April 22, 1947. E. D. MARQUETTE 2,419,273

WATER HEATER

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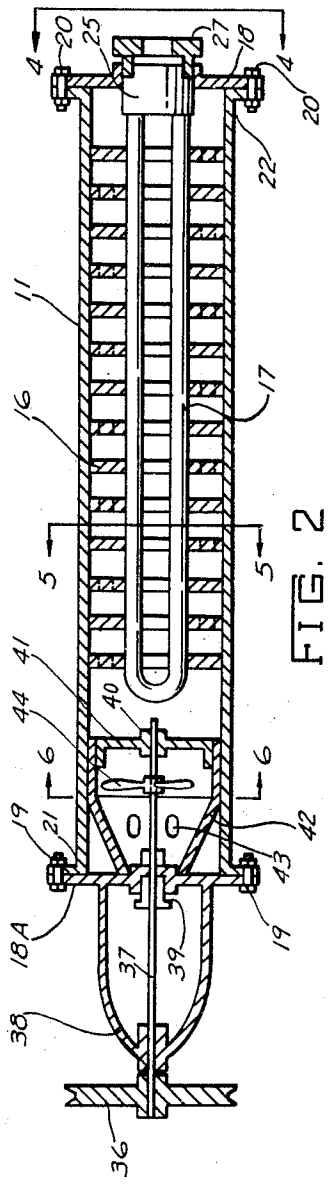


FIG. 2

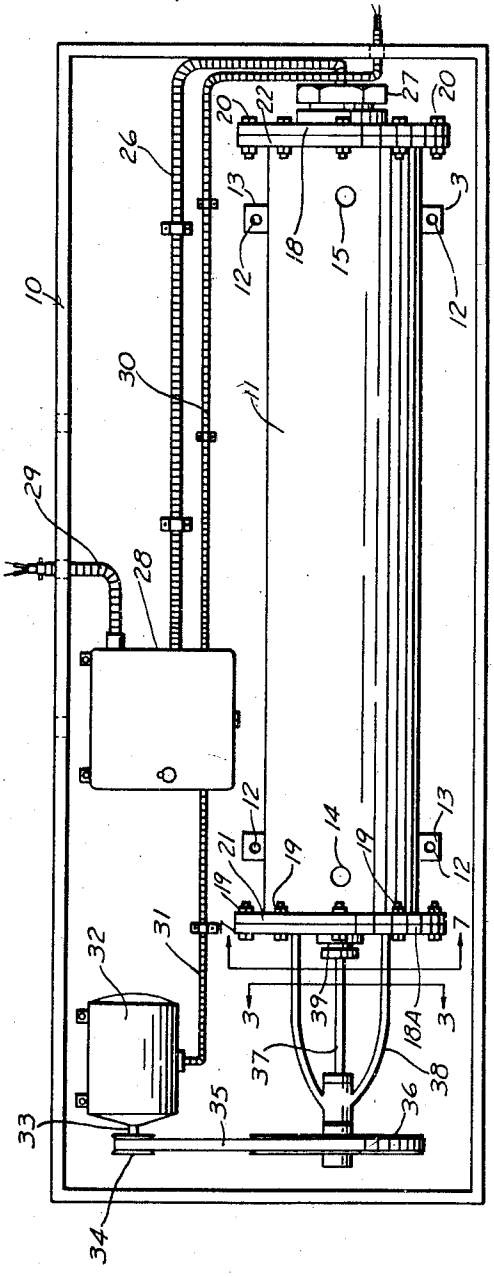


FIG. 1

Inventor

Ernest D. Marquette

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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WATER HEATER

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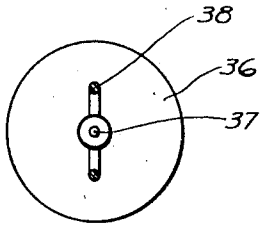


FIG. 3

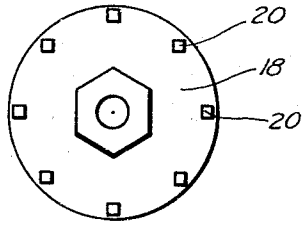


FIG. 4

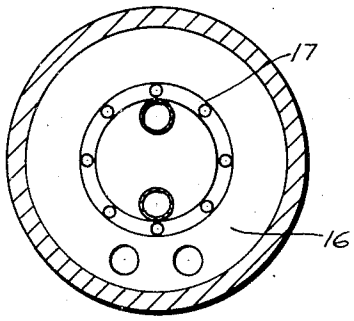


FIG. 5

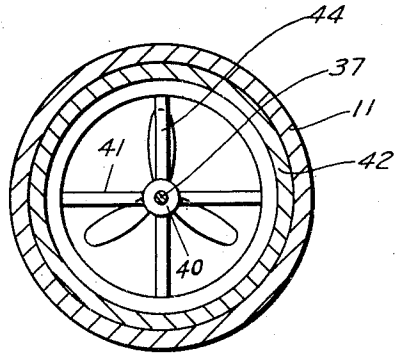


FIG. 6

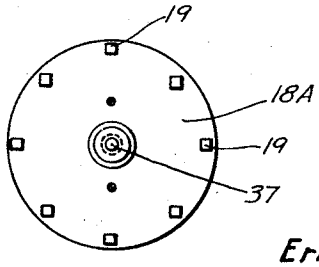


FIG. 7

Inventor

Ernest D. Marquette

By *Clarence A. O'Brien and Harvey B. Jacobson*

Attorneys

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UNITED STATES PATENT OFFICE

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WATER HEATER

Ernest D. Marquette, St. Albans, Vt.

Application October 18, 1944, Serial No. 559,312

6 Claims. (Cl. 219—38)

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This invention relates to a water heater, and more particularly to such a heater adapted to be utilized in conjunction with a vehicle driven by water-cooled internal combustion engines.

A primary object of this invention is the provision of an improved heater adapted automatically, to heat the water in the radiator of an internal combustion engine, when the same falls below a predetermined temperature, in order to insure relatively easy starting of the vehicle.

Another object of this invention is the provision of such a heater which may be utilized when the motor of the vehicle is not running, by plugging the same into any conventional electrical circuit.

A still further object is the provision of such a heater which may be utilized to heat the cab or cockpit of the vehicle with which it is associated, when the engine is not in operation.

Other objects will in part be obvious and in part be pointed out hereinafter.

Additional objects reside in the combinations of elements, arrangements of parts, and features of construction, all as will be more fully pointed out and disclosed in the accompanying drawings, wherein there is shown a preferred embodiment of this inventive concept.

In the drawings:

Figure 1 is a side elevational view of one form of apparatus embodying features of this invention.

Figure 2 is a sectional view taken substantially along the center line of certain portions of the operating mechanism.

Figure 3 is a sectional view taken along the line 3—3 of Figure 1 as viewed in the direction indicated by the arrows.

Figure 4 is an end elevational view of the device taken substantially along the line 4—4 of Figure 2.

Figure 5 is a sectional view taken substantially along the line 5—5 of Figure 2 as viewed in the direction indicated by the arrows.

Figure 6 is a sectional view taken substantially along the line 6—6 of Figure 2 as viewed in the direction indicated by the arrows, and

Figure 7 is a sectional view taken substantially along the line 7—7 of Figure 1, as viewed in the direction indicated by the arrows.

Like reference numerals refer to like parts throughout the several views of the drawings.

Having reference now to the drawings, there is generally indicated at 10, in Figure 1, a housing or casing within which is positioned a cylindrical sleeve 11, adapted to be secured to the wall thereof as by bolts 12 passed through flanges 13. Sleeve 11 is provided with an inlet 14, and an outlet 15, to which are secured suitable conduits (not

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shown) adapted to pass water from the radiator of the vehicle with which the device is associated through the sleeve, which is provided with a plurality of interiorly disposed apertured baffles 16, and over an electrically actuated immersion heater 17 of any desired type (see Figures 2 and 5).

Sleeve 11 is provided with end caps 18 and 18a, secured in position as by bolts 19 and 20, respectively, passed through suitable apertures in flanges 21 and 22 formed at the extremities of sleeve 11.

Immersion heater 17 is secured in a block 25 mounted on the interior of end cap 18, and is connected in electrical association to a conduit 26 which extends from a lock nut 27 secured to a suitable threaded flange carried by cap 18, to a switch box 28. Switch box 28 contains switching mechanism of any desired conventional type and is supplied with power through a conduit 29 provided at its extremity with a plug (not shown) adapted to be connected to any suitable source of power. The switch mechanism is adapted to energize the heater in accordance with the temperature of the water in the radiator of a vehicle, when actuated by a thermostat (not shown) positioned in the radiator, and connected to the switch box as by means of a conduit 30.

From the switch box 28 a conduit 31 leads to an electric motor 32 of any desired conventional type, secured within the casing 10 and provided with a drive shaft 33 having a pulley 34 mounted thereon. A drive belt 35 surrounds pulley 34 and extends to a pulley 36 mounted on a shaft 37, carried by a frame 38 secured to the exterior of end cap 18a. The shaft 37 extends through a suitable packing gland 39 seated in an aperture in end cap 18a to the interior of sleeve 11, where its inner extremity is carried in a journal 40 centrally positioned in a supporting member 41 secured to an apertured propeller cone 42, the apertures therein being indicated at 43. Mounted on the shaft 37 within the propeller cone 42 is a propeller 44 of any desired configuration, adapted to circulate the water over the immersion heater 17, from the inlet 14 to the outlet 15.

Now from the foregoing the operation of the device should be readily understandable. The casing 10 is secured at any desired point within the vehicle, as for example, under the hood, or in the cab, or the like, and the inlets and outlets 14 and 15 suitably connected to the vehicle engine's radiator. When the vehicle is not in operation, the conduit 29 is suitably connected to any desired source of electrical power, and when the

temperature of the water in the radiator falls below a predetermined point, the thermostat therein, through conduit 30, closes the switch mechanism in the switch box 28 to energize immersion heater 17 and simultaneously to drive electrical motor 32. The motor 32 through the belt and pulley connections 34, 35 and 36 above described drives the propeller 44 to circulate water from the cold radiator over the heater 17, heat the same and return it to the radiator. When the temperature of the water within the radiator has reached a desired predetermined point, the thermostat above mentioned serves to throw the switch mechanism 28, resulting in the discontinuation of the operation of motor 32, and the de-energization of immersion heater 17.

It will now be seen that there is herein provided a heater for any desired type of vehicle utilizing a water cooled internal combustion engine, which accomplishes all the objects of this invention and others including many advantages of great practical utility and commercial importance, which insures a quick starting motor in cold weather, immediate lubrication of the operating parts of the engine when the same is started, and a material reduction of the time required for heating up the motor of the vehicle in order to achieve maximum operating efficiency.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

I claim:

1. In a device of the character described, in combination, a cylinder, an immersion heater in said cylinder, a propeller in said cylinder, connections between said cylinder and the radiator of a vehicle a perforated water retarding propeller cone interposed between said water inlet and said propeller, and means to energize said heater and said propeller, said last-mentioned means including a thermostatically controlled switch mechanism actuated by the temperature of the water in said radiator.

2. In a device of the character described, in combination, a cylinder, an immersion heater in said cylinder, a propeller in said cylinder, connections between said cylinder and the radiator of a vehicle a perforated water retarding propeller cone interposed between said water inlet and said propeller, and means to energize said heater and said propeller, said last-mentioned means including a thermostatically controlled switch mechanism actuated by the temperature of the water in said radiator, and an electric motor operable by said switch mechanism and connected with said propeller.

3. In a device of the character described, in combination, a cylinder, an immersion heater in said cylinder, apertured baffles surrounding said heater, a propeller in said cylinder, connections between said cylinder and the radiator of a vehicle a perforated water retarding propeller cone interposed between said water inlet and said propeller, and means to energize said heater and said propeller to circulate water from the radiator about said baffles and said heater.

4. In a device of the character described, in combination, a cylinder, an immersion heater in said cylinder, apertured baffles surrounding said heater, a propeller in said cylinder, connections between said cylinder and the radiator of a vehicle a perforated water retarding propeller cone interposed between said water inlet and said propeller, and means to energize said heater and said propeller to circulate water from the radiator about said baffles and said heater, said last-mentioned means including a thermostatically controlled switch mechanism actuated by the temperature of the water in said radiator.

5. In a device of the character described, in combination, a cylinder, an immersion heater in said cylinder, apertured baffles surrounding said heater, a propeller in said cylinder, connections between said cylinder and the radiator of a vehicle a perforated water retarding propeller cone interposed between said water inlet and said propeller, and means to energize said heater and said propeller to circulate water from the radiator about said baffles and said heater, said last-mentioned means including a thermostatically controlled switch mechanism actuated by the temperature of the water in said radiator, and an electric motor operable by said switch mechanism and connected to said propeller.

6. In a device of the character described, in combination, a cylinder, an immersion heater in said cylinder, a propeller in said cylinder, connections between said cylinder and the radiator of a vehicle, and a perforated propeller cone interposed between the inlet of said cylinder and the propeller, whereby the flow of water will be retarded prior to reaching the immersion heater.

ERNEST D. MARQUETTE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,155,093	Rosenbluth	Sept. 28, 1915
1,341,144	Meadoff	May 25, 1920
1,493,773	Dorion	May 13, 1924
1,562,240	Melotti	Nov. 17, 1925
1,727,959	Bowen	Sept. 10, 1929
1,848,138	Meserve	Mar. 8, 1932
2,367,197	Caldwell	Jan. 16, 1945