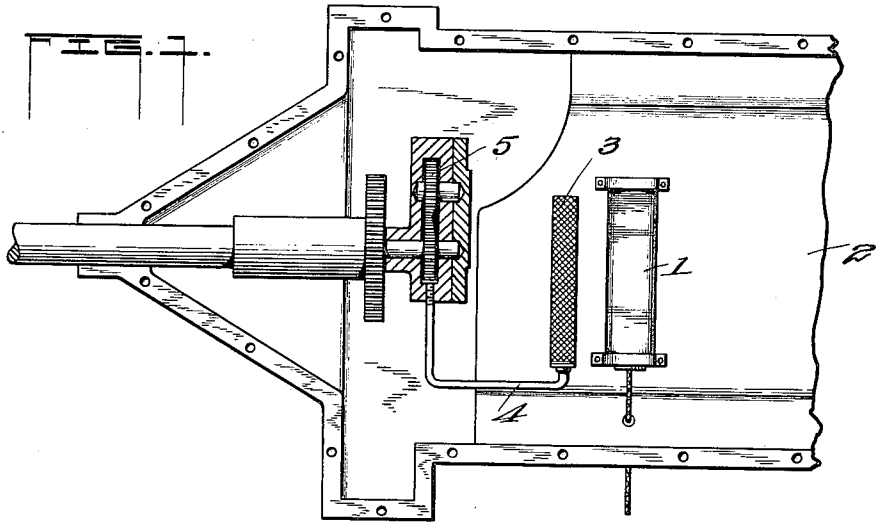
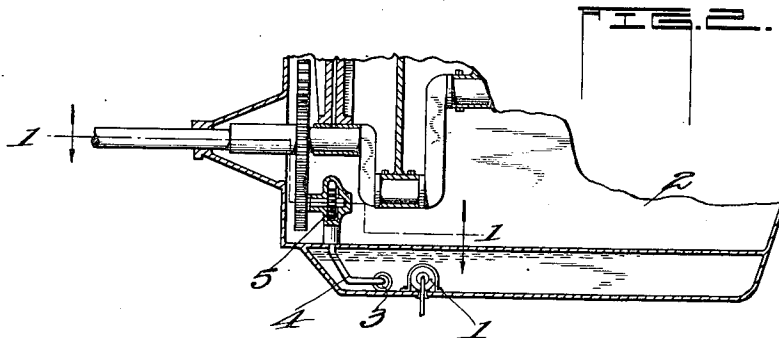
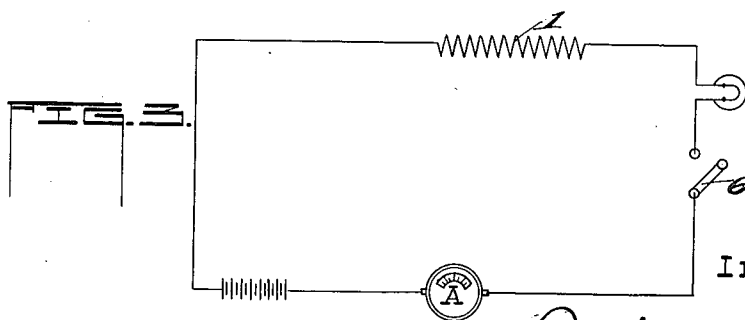


A. H. GRANGE.
HEATING DEVICE FOR THE CRANK CASES OF AUTOMOBILES.
APPLICATION FILED MAR. 20, 1918.

1,356,524.

Patented Oct. 26, 1920.



INVENTOR.

Arthur H. Grange
by LaPorte & Beane.

ATT'YS

UNITED STATES PATENT OFFICE.

ARTHUR H. GRANGE, OF TOULON, ILLINOIS.

HEATING DEVICE FOR THE CRANK-CASES OF AUTOMOBILES.

1,356,524.

Specification of Letters Patent.

Patented Oct. 26, 1920.

Application filed March 20, 1918. Serial No. 223,524.

To all whom it may concern:

Be it known that I, ARTHUR H. GRANGE, a citizen of the United States, a resident of Toulon, in the county of Stark and State of Illinois, have invented new and useful Improvements in Heating Devices for the Crank-Cases of Automobiles, of which the following is a specification.

My invention relates to improvements in heating devices for the crank case of an automobile, and the principal object of this invention is the provision of an electric heating element located close to the strainer through which the oil is drawn by the pump from the crank case of an automobile, so as to prevent the congealing of the oil and the freezing of the water about the strainer, thereby interfering with the proper circulation of the oil and lubrication of the motor.

Another object of this invention is the provision of such a device which may be simply and readily attached to standard and existing forms of mechanism.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, my invention consists in the combination, construction and arrangement of parts hereinafter described and then sought to be defined in the appended claims, reference being had to the accompanying drawings forming a part hereof, and which show merely for the purpose of illustrative disclosure, a preferred embodiment of my invention, it being understood that various changes may be made in practice within the scope of the claims, without digressing from my inventive idea.

In the drawing,

Figure 1 represents a horizontal section taken through the lower part of the crank case of an automobile, showing the pump in section, and mechanism embodying my invention applied, this section being taken substantially on line 1—1 of Fig. 2;

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1, this view being taken on a smaller scale than Fig. 1;

Fig. 3 is a diagram of the wiring for installing my invention.

One of the numerous troubles encountered

in the operation of internal combustion engines in cold weather, is the improper or faulty lubrication of the motor, due to the stoppage of the strainer, which is located in the bottom of the crank case, and through which the oil passes to the oil pump, this stoppage of the strainer being due to the congealing of the oil, due to the low temperature, and also to the freezing of water, which accumulates in the bottom of the crank case. This sometimes is sufficient to entirely close the meshes of the strainer and prevent the passage of any oil therethrough, resulting frequently in serious damage to the various operating parts of the motor which require constant lubrication.

In order to overcome this fault, I provide a heating element 1, which may be of almost any form and which is mounted in the lower part of the crank case 2 of an internal combustion engine, close to the oil strainer 3, which has the pipe connection 4 to the oil pump 5. These parts are of usual construction and form no part of the invention, except as they enter into combination with my novel device.

This heating element is secured to the bottom of the crank case by bolts or similar securing means, and is connected with a source of electric current, as indicated in Fig. 3, the socket 6 being located at any desired place, preferably the dash-board.

It is seen that in cold weather or whenever it is desired to heat the oil around the strainer, this may be readily accomplished, and the congealing of the oil and the freezing of the water prevented, or the ice melted and oil rendered more liquid, by the application of the heat thereto.

This, therefore, permits the flow of the oil through the strainer and pump, but permits the pump to operate properly to lubricate the various operating parts of the mechanism.

It is therefore seen that the device is simple and readily applied, and effective in accomplishing the desired result.

What I claim is:—

1. The combination with the crank case of an internal combustion motor and oil

pump and strainer associated therewith, of an electrical heating element mounted in said case close to said strainer, and an electric current in which said element is located.

- 5 2. The combination with the crank case of an internal combustion motor and oil pump and strainer associated therewith, of an electrical heating element mounted in

said case close to said strainer, a source of electrical energy, and means for controlling 10 said source of energy to said element.

In witness whereof I have hereunto affixed my hand and seal this 9th day of March, 1918.

ARTHUR H. GRANGE.