Dec. 23, 1958 L. U. PATTON 2,865,612

VEHICULAR WATER HEATERS FOR FIELD USE

Filed April 2, 1956

FIG. 1.

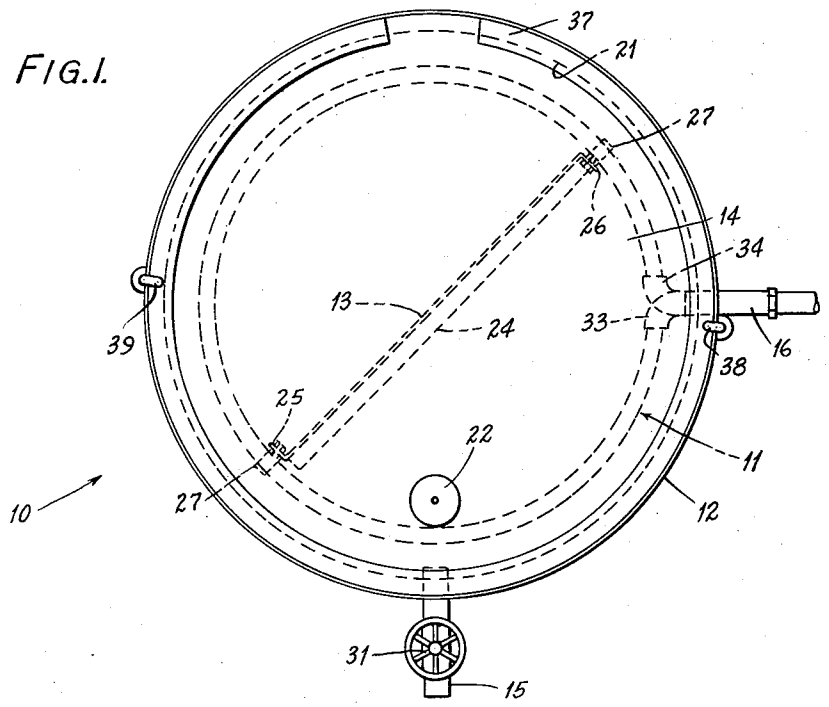
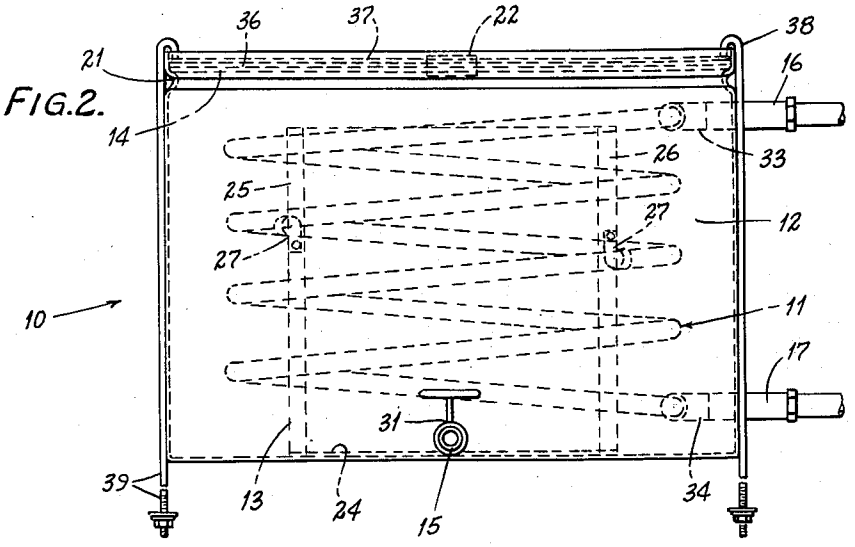


FIG. 2.



INVENTOR:
LUKE URBON PATTON,
BY Kingsland, Rogers & Ezell
ATTORNEYS

United States Patent Office 2,865,612
Patented Dec. 23, 1958

2,865,612

VEHICULAR WATER HEATERS FOR FIELD USE

Luke Urbon Patton, O'Fallon, Mo., assignor of fifty percent to Robert M. Hall, St. Charles, Mo.

Application April 2, 1956, Serial No. 575,676

1 Claim. (Cl. 257—205)

This invention relates to vehicular water heaters and in particular is concerned with a water heater which may be connected into the engine cooling system for heating water in a receptacle and in which the water in the receptacle may be dispensed for use in washing or other purposes.

This invention provides a means for heating water in a water tank through hot water circulated through a vehicle engine. The tank is constructed with a special coil through which the water from the cooling system of the engine may be circulated by the means of connecting hoses and the like. The tank is adapted to be filled with water through a convenient inlet and simple means are provided for drawing off water for desired usage.

Thus by means of this invention there has been provided a simply constructed and easily used hot water tank in which the heating means can be employed through the vehicle engine itself. The tank finds particular employment for the use of washing hands in the field where hot water is not available or providing hot water for cooking, veterinary or medicinal usages or such other applications as will be desired.

It is a signal feature of this invention that the hot water tank is adapted to be firmly secured to a floor board or flat base of the vehicle such as in the trunk compartment, or on the floor board of a station wagon, or the like, or on the beds of trucks. A special clamp arrangement has been provided for firmly securing the tank to a flat base of the vehicle to insure against harm when the vehicle travels rough country. In addition the heating coils provided in the tank are firmly secured to a baffle within the tank to prevent excessive splashing of water and to provide for firm securing of the coils within the apparatus and to insure against their dislodgment or harm.

A convenient valve has been provided at the bottom of the tank for the drawing off of water as it is desired to be used. This valve is easily accessible and where desired may be connected to hoses or the like for directing the drawn off water to desired areas of application.

Thus there has been provided by this invention a simply and easily constructed water heater for use in vehicles. The apparatus is very simply connected into the cooling system of the vehicle and through the employment of the apparatus, hot water is available at all times when the vehicle is operated and as the engine warms up. The apparatus is especially rugged and simple in nature so that it may be operated by persons without any technical training.

Accordingly, it is a primary object of this invention to provide a water heater which may be conveniently employed in vehicles by the average vehicle operator.

It is a further object of this invention to provide a vehicular water heater which has means for connecting a heating coil within a water heater tank to the cooling lines of the vehicle engine and in which there is means for drawing off liquid from the hot water tank.

Yet another object of this invention is to provide a vehicle water heater which has means for connecting a coil within the water heater to the vehicle engine cooling system and in which there are means for firmly securing

the hot water tank of the heater to a base within the vehicle.

Yet another object of this invention is to provide a vehicular hot water heater having a tank with a closed top within which is disposed a hot water heating coil adapted to be connected to the vehicle engine cooling system and in which there are means for firmly securing the heating coil within the tank against damage due to any rough movement of the vehicle.

Still another object of this invention is to provide a vehicular hot water heater tank provided with a hot water heating coil and in which there are special bracing rods removably hooked over the hot water heater tank and which are adapted to be firmly secured to a base of the vehicle for secure locking of the hot water tank in place in the vehicle.

Yet another object of this invention is to provide a vehicular water heater which is simple yet rugged in construction and which is fairly inexpensive in cost and can be very conveniently installed in vehicles for use in heating liquid within the heater as the vehicle is operated and the engine warms up.

Further objects of this invention will appear in the detailed description which follows, and will be further apparent to those skilled in the art.

For the purpose of examples there are shown in the accompanying drawings a preferred embodiment of this invention It is to be understood that these drawings are for the purpose of illustration only and that the invention is not limited thereto.

In the drawings:

Figure 1 is a top plan view of the hot water heater showing the interior heating coil and supporting baffle in dotted lines; and

Figure 2 is a view in front elevation of the apparatus likewise showing the interior heating coil and the supporting baffle in dotted lines.

The vehicular water apparatus of this invention is generally indicated by the reference numeral **10** in Figures 1 and 2. It consists in the major components of a heating coil **11**, disposed within a tank **12**, a supporting baffle **13**, a tank lid **14**, and an outlet **15**. To provide for circulation of a heating medium through the heating coil, couplings **16** and **17** are provided.

The tank **12** is provided with an open top having an inner bead **21** upon which the lid **14** is adapted to rest as shown in Figure 2. The lid **14** thus can be simply emplaced upon the top of the tank to close the same. A filler plug **22** provided with an air vent is adapted to be screwed into or out of the top of the lid in order that the tank may be filled once the apparatus is locked to a car as will be further described.

The coil **11** is adapted to be secured within the interior of the tank by connection to the supporting baffle **13**. This baffle extends across the diameter of the tank obliquely with respect to the outlet **15** and is provided with a bottom flange **24** whereby it may rest firmly upon the bottom of the tank. Oppositely, the extending flanges **25** and **26** are disposed at the sides of the baffle and extend upwardly for the securing of the heating coil to the baffle. Clamps **27** are bolted to the coil on each of these flanges to provide for a secure and firm connection of the coil to the baffle. By this means, the coil is firmly secured within the tank against any damage due to vibration or rough movement of the vehicle within which the tank is supported. Further the baffle prevents excessive splashing of water since it provides for a semi-partitioning for the tank. It extends across the diameter and is obliquely situated with respect to the drain outlet **15** to provide for sufficient heating of the contents.

The drain outlet **15** is firmly secured to the side wall of the tank adjacent to the bottom as shown in Figure 2.

This may be by welding or by a threaded connection as will be obvious to those skilled in the art. The drain outlet is provided with a valve **31** in order that the flow may be easily controlled by the personnel using the tank. Further the drain outlet **15** has an end which is free from any obstructions in order that it may be connected to a hose or other extension device, as will be apparent to those skilled in the art, for directing the discharged fluid to any desired space.

The heating coil **11** is connected at the top to coupling **16** through an elbow **33**. In similar fashion the bottom of the heating coil is connected by an elbow **34** to the coupling **17**. Both couplings **16** and **17** extend through the side wall of the tank and may be connected by welding or threaded fittings. The exposed ends of the couplings **16** and **17** may be eventually secured to hoses and the like leading to the engine cooling system in order that the coolant of the engine may be circulated through the hoses and the couplings to the heating coil to provide a source of heat to the interior of the tank.

In order to firmly lock and secure the heating apparatus to a base of the vehicle and to insure against movement or damage caused by rough driving conditions a special locking system has been designed. This comprises a lock ring and a gasket which are adapted to seal the lid to the top of the tank. Thus the gasket **36** is positioned between the bead **21** of the tank and the lid **14** while the locking ring **37** overlies the lid. This locking ring is of generally ringlike configuration and does not quite meet at the ends as shown in Figure 1 so that it may be flexed in a readily insertable fashion. Lock rods **38** and **39** are provided on opposite sides of the tank in order to hook over the top rim of the tank and lock the same to a base portion of the vehicle in which the heating apparatus is to be secured.

Both of the lock rods **38** and **39** are identical in structure and have at the top a hooked-over portion so as to fit over the rim with the bottom of the hook pressing downwardly against the locking ring to provide a sealed fit to the top of the tank by pressing the lid against the gasket. Both of the rods are of sufficient length to extend beneath the bottom of the tank. These rods are threaded at the bottom ends in order that they may extend through a hole in the base of the vehicle to which the heating apparatus is to be secured and be fastened to conventional washers and nuts. These nuts may be used to draw up the tank tightly against the base by tightening of the bottom portions of the lock rod.

Use

The heating apparatus of this invention is very easily employed in usage and vehicles. First of all the tank **12** may be easily secured to any flat base within the vehicle. Thus for a conventional car it may be the rear trunk area or any other suitable flat portion. After the lid has been placed over the gasket the lock ring is positioned thereover and the locking rods **38** are then put in place. The locking rods may have their bottom ends positioned through a flat base of the vehicle by drilling a hole therethrough, and other means will be readily apparent. The tank is then securely positioned in place by drawing up the bottom nuts at the bottom ends of the lock rods.

With the heating tank in place the couplings **16** and **17** are connected to hoses which are run into the cooling lines of the engine. This may be conventionally done in the same manner as the hot water lines for a hot water car heater are employed as will be obviously to those skilled in the art. With these connections made the device is ready for use. But it is to be understood, of course, that where desired the tank may be merely implaced upon any flat portion within the car and need not be locked to a base, although the locking is preferable for obvious reasons to provide against any damage due to rough movement of the car.

After the hot water heating device is ready for use the tank is filled with water through the removal of the filler plug **22**. After the filling operation has been completed the plug is replaced and the hot water heating apparatus is then completely ready for employment.

The heating of the water within the tank, or any other liquid that is desired to be heated, is effected by the conventional starting of the engine and the heating of the engine coolant. As the vehicle is operated, the heated coolant is circulated through the couplings **16** and **17** to the heating coil **11** and then back to the engine. This circulation causes the heating of the liquid within the tank. As the liquid within the tank is brought up to the desired temperature, the liquid may be discharged through the outlet **15** by the operation of the valve **31**.

Thus, there has been provided a very simply employed vehicle water heater that may be employed in any vehicle. No auxiliary heating devices are required to be employed with the consequent disadvantage of supplying power or fuel for the heating of hot water. The only operation required for use is the operation of the valve **31** when hot water is desired to be discharged for usage.

Many applications of this invention will be apparent where hot water is desired in the field. The hot water of course, may be used for the washing of hands where other sources of hot water are not conveniently available. Such hot water may be used for any desired purpose such as sanitation purposes where the application will be extremely broad or for any other application where hot liquid is desired to be employed. It will further be apparent that the maximum limit of temperature may be controlled by the hot water thermostat within the vehicle engine.

Various changes and modifications within the apparatus of this invention will be apparent to those skilled in the art and may be made within the teachings of this invention. Such changes and modifications are to be included within the apparatus of this invention, will be apparent to those skilled in the art, and may be made within the teachings of this invention. Such changes and modifications are to be included within this invention as defined by the scope of the claim appended hereto.

I claim:

A water heater of relatively large capacity adapted for readily removable cooperative installation in a motor vehicle powered by a combustion engine employing a liquid coolant, said heater comprising, in combination, a flat-bottomed upright cylindrical tank having greater diameter than height, a heating coil supported within said tank and having end couplings extended through the tank wall for connection into the engine coolant circulation, said heating coil being supported by a vertical diametrical baffle plate terminating in spaced relation to the sides of the tank and extending from the bottom of the tank substantially to the top to minimize surging of water due to motion of the vehicle, a valved outlet in the tank wall for drawing water from the tank, a full-diameter removable top closure for said tank, compressible sealing means between said top closure and the tank for preventing water leakage due to splashing and churning, and means for securing the tank to a supporting platform on the vehicle including means to press the top closure against said sealing means.

References Cited in the file of this patent

UNITED STATES PATENTS

591,505	Shepard et al.	Oct. 12, 1897
1,735,615	Merwin	Nov. 12, 1929
1,985,950	Resek et al.	Jan. 1, 1935
2,039,066	Weese	Apr. 28, 1936
2,343,727	Zenner	Mar. 7, 1944
2,608,246	Morey	Aug. 26, 1952
2,646,028	Russell et al.	July 21, 1953
2,661,015	Allred et al.	Dec. 1, 1953
2,756,031	Sanstrom	July 24, 1956