April 25, 1950 P. GRATSINGER 2,505,286

MOTOR HEATER

Filed July 19, 1946

Fig. 1.

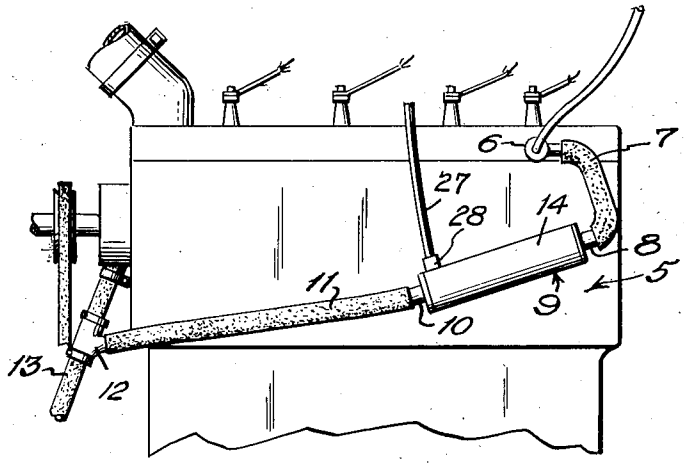


Fig. 2.

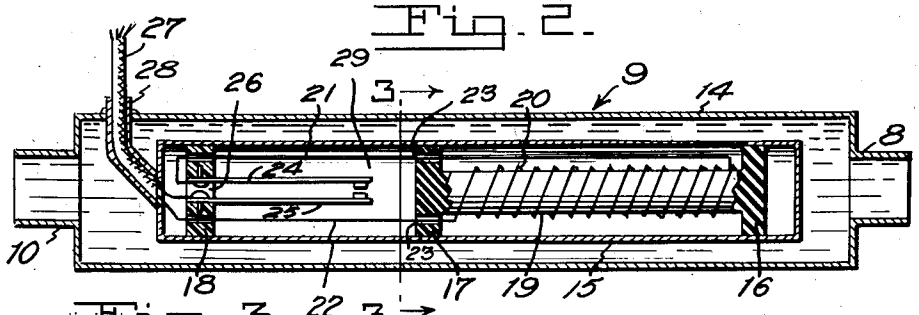
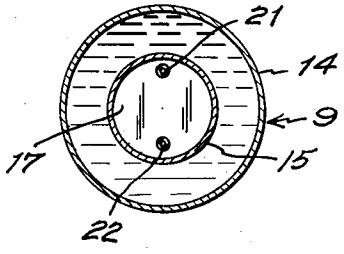


Fig. 3.



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MOTOR HEATER

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1 Claim. (Cl. 219—38)

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The present invention relates to heating means for motors, such as internal combustion engines. During freezing weather, the water in the cooling systems of internal combustion engines will freeze, especially when low in anti-freeze compound content. This frequently happens in garages, where if suitable electric heating means were provided for the motor, the usual commercial current supply available in the garage could be used.

Therefore, it is an important object of the present invention to provide an electric heater for temporary installation in the cooling system of an internal combustion engine, which will automatically energize upon a drop in temperature below a certain degree range, with the result that in cold weather, the water of a motor cooling system can be maintained warm throughout the night and without personal attention, to the end, that the engine may be easily started when called upon.

Another important object of the invention is to provide an electric heater for internal combustion engines which can be readily installed and connected with a conventional current supply source for automatic operation.

These and other objects and advantages of the invention will become apparent to the reader of the following description.

In the drawing:

Figure 1 is a fragmentary side elevational view of an internal combustion engine equipped with the improved heater.

Figure 2 is an enlarged fragmentary longitudinal sectional view through the heater.

Figure 3 is a cross-section taken on line 3—3 of Figure 2.

Referring to the drawing, numeral 5 generally refers to an internal combustion engine of the type preferably having a heat indicator connection 6 and to this is connected a hose 7 which extends to a nipple 8 at one end of the heater unit generally referred to by numeral 9. The other end of this unit has a nipple 10 over which one end of a hose 11 is disposed, while the other end of the hose 11 connects to a fitting 12 in the usual lower radiator hose 13.

The heater 9 consists of a shell 14 of any desired cross-sectional shape and from the ends of which project the nipples 8, 10.

Suitably supported within the shell 14 by pins or other spacer means, is an elongated barrel 15 having partitions 16, 17 and 18 therein of some insulating material. Between the partitions 16, 17 is a body 19 around which a heating element

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20 is coiled, conductors 21, 22 extending from the ends of this coil, through openings 23 in the partition 17, to connect to thermostatic elements 24, 25, which have their ends suitably secured to the opposed walls of an opening 26 in the partition 18 and to one side of a two wire conductor 27, the other wire of which connects to the element 25.

A tubular neck 28 extends from one end of the barrel 15 and upwardly through an opening in one end portion of the shell 14. The neck 28 is preferably welded or otherwise secured firmly to the shell 14.

At a temperature above approximately 80 degrees, the thermostatic elements 24, 25 will remain spaced apart, these elements being located in a chamber 29 defined by the partitions 17, 18. This is assuming that the conductor 27 is connected with a suitable source of electricity.

When the temperature drops below 80 degrees, at which temperature the cooling system normally maintains the engine warm enough to easily start, the thermostatic elements 24, 25 contact, thus closing the circuit including the heating element 20, which upon becoming heated, produces a high temperature, to the end, that water passing through the shell 14, becomes heated by contact with the hot barrel 15.

The heater 9 is set at a vertical angle, as is shown in Figure 1 and water, as it becomes heated, will rise through the heater and circulation will start, in a short time heating the motor and maintaining the motor heated to a temperature above approximately 80 degrees, until the conductor 27 is disconnected.

This device can be easily installed during cold weather and will automatically operate, so long as the conductor 27 is connected with a source of current.

While the foregoing description sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention what is claimed as new is:

A removable heater unit for the cooling systems of internal combustion engines comprising a shell having reduced portions at each of its ends forming nipples for receiving hose ends in a cooling system, a barrel disposed in the shell and containing an electric heating element and current conducting means extending from the outside of the shell to the heating element of the barrel, said barrel being provided with a pair of internal

partitions of insulation between which the heating element is interposed and a third partition of insulation in the barrel to which the conducting means is led, and a thermostatic element mounted on the last mentioned partition and being electrically connected and interposed between the conducting means and heating element, said thermostatic element comprising a pair of spring metal contact arms adapted to move toward and contact each other upon the lowering of temperature of fluid in said hose to a predetermined degree.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,455,246	Furstenau	May 15, 1923
1,505,179	Whitely	Aug. 19, 1924
1,632,658	Manassero	June 14, 1927
1,710,391	Walz	Apr. 23, 1929
1,727,959	Bowen	Sept. 10, 1929
1,759,969	Turnwald	May 27, 1930
1,837,000	Wertz	Dec. 15, 1931
2,192,655	Smith	Mar. 5, 1940
2,201,703	Sage	May 21, 1940
2,217,595	Morgan et al.	Oct. 8, 1940