March 4, 1930. R. HILL 1,749,286

NONFREEZING DEVICE FOR AUTOMOBILES

Filed July 22, 1927

Fig. 1.

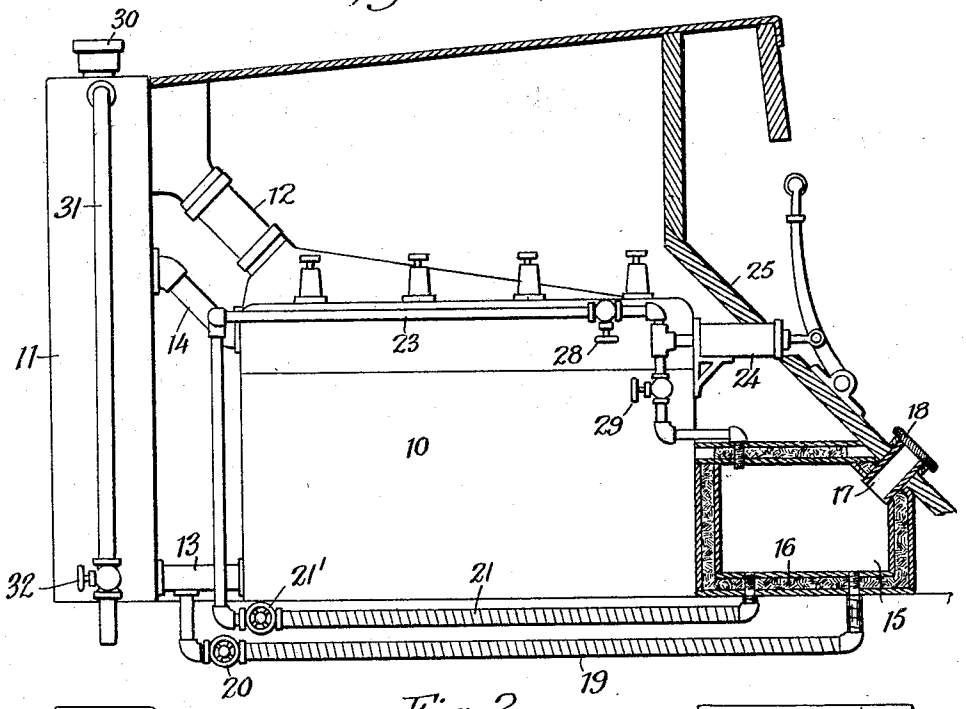
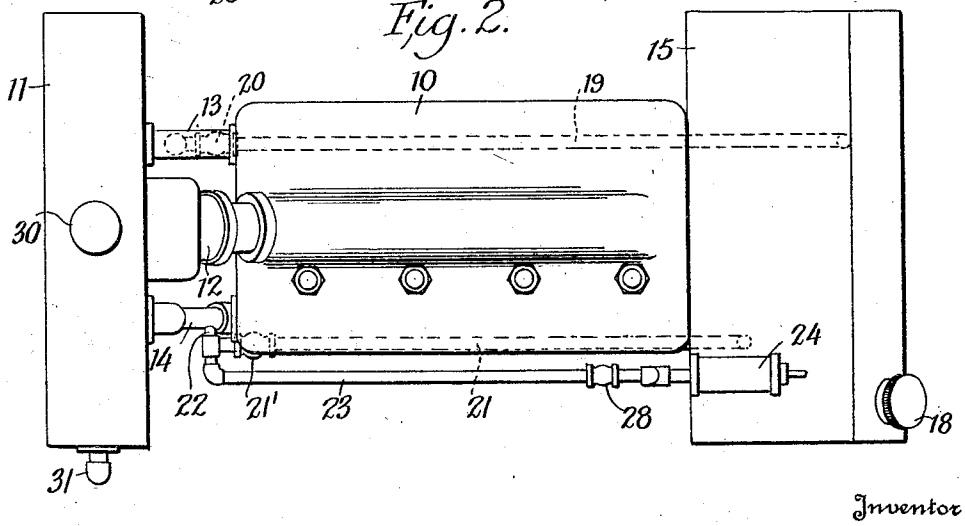


Fig. 2.



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Patented Mar. 4, 1930 1,749,286

UNITED STATES PATENT OFFICE

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NONFREEZING DEVICE FOR AUTOMOBILES

Application filed July 22, 1927. Serial No. 207,728.

My said invention relates to a non-freezing device for preventing freezing of the water used in the radiator of an automotive vehicle, and it is an object thereof to provide means for removing the water from the radiator to a non-freezing container, and returning such water to the radiator when desired.

Referring to the drawings, in which similar reference characters indicate similar parts:

Fig. 1, is a side elevation of my device in working position, and

Fig. 2, a plan view.

In the drawings, reference character 10 indicates an automobile engine having a radiator 11 connected thereto in conventional manner by pipes 12 and 13, a pipe being also shown at 14 which is used in automobiles of some types for circulation of the water in starting the engine when cold.

A tank 15 is here shown as located under the footboard but may be located under the seat or beneath the body of the car or in any other convenient place. The tank is insulated as by means of a layer of cork or other suitable heat-insulating material 16 between the inner and outer walls of the same, or in other suitable manner. An inlet 17 having a cap 18, is conveniently located to permit the cap to be removed.

A pipe 19 connects the bottom of the tank to the pipe 13, said pipe having a valve 20 therein. A second pipe 21 connects the bottom of the tank to the pipe 14 (or to pipe 12 if preferred, or in case pipe 14 is not used) by a branch pipe 22, and another branch 23 leads back to the top of tank 15. A valve 21′ serves to shut off pipe 21. A pump 24 is connected to pipe 23 said pump being here shown as passing through the footboard 25 and operated by a hand-lever 26 connected to the rod 27 of a plunger (not shown). Valves 28 and 29 in the pipe 23 at opposite sides of the pump control the direction of flow in the pipe. With the valves arranged as shown they can all be operated at one side of the car by raising one side of the hood and the pump can be operated from the interior of the car or by a person standing at the side of the same. As an obvious variation of my device the pump may be so located as to pass through the instrument board with a knob on the end of the plunger rod for operating it and the handles or handwheels of valves 28 and 29 may project through said instrument board above and below such knob.

The radiator has a cap 30 closing the usual filling opening and an overflow pipe 31 is here shown as extending out through the side of the radiator, but obviously may be of any suitable form and located in any conventional or desirable position. A valve 32 serves to open or close the overflow pipe. The pipes 19 and 21 are covered with insulating material from valves 20 and 21′ to the tank.

In the use of my device let it be assumed that the tank 15 is full of water and the radiator empty. Valves 20, 21′, 29 and 32 are now opened, while valve 28 and inlet 17 are closed. The pump being now operated will force air into the top of the tank which will force the water out through lines 19 and 21 until the radiator is full. Now valves 20 and 21′ are closed and valve 32 is opened, whereupon the car is ready for operation. When the car is to stand still long enough to permit the water in the radiator to freeze, valves 29 and 32 are closed, and valves 20, 21′ 28 are opened and cap 18 is removed. The pump being now operated air will pass through the upper branch of line 23 to the radiator and the cooling chambers of the engine, forcing the water out by way of lines 19 and 21 to tank 15. When the radiator is empty the valves 20 and 21′ are closed and the cap 18 is replaced. The water now being all contained in the heat-insulated tank and the covered parts of pipes 19 and 21 will be protected against freezing for a considerable period of time and may readily be returned to the radiator when desired whereby also the engine can be started more easily because of the relatively warm condition of the water.

It will be obvious to those skilled in the art that my construction may be modified in various ways without departing from the spirit of the invention and therefore I do not limit myself to the specific form shown in the drawings and described in the speci-

fication but only as indicated in the appended claims.

Having thus fully described my said invention what I claim as new and desire to secure by Letters Patent is:

1. In an automobile, a foot-board, an engine having cooling chambers, a radiator for cooling the engine, a tank, a pipe extending upward from the tank adjacent the foot-board and then to a pipe connecting the upper part of the radiator to cooling chambers in the engine, a pipe leading from the bottom of the tank to a pipe connecting the lower part of the radiator with said cooling chamber of the engine, an air pump connected to said first-named pipe, and manually operable valves above and below the point of connection of said pump to said pipe.

2. A device as in claim 1 with a valve in the pipe leading from the bottom of the tank, an independent inlet for said tank extending through said foot-board, a closure for said inlet, an overflow pipe leading from the radiator, and a valve in said overflow pipe.

In testimony whereof I affix my signature.

ROSCOE HILL.