

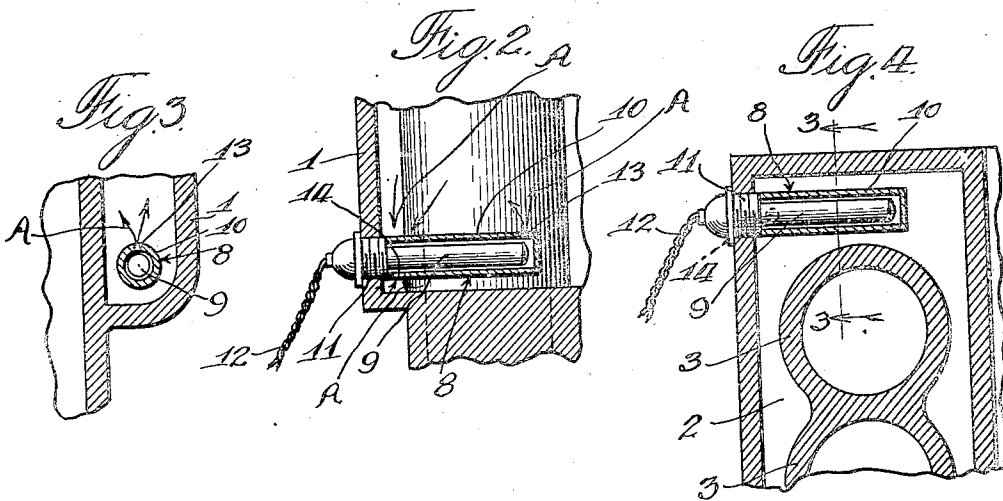
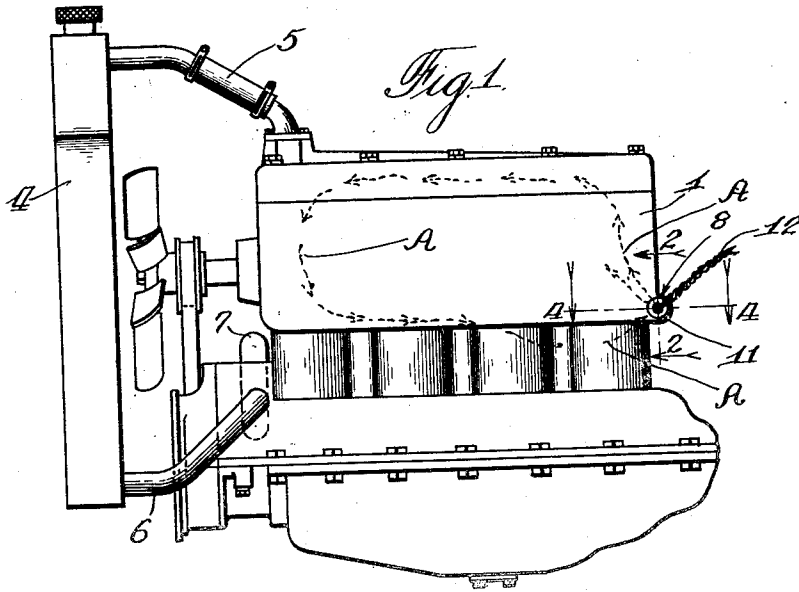
July 4, 1933.

J. F. SLOAN

1,916,237

HEATER

Filed April 19, 1929



Inventor:

John F. Sloan:

By: Jones, Redding & Co., Attys.

Witness:

David L. Snodgrass:

UNITED STATES PATENT OFFICE

JOHN F. SLOAN, OF PEORIA, ILLINOIS

HEATER

Application filed April 19, 1929. Serial No. 356,391.

My invention relates to heaters and more specifically to heaters for internal combustion engines.

One of the objects of my invention is to provide a heater for automobile engines which will facilitate easy starting of the motor, and keeping the lubricating oil and grease from stiffening or congealing.

A further object is to provide such a construction in which the desired result is accomplished by restricting or hindering the flow of liquid away from the heating element so that the liquid is heated to a relatively high temperature and the circulation of liquid in the water jacket is relatively slow thus causing a relatively large proportion of the heat available to be applied in heating the engine block and a relatively small proportion to be delivered to the radiator.

Further objects will appear from the description and claims.

In the drawing, in which an embodiment of my invention is shown—

Figure 1 is a side elevation of an internal combustion engine and its cooling system with my heater applied thereto;

Fig. 2 is a section substantially on the line 2—2 of Fig. 1;

Fig. 3 is a section substantially on the line 3—3 of Fig. 4; and

Fig. 4 is a section substantially on the line 4—4 of Fig. 1.

Referring to the drawing in detail, the construction shown therein comprises an engine block 1 of an internal combustion engine having a water jacket 2 surrounding the cylinders 3, a radiator 4 in communication with the water jacket through the conduits 5 and 6, a pump 7 for effecting a circulation of the liquid in the water jacket, and a heater 8 for communicating heat to the liquid in the water jacket.

This heater comprises an electric heating element 9 and a cylindrical housing 10 therefor both mounted on a screw plug base 11 which is threaded into a tapped opening in the side of the engine block. The electric heater element 9 is supplied with current by means of the feed wires 12.

In order to accomplish the objects of my

invention, I find it desirable to cause the temperature of the liquid, adjacent the heating element to be raised to a comparatively high degree and this I accomplish by preventing a too rapid flow of liquid away from the heating element 9. Specifically, this is accomplished by providing a relatively restricted opening 13 in the top of the cylindrical housing 10 surrounding the heating element 9 so that the heated liquid in this cylindrical chamber cannot escape quickly and is, therefore, raised to a relatively high temperature before it can escape through the restricted opening. The cooler liquid flows into the housing 10 through the larger opening 14 in the lower side of the casing and upwardly and rearwardly around the heating element to the relatively small opening in the upper part of the housing as indicated by arrows A.

By impeding the flow from the housing I correspondingly lessen the flow from the block thus retaining the hot solution and correspondingly increasing the temperature of the block. If an immersion heater of corresponding wattage were inserted into the block without any impediment to the flow it would cause a more rapid circulation of the solution which would be, of lower temperature and the block would be heated to a correspondingly low temperature.

While I have shown but one form of my invention, many modifications may be made therein without departing from the spirit and scope of the appended claims.

I claim:

1. The combination with an internal combustion engine having a water jacket, of a heater in said water jacket comprising an electrical heating element which causes the water heated thereby to rise in the jacket, and means for causing a relatively high rise in temperature in the water adjacent said heating element comprising retarding means for retarding the rise of the heated water, said retarding means comprising a housing about said heater insulated from the heater circuit and having a restricted opening to permit a restricted upward flow of the water.

2. The combination with an internal combustion engine having a water jacket, of a

heater in said water jacket comprising an electrical heating element which causes the water heated thereby to rise in the jacket, and means for causing a relatively high rise in temperature in the water adjacent said heating element comprising retarding means for retarding the rise of the heated water, said retarding means comprising a housing about said heater insulated from the heater circuit and having a restricted opening to permit a restricted upward flow of the water, said housing and heater element being assembled as a unit and mounted on a screw plug base threaded into the cylinder block. 70

In witness whereof, I have hereunto subscribed my name.

JOHN F. SLOAN.

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