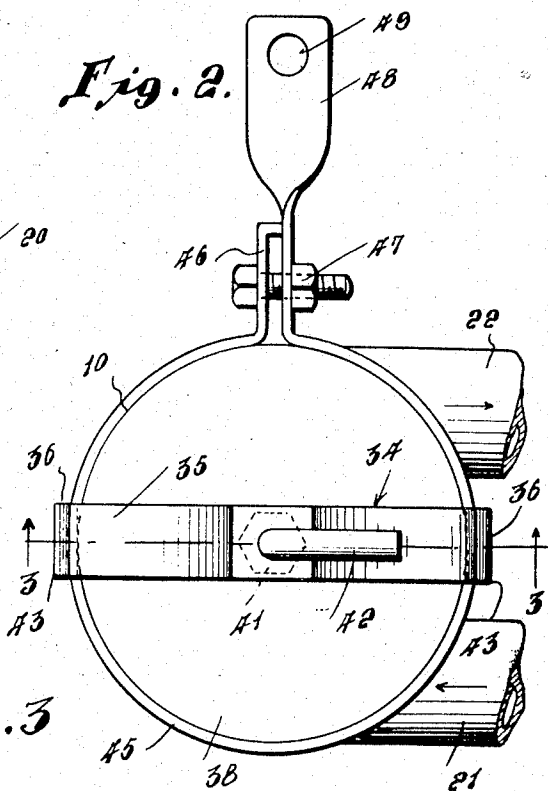


Fig. 3.

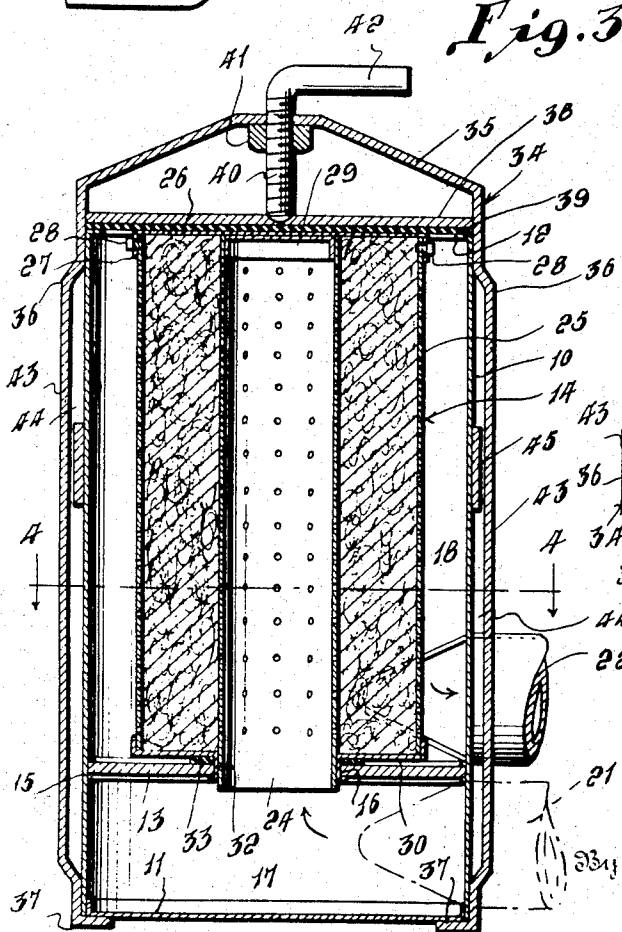
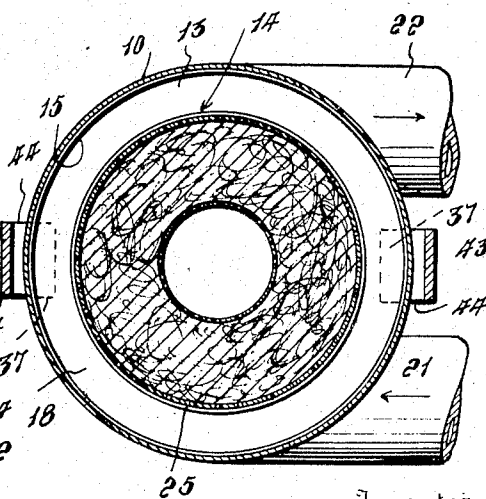


Fig. 4.



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AUTOMOBILE RADIATOR WATER CLEANER

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4 Claims. (Cl. 210-131)

This invention relates to a cleaner adapted for installation in the water cooling line of an internal combustion engine, preferably between the water pump and radiator outlet thereto, being of such construction as to remove all undesired matter in the water such as excess water pump grease, rust and other sediment.

It is particularly aimed to provide a structure which may be inexpensively made of non-corrosive parts, one having a removable cartridge, one having means whereby it may be attached in a novel and adjustable manner with minimum parts, and one which is generally improved and simplified as will appear hereinafter and become apparent from a consideration of the following description and accompanying drawing.

In said drawing—

Figure 1 is a view showing the cleaner in side elevation, as applied in an automobile cooling system, the latter being shown fragmentarily;

Figure 2 is a plan view of the parts primarily constituting the invention;

Figure 3 is a vertical sectional view taken on the line 3-3 of Figure 2, and

Figure 4 is a horizontal section taken on the line 4-4 of Figure 3.

Referring specifically to the drawing wherein like reference characters designate like or similar parts, the invention comprises a preferably cylindrical container or tank 10 having a bottom wall 11 secured in watertight relation thereto. At the top, tank 10 preferably has a short inwardly extending flange 12.

Within the tank 10, located above the bottom wall 11 and parallel thereto is a shelf or support 13 for a removable cartridge generally designated 14. Said support or shelf 13 is soldered or otherwise secured in place at its margin as at 15 to the tank 10 and it has a central opening 16 so that water may pass through the cartridge.

Said support or shelf 13 divides the interior of the tank into a lower or water receiving chamber 17 and an upper filtering or water outlet chamber 18. The device is adapted to be connected in the water cooling system of an internal combustion engine as best shown in Figure 1. In that figure, 19 designates the engine, 20 the radiator, 21 the outlet conduit from the radiator, 22 an inlet conduit to the water jacket of the engine and 23 a return conduit from such water jacket to the radiator. As a result, the device is installed between the water pump and radiator outlet to the pump. It will be understood that the arrangement of the conduits and of the water system parts generally, in different cars or automo-

biles will vary, and in some instances will be built special, and that the arrangement of the conduits, position of the cleaner and the like will vary accordingly. Removable connections are preferably provided between the tank or container 10 and the conduits 21 and 22.

Reverting to the cartridge 14, it consists of a central perforated tubular drum 24 and an outer perforated tubular drum 25 providing a space filled with any conventional filtering material, for instance, asbestos, steel wool, mineral wool or slag, glass wool, with or without the inclusion of granular material like diatomaceous earth, limestone or the like. Such cartridge also has an upper end wall 26 having an annular downwardly extending flange 27 provided with screws or the like 28 enabling removal of the top for removal and replacement of the filtering material. A spacer 29 is preferably soldered or otherwise fastened centrally to the top wall 26, aiding in centering the central drum 24. At the lower end, a bottom wall 30 is provided, having a marginal flange 31 soldered to the outer drum 25 and having a central flange or collar 32 soldered to the central drum 24 and extending snugly but removably into the opening 16. A gasket 33 surrounds the flange or collar 32 and engages wall 30 and shelf 13, to insure passage of the water through the cartridge from chamber 17 into chamber 18 and outlet through the conduit 22.

Said tank or container 10 is removably engaged by a generally U-shaped clamping frame or bracket 34, having a bridge 35, disposed above and across the top of the container 10, depending legs 36 at the sides of the container and inwardly extending feet or lugs 37 at the lower ends of the legs on which the container rests.

A cover plate 38 extends over the top of the container to close the same liquid tight and maintain the cartridge in place and a gasket 39 is interposed as shown. Such cover plate 38 is maintained in place with the requisite pressure, by the action of a screw 40 passing through bridge 35 at a fixed nut 41 thereon, the screw having a handle or extension 42 to facilitate its manipulation.

It will be noted that throughout the major portion of the length of the legs 36, they are offset at 43 from the container, to provide spaces 44, through which an attaching band or clamp 45 passes. Like the frame or clamp 34, the band 45, is preferably made from a single strip of metal. Band 45 has terminal portions 46, through which a bolt 47 passes and is operable to bind the band around the container, at any desired angle and elevation. One of the terminals 46 is extended to

form an attaching lug as at 48. The latter may be engaged with any convenient part, and for instance a cylinder head bolt of the engine 19, which may be passed through an opening 49 in the lug.

It will be clear that in operation, the circulating water within the cooling system of the engine enters chamber 17 through the pipe 21, passes first through the central drum 24, then through the filtering material F, outer drum 25 and into chamber 18, returning to the engine water jacket and system through the pipe or conduit 22.

Attention is called to the fact that the cleaner is especially designed to operate in the direct water flow piping system of all present day automobile engines or equivalent engines, requires no pet cock because the filtering material F of the cartridge will absorb and hold all rust discoloration and grease sludge and because the drain cock in the bottom of the automobile radiator 20 serves as a drain for the cleaner and the complete system. Also, it will be noted that a gasket is not required at the top of the cartridge between the cover plate.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. A cleaner for a water cooling system comprising a container, filtering means therein, a support within the container for the filtering means providing a receiving chamber and an outlet chamber, a mounting frame containing the container, a cover plate over the container and filtering means, clamp means adjustably mounted on the frame and engageable with said cover plate, said frame including legs at the sides of the container, said legs having offset portions providing spaces between the same and container, an attaching bracket surrounding the container and passing through said spaces.

2. A cleaner for the water cooling system of an engine comprising a container closed at the bottom and open at the top, a shelf within the container spaced above said bottom to provide a receiving chamber beneath the same and an outlet chamber above the same, said shelf having an opening therethrough, a cartridge within the outlet chamber containing filtering material, said cartridge having an inlet member extending into

said opening, a cover plate over the open end of the container and engaging the cartridge, means securing the cover plate in position, comprising a screw, a generally U-shaped frame having a bridge through which said screw passes, legs depending from the bridge at the sides of the container having feet disposed under the container.

3. A cleaner for the water cooling system of an engine comprising a container closed at the bottom and open at the top, a shelf within the container spaced above said bottom to provide a receiving chamber beneath the same and an outlet chamber above the same, said shelf having an opening therethrough, a cartridge within the outlet chamber containing filtering material, said cartridge having an inlet member extending into said opening, a cover plate over the open end of the container and engaging the cartridge, means securing the cover plate in position, comprising a screw, a generally U-shaped frame having a bridge through which said screw passes, legs depending from the bridge at the sides of the container having feet disposed under the container, said legs having offset portions providing spaces outwardly of the container, and an attaching bracket adjustably passing through said spaces.

4. A cleaner for the water cooling system of an engine comprising a container closed at the bottom and open at the top, a shelf within the container spaced above said bottom to provide a receiving chamber beneath the same and an outlet chamber above the same, said shelf having an opening therethrough, a cartridge within the outlet chamber containing filtering material, said cartridge having an inlet member extending into said opening, a cover plate over the open end of the container and engaging the cartridge, means securing the cover plate in position, comprising a screw, a generally U-shaped frame having a bridge through which said screw passes, legs depending from the bridge at the sides of the container having feet disposed under the container, a gasket engaging the shelf about the inlet member of the cartridge, said cartridge having a removable top to enable removal and replacement of filtering material, and a spacer secured to said removable top extending into said inlet member to center the same.

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