E. J. OSWALD & G. W. CONNER.

ATTACHMENT FOR RADIATOR CAPS.

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1,200,643.

Patented Oct. 10, 1916.

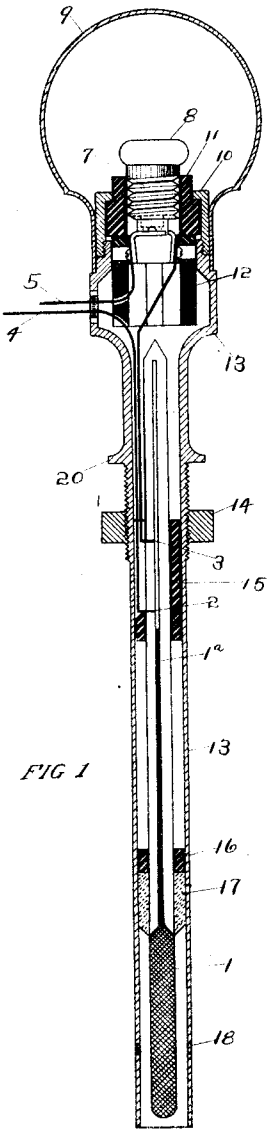


FIG 1

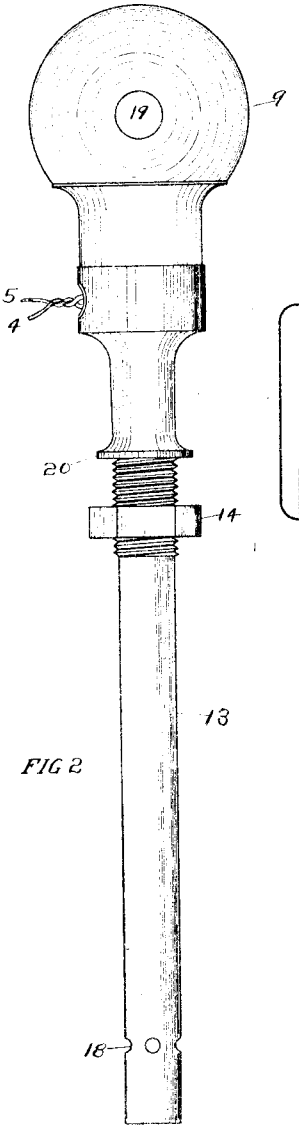


FIG 2

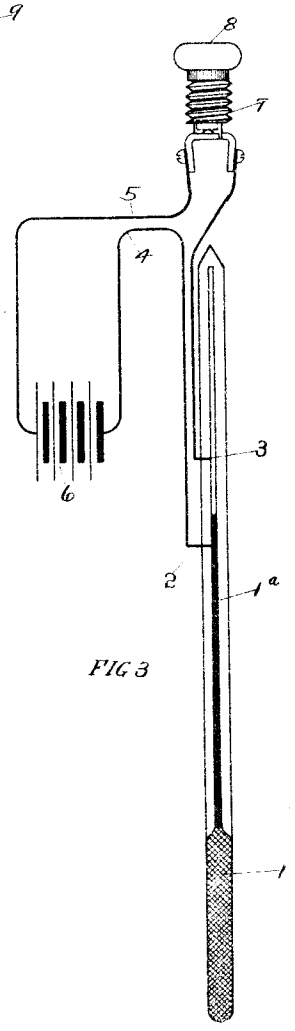


FIG 3

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ATTACHMENT FOR RADIATOR-CAPS.

1,200,643. Specification of Letters Patent. Patented Oct. 10, 1916.

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To all whom it may concern:

Be it known that we, EDWARD J. OSWALD and GEORGE W. CONNER, both citizens of the United States, and residents of the city of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Attachment for Radiator-Caps, of which the following is a specification.

Our invention relates to the water cooling systems of internal combustion engines, wherein the water circulates through the jackets around the cylinders and prevents the same from becoming overheated.

More particularly it relates to those devices which indicate by a thermometer when the cylinders and circulating medium have reached too great a degree of heat and has special reference to a form of attachment for radiator caps on automobiles.

It has for its object not only the registering of the temperature when this becomes too high for the economical and safe running of the engine, but also provides a compact and ornamental attachment that can be placed on the radiator cap of any automobile which will automatically flash a light as a warning signal whenever the temperature reaches the danger point and which will remain lighted and continue to give this warning just as long as such a condition exists.

Figure 1 is a vertical or longitudinal section, showing the details of construction; Fig. 2 is in the nature of a perspective showing the ornamental appearance and outward design of the radiator attachment; Fig. 3 shows diagrammatically the wiring which connects the battery, the electrical thermometer and the incandescent lamp.

The electrical thermometer 1 is firmly affixed on the inside of the brass tube or casing 13, forming the leg of the device. The drawings are full size and the dimensions may be taken therefrom without any further description. A short distance above the bulb of the thermometer, a rubber washer 16 is placed and the space between this washer and the top of the bulb is filled with cement. The holes 18 allow free circulation of the water or heated air around bulb 1. Another rubber washer or piece of tubing is placed around the thermometer stem at 15, not only to hold it in position inside the casing 13, but also to insulate the two electrical contacts 2 and 3, which pierce the capillary tube so that the mercury may come into contact with them. This casing 13 has a shoulder 20, just above the threaded part, and a nut 14 to fasten it firmly to the radiator cap, a hole being bored in the latter and tapped and the signal attachment screwed into it and locked by the jam nut 14. This shoulder 20 and the threaded part of the casing could be made larger so as to form a radiator cap, taking the place of the cap removed from the radiator. Bushings of insulating material, 11 and 12, are fitted to the top part of the casing 13 and are held in place by the washer or cap 10, which is screwed to the threaded top part of the casing and has an internal shoulder which engages the insulating bushing 11. This latter bushing holds the small lamp socket 7, with its small incandescent lamp 8.

The spherical cover part 9 is shown in the drawing as fitting over 10, but this may be, and preferably is, made an integral part thereof, so that part 9 would screw on to the top of casing 13, forming the cap for same.

The wiring is quite simple. The contact 3 is connected with one terminal of the lamp socket; the contact 2 is connected with one pole of the battery; and the other pole is connected with the other terminal of the socket. The wires 4 and 5, leading from the device to the battery pass through a bushed opening in the side of the casing 13. If so desired the lamp may be placed on the dashboard of the automobile and the wiring changed accordingly.

When the attachment is screwed into the radiator cap, with the thermometer leg on the inside of the radiator and the electrical connections made, the thermometer will at once record the temperature of any circulating water or heated air with which it may come in contact. The contacts 2 and 3 are so placed in the thermometer that contact 3 indicates a temperature above which it is not advisable to allow the water in the circulating system to reach. This is usually fixed at 180 degrees Fahrenheit and so we can place contact 3 at 180 degrees and the contact 2 at ten degrees less or 170 degrees. When the heat in the radiator at the place where the device is attached reaches 180 degrees, the column of mercury in the thermometer will rise, passing the 170 mark, or contact 2, and will finally reach 180 degrees, or the second contact 3. The electrical circuit will then be completed by the column of mercury between contacts 2 and 3, the

small incandescent lamp 8 will become energized and the light shining out through opening 19 of the cover, will notify the operator that the circulation of the water in the cooling system of the engine is for some reason defective and this light will continue as a warning until the temperature falls below 180 degrees, when the mercury will drop below contact 3, the circuit will be broken and the light will go out, indicating that normal conditions once more prevail.

We claim,—

1. In an indicating device for radiators of the class described, the combination with a radiator cap of an electric thermometer inclosed in a tube which is open at the bottom, but sealed just above the bulb of the thermometer; an insulated lamp socket and electric lamp located in a chamber or enlarged section of the tube and forming its top part, the cover thereof having a small opening therein on the side; and means for connecting the contacts of the thermometer and the terminals of the lamp socket with a battery so that when the mercury reaches a certain height in the capillary tube the electric circuit will be closed.

2. In an indicating device for radiators of the class described, the combination of an electric thermometer inclosed in a tube, the top part of which forms a radiator cap, the lower end of the tube being open and an electric lamp connected with the contacts of the thermometer and with a source of electrical energy, so that when the column of mercury in the capillary tube of the thermometer reaches a certain height the circuit will be closed.

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Witnesses:
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