Jan. 12, 1926. 1,569,810

R. H. JOHNSON

GASOLINE HEATER

Filed Jan. 28, 1925

Fig. 1.

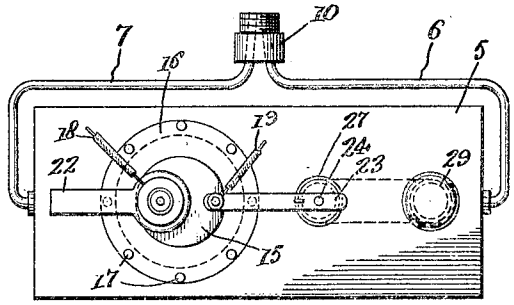


Fig. 2.

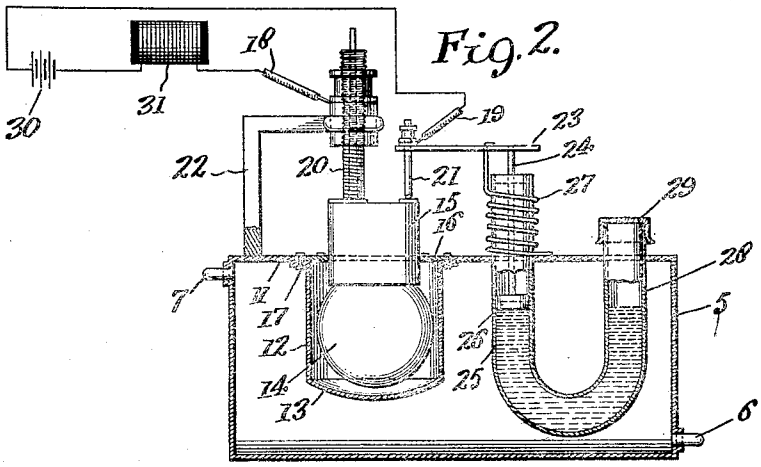


Fig. 3.

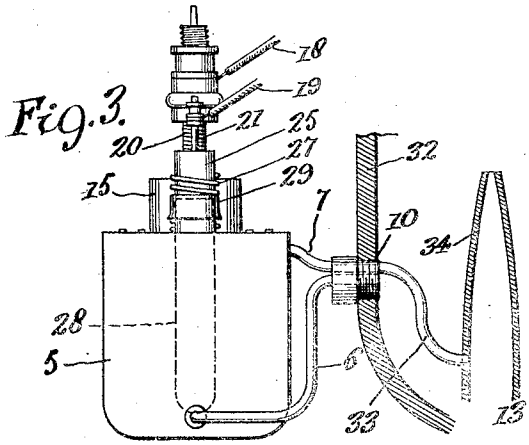
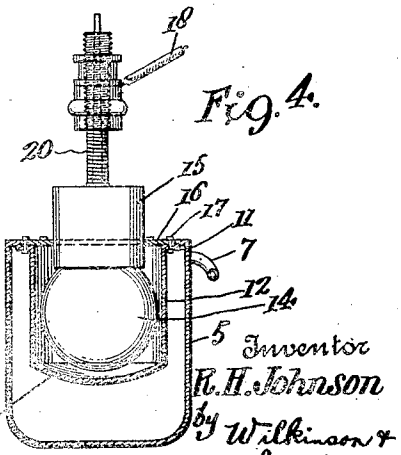


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROBERT H. JOHNSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

GASOLINE HEATER.

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To all whom it may concern:

Be it known that I, ROBERT H. JOHNSON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Gasoline Heaters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in gasoline heaters and has for an object to provide a small and compact device adapted to be carried by the carbureter shell and disposed in the gasoline line to the carbureter whereby a uniform heating of the gasoline may be effected.

Other objects of the invention are to simplify the construction of gasoline heaters, to effect new economies in the consumption of the heating current, to provide a device which is accessible as to its moving parts and yet which will not be apt to develop leakage; and to provide a device in the manner of an accessory constructed for ready mounting in connection with standard carbureters and gas lines.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a top plan view of a device constructed according to the present invention.

Figure 2 is a central longitudinal section taken therethrough.

Figure 3 is an end elevation, and

Figure 4 is a cross section taken through the tank and heating element.

Referring more particularly to the drawings, 5 designates a tank of metal or other appropriate material and of a desired shape to hold a sufficient quantity of gasoline which is received through the inlet pipe 6 at the lower portion of one end of the tank and delivered through the outlet pipe 7 at the higher portion of the opposite end of the tank. The tank is carried in the pipes 6 and 7 engaged with the end walls of the tank and extending backwardly toward one another in rear of the tank. The pipes meet in the bushing or plug 10 provided with screw threads to engage in a threaded socket in the carbureter shell.

The top wall 11 of the tank is provided with the depressed pocket 12 having the rounded bottom 13. An electric lamp 14 is disposed within the pocket and is carried by the lamp socket 15. The socket is secured to the cover plate 16 of the pocket and this cover plate is removably secured to the tank as by the fastenings 17. The lamp is supplied with current from a suitable source, such for instance as from the storage battery of the vehicle. The wires 18 and 19 connect with the battery and with the two electrodes 20 and 21 which engage the contacts of the lamp socket. The elbow 20 is stationary and is carried by the inverted L-shaped arm 22 standing up from the outlet end of the tank and having its upper end disposed over the pocket 12. Appropriate binding nuts secure the electrode upon the arm and in connection with the lamp socket and provide for attaching the wire 18.

The other electrode 21 is a movable electrode and is carried by the arm 23 affixed to the plunger rod 24 which extends down through one leg 25 of the U-tube and is coupled to the plunger 26 which reciprocates in this leg. A coil spring 27 is wound about the upper projecting portion of the leg and engages with the arm 23 having the effect to draw the arm and plunger downwardly to cause the electrode 21 to normally engage the contact of the lamp and close the circuit therethrough. The other leg 28 of the U-tube also extends above the tank and is provided with the filling cap 29 to permit the introduction into the tube of mercury, alcohol or some other fluid sensitive to variations in temperature and having a high coefficient of expansion.

In operation the gasoline will flow through the tank, the cold gasoline coming in at the bottom at the end remote from the heating pocket and this cold gasoline will come in contact with the bottom of the U-tube. The inlet and outlet pipes 6 and 7 are of small diameter as compared with the capacity of the tank 5 so as to give the gasoline in the tank an opportunity to be adequately heated before it will be returned to the carbureter. It is not desirable to raise the temperature of the gasoline to too high a degree but merely to pre-heat it

to a temperature where the gasoline will lend itself to ready vaporization at the nozzle 34 of the carbureter. The arrangement of the heater and the thermostat in the tank 5 is therefore important. The heater is placed close to the outlet pipe 7 while the thermostat tube 25 is placed close to the inlet pipe 6, so that the temperature condition of the incoming liquid will influence the thermostat promptly while the outgoing liquid from the tank will come under the influence of the heating element. When the temperature rises beyond a predetermined point which will be controlled by the adjustment of the spring 27, the expanding fluid in the U-tube will cause the upward movement of the plunger 26 and consequently the lifting of the electrode 21 out of contact with the corresponding contact in the lamp socket. The circuit will be broken, deenergizing the lamp and this condition will prevail until the temperature in the tank falls below said predetermined point. The curved lower part of the U-tube and the curved bottom 13 of the pocket will induce convection currents in the body of liquid and consequently making for a rapid interchange of temperature and a uniform temperature condition throughout the body of liquid in the tank.

In Figure 2, there is indicated the battery 30 and the coil 31. This coil is wound to suit the current desired.

In Figure 3, 32 designates the shell of the carbureter in which the liquid gasoline is contained. The plug 10 is secured into this wall and the pipe 6 is in communication with the carbureter below the liquid level. There is a flexible tube 33 connecting with the plug and with the other pipe 7 for leading the heated gasoline to the base of the carbureter nozzle 34.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:—

1. A gasoline heater comprising a tank having an inlet at one end and an outlet at the other end, a pocket extending into the tank near the outlet end, a heating element extending into said pocket, a movable contact in the heater circuit situated outside said tank, means coupled to said movable contact and extending into the tank near the inlet end for lifting said movable contact and opening the heater circuit when a predetermined temperature of the fluid in the tank is reached.

2. A gasoline heater comprising a tank having an inlet at the lower portion of one end and an outlet at the higher portion of the other end of the tank, a pocket extending downwardly from the top portion of the tank near the outlet end and having a rounded bottom, a cover for the tank, a lamp socket carried by and removable with said cover, a lamp fitted in the lamp socket and projecting into said pocket, fixed and movable contacts for the lamp socket outside said tank, a U tube extending into the tank near the inlet end and containing a fluid of high coefficient of expansion, a plunger in one leg of said tube coupled to said movable contact, a coil spring wound about said leg of the tube above the tank and acting to draw said plunger and contact downwardly, and means for closing the other leg of said tube.

ROBERT H. JOHNSON.