Feb. 6, 1923. 1,444,133

H. Y. NORWOOD.

THERMOMETER ATTACHMENT FOR AUTOMOBILES.

FILED MAR. 31, 1919.

Fig. 1

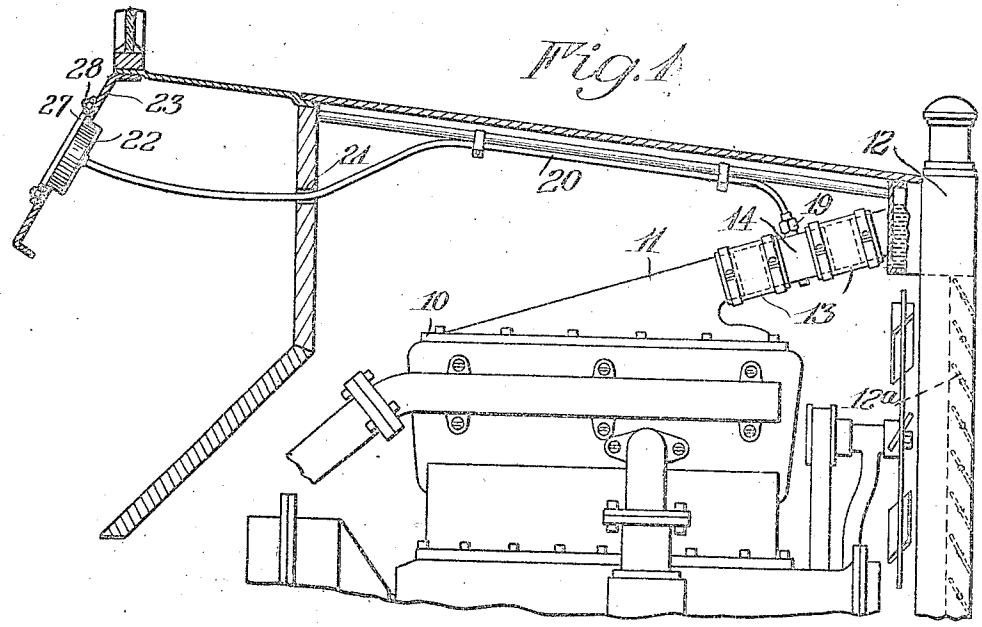


Fig. 2

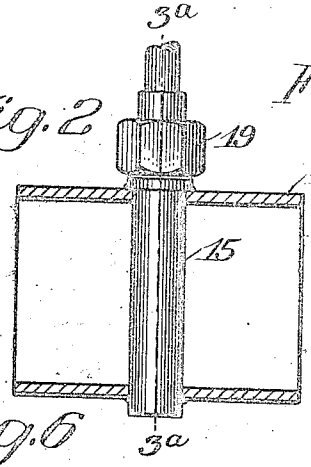


Fig. 3

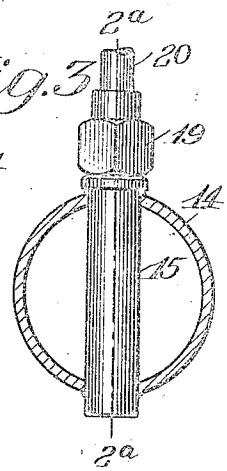


Fig. 4

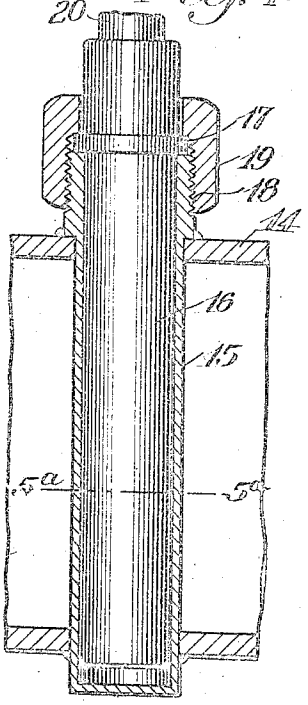


Fig. 6

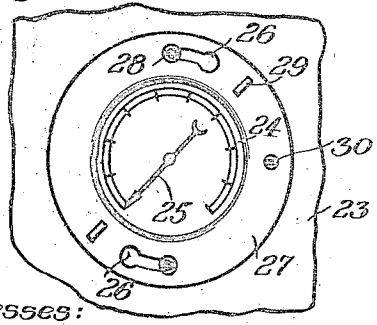
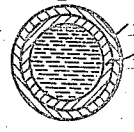


Fig. 5



Witnesses:
Edw. A. Cumpston
Nelson H. Copp

INVENTOR
Harry Y. Norwood
BY
Chamberlain
his ATTORNEYS

Patented Feb. 6, 1923. 1,444,133

UNITED STATES PATENT OFFICE.

HARRY Y. NORWOOD, OF ROCHESTER, NEW YORK, ASSIGNOR TO TAYLOR INSTRUMENT COMPANIES, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

THERMOMETER ATTACHMENT FOR AUTOMOBILES.

Application filed March 31, 1919. Serial No. 286,285.

To all whom it may concern:

Be it known that I, HARRY Y. NORWOOD, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Thermometer Attachments for Automobiles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference characters marked thereon.

This is an invention in temperature indicating devices and particularly the variety of such devices designed for indicating the temperature of the fluid of the engine cooling system of motor vehicles. One object of the invention is the provision of a simple, economical and convenient instrument arranged to indicate at all times in full view on the dash or instrument board of the vehicle the temperature of the cooling fluid, as a warning against freezing in cold weather, or, when the temperature of the fluid becomes excessive, against overheating in the motor due to lack of lubrication, or lack of circulation of the cooling fluid, or other trouble. Another object is the provision of means of this character which indicates the proper adjustment of the shutter or other device for controlling the admission of cooling air through the radiator, and thereby controlling the temperature of the cooling fluid. Another object is the provision of a device of this nature which may be applied to any motor vehicle and which is so constructed that its major parts may be quickly and conveniently detached from one vehicle and attached to another. Still a further object is an arrangement which shows quickly and accurately the temperature of the cooling fluid at that point in the circulation which best indicates the condition of the motor. To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a partly sectional side elevation showing the invention applied to a motor vehicle.

Figure 2 is a vertical section on the line 2^a—2^a of Figure 3 of the nipple for insertion in the fluid system.

Figure 3 is a transverse vertical section of the same on the line 3^a—3^a of Figure 2.

Figure 4 is a view similar to Figure 3 but enlarged and showing additional parts in section.

Figure 5 is a horizontal sectional view on the line 5^a—5^a of Figure 4.

Figure 6 is a face view of the indicating device attached to the instrument board of the vehicle.

The embodiment of the invention which is preferred at the present time as best illustrating the principles involved, is shown in conjunction with the usual automobile construction having the fluid cooled motor 10, the cooling system of which includes a conduit 11 connecting the engine jacket with the radiator 12 through the rubber tubing 13. A shutter or damper device such as is frequently employed is indicated at 12^a for controlling the admission of air to the radiator surface. A portion of the rubber tubing is cut away adjacent its center to allow of the insertion of a nipple 14 the ends of which are fixed or clamped in the adjoining ends of the rubber tubing in any suitable manner and which is provided adjacent its center with a receptacle or tube 15 preferably extending transversely through the nipple in position to contact directly with the circulating fluid passing through the latter. Tube 15 has preferably thin walls to facilitate the conduction of heat therethrough and is fixed at its ends in the walls of the nipple so as to make a fluid tight connection with the latter.

A thermometer bulb 16 is adapted to fit closely within tube 15, extending substantially across the width of the nipple and having a shoulder 17 which limits its entry into the latter. Tube 15 is preferably provided at its upper end with a threaded portion 18 which is adapted to be engaged by a nut 19 slidably carried by the thermometer bulb and adapted when screwed on to the upper end of tube 15 to thrust the bulb home into the tube, the tube and bulb having a slight taper if desired to insure close contact between the adjacent surfaces. Communicating with the bulb at the outer end of the latter is a tube 20, preferably of the capillary type which passes through an opening 21 in the dash board of the vehicle

and communicates at its other end with an indicating device 22 detachably secured to the instrument board 23 of the vehicle. This indicating device has a usual dial 24 over which a pointer 25 is adapted to be moved under influence of the pressure exerted by any suitable fluid in the bulb and capillary tube previously described. The means for detachably securing this device on the instrument board comprises bayonet slots 26 formed in the face plate 27 of the device and engaging screws 28 projecting from the instrument board. The face plate 27 is also provided with lugs or finger pieces 29 by means of which a device may be rotated to disengage it from the screws 28 in order that the device may be removed from the board. If desired a clamping screw 30 may be provided in the face plate for engagement with the instrument board to clamp the device in place after attachment to the board.

It is apparent from the above described construction in connection with the drawings that nipple 14 may be readily inserted in the circulating fluid system of any automobile of usual type without material alteration of the parts or interference with the circulation of the fluid, and that the thermometer bulb 16 may be inserted in the receptacle in the nipple and the indicating device attached to the dash board of the vehicle by forming an opening in the latter to receive it and attaching to the board the screws 28.

The bulb of the thermometer, being located in the path of the circulating fluid at the point where the latter passes from the engine to the radiator, is in position to quickly and accurately respond to the temperature of the fluid which at this time corresponds most closely with the temperature of the engine itself. The indicator is conveniently located on the dash in full view of the driver at all times so that it serves as a warning in cold weather of the approach of the temperature of the fluid to the freezing point or in case of excessive temperature in the circulating fluid as a warning that the engine is becoming overheated, due to lack of lubrication or of circulation of the cooling fluid or other troubles in the motor.

The invention is particularly useful in conjunction with an adjustable shutter or damper device for controlling the admission of air to the radiator surface and thereby controlling the temperature of the cooling fluid, in that the constant indication which it affords of the temperature of the fluid serves as a check on the manipulation of the shutter device, indicating whether the latter is properly adjusted, or should be further opened or closed. The condition of the cooling fluid may thus be controlled to maintain quite uniformly the temperature desired.

The instrument may be quickly and conveniently detached from one vehicle and attached to another, it being merely necessary to provide the latter with a nipple 14 in the cooling system of the motor and with the above described arrangement of the instrument board to receive the indicating device.

I claim as my invention:

The combination with a fluid cooled internal combustion motor having a cooling fluid jacket, a radiator and a hose connection between said jacket and radiator, of a tubular nipple having its ends adapted for insertion in the ends of sectional portions of said hose connection to form a part of the latter connection, a socket receptacle fixed in and extending across said nipple through the path of the cooling fluid and having one end open and the other closed, a thermometer bulb detachably fitted in the open end of said receptacle, a thermometric indicator, and an extended flexible conductor connecting said bulb and indicator.

HARRY Y. NORWOOD.