

April 27, 1926.

1,582,872

R. P. McCURDY ET AL

RADIATOR SIGNAL

Filed May 23, 1924

Fig. 1

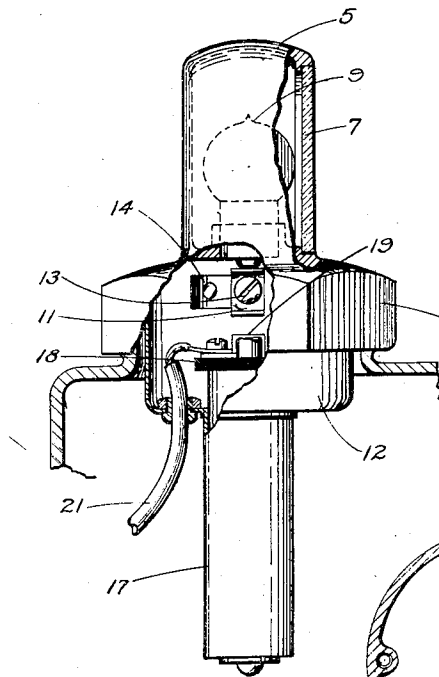


Fig. 2

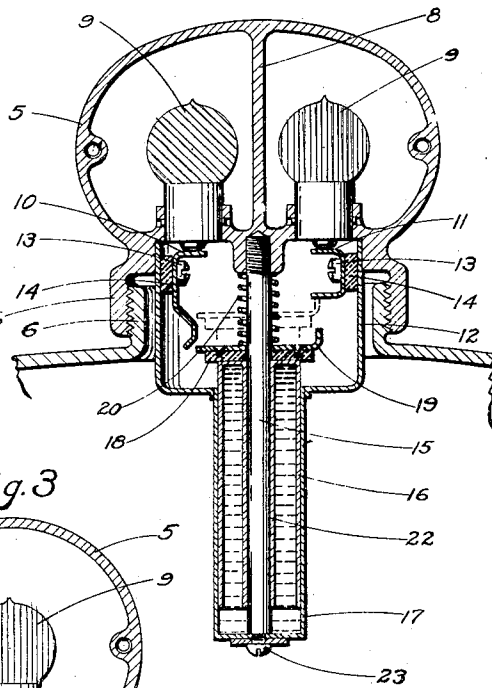


Fig. 3

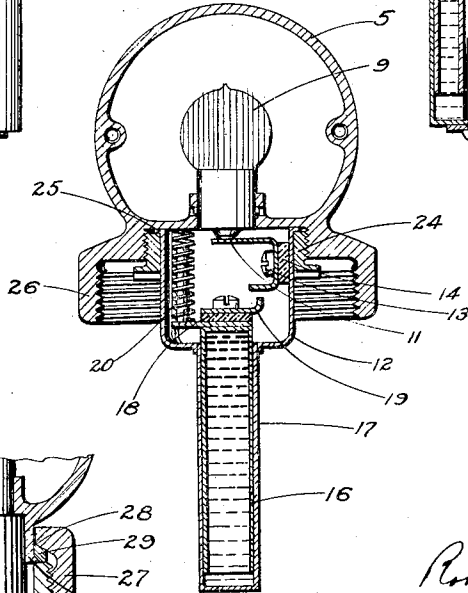
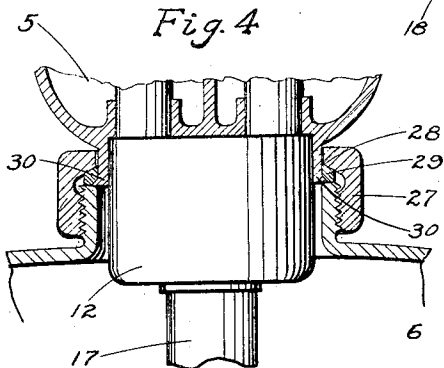


Fig. 4



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UNITED STATES PATENT OFFICE.

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RADIATOR SIGNAL.

Application filed May 23, 1924. Serial No. 715,409.

To all whom it may concern:

Be it known that we, ROBERT P. McCURDY, a resident of Pittsburgh, county of Allegheny, and State of Pennsylvania, and FREDERICK W. HOCHSTETTER, a resident of Dayton, county of Montgomery, and State of Ohio, citizens of the United States of America, have invented certain new and useful Improvements in Radiator Signals (Case F), of which the following is a full and clear specification.

The object of this invention is to provide a simple device for attachment to the filling-opening of a radiator for indicating to the driver, by plainly visible signals, the temperature conditions of the radiator, as more fully hereinafter set forth.

In the drawing annexed—

Fig. 1 is a side elevation, partly broken away, of one form of our device;

Fig. 2 is a vertical sectional view of the same;

Fig. 3 is a view similar to Fig. 2, illustrating a modified form of the device;

Fig. 4 is a vertical sectional view showing a slight modification.

Referring to the drawing annexed by reference-characters, 5 designates a casing adapted to be screwed onto the usual nipple 6 of the radiator filling-opening and being closed all around except at its front side, i. e., the side which faces the driver, which is covered by a pane of glass 7. The casing is divided interiorly into two chambers by a vertical light-obstructing partition 8. In each chamber is mounted an electric light-bulb 9, these bulbs being of different colors, the one at the left being desirably green and the one at the right being desirably red.

The green bulb, when inserted in its socket, makes contact with the contact 10, and the other bulb makes contact with the contact 11. These two contacts 10 and 11 are fastened to the interior of a depending sheet-metal cup 12 by means of screws 13, insulating blocks 14 serving to insulate these contacts from said metal cup. Attached to the bottom wall of the casing 5, at a point directly below the partition 8, is a rod 15, and slidably mounted on this rod is the upper tubular member 16 of a heat-sensitive device, the other tubular member 17 of which depends from the bottom of the cup 12. These two tubular members nicely telescope one within the other, the inner tubu-

lar member being movable on the rod 15. The top-end of the inner member 16 is closed and the bottom-end of the outer member 17 is closed, and within the tubular chamber thus formed is confined a suitable expansible substance, a liquid, semi-liquid, paste or metal.

Slidably mounted on the rod 15 is a plate 18 of insulation material, and carried by this plate is a contact-plate 19 whose opposite ends extend laterally far enough to make contact, successively, with the depending ends of the contacts 10 and 11 when the contact-plate 19 is moved upwardly by the rising of the inner tube 16. A coil-spring 20 serves to restore, i. e., force downwardly, the contact-member 19 together with its insulating-plate 18 and the inner tube 16. The wire 21 for supplying current is attached to the plate 19 and passes out through a suitable packing in the bottom of the cup 12.

It is desirable, for the purpose of guiding the slidable member 16 without binding, to not only have the telescoping parts of the members 16 and 17 nicely fit each other, but also to provide the inner member with a sleeve 22 having a nice fit on the rod 15. The stationary member 17 and its attached cup 12 are forced up against the bottom of the casing 5 by means of a screw 23 passed through a hole in the bottom wall of the member 17 and tapped into the lower end of the rod 15.

The parts are so proportioned that until the radiator warms up to a predetermined degree, the contact-plate 19 will remain down, out of contact with the contacts 10 and 11. When the radiator heats up to a predetermined degree, the heat-sensitive substance within the tubes will expand and move the contact-plate 19 upwardly into contact with the contact 10, whereupon the green, warning lamp will be lighted. The green lamp will stay on until the temperature rises to a dangerous degree, whereupon the contact plate 19 will pass off the contact-member 10 and simultaneously therewith make contact with the contact 11, whereupon the red, danger lamp will be lighted and will be kept lighted until the temperature in the radiator recedes. It is desirable that the front wall of the casing 5 shall be opaque or substantially opaque, so as to thereby reflect as much of the light as possible through the front

window, in a direction toward the driver. The inner face of this back wall may be polished or painted or enameled to insure a maximum of reflection of light. The opaque partition 8 serves to prevent illumination of one lamp by the other and thus tends to avoid confusion in the signals.

In Fig. 3, we show a form of device in which one lamp only is employed. This form of device may be satisfactory with radiators of certain makes. In this form of device, we do away with the rod 15 and secure the upper end of the cup 12 against the bottom of the casing 5 by means of a ring 24 threaded into the base of the casing 5 and adapted to clamp a radial flange 25 formed on the upper edge of the cup. We also, in this form of device, do away with the warning contact 10.

In Fig. 4 we illustrate a preferred form of means for attaching the device to the radiator nipple. In the form of device shown in Figs. 1, 2 and 3, the casing 5 is attached to the nipple by means of an integral nut-flange 26. The objection to this is that it might be difficult to at once screw the casing onto the nipple tightly and at the same time have the open side of the lamp chambers face directly backwardly. In the construction shown in Fig. 4, we employ a separate nut-ring 27 provided with a flange 28 which, through the medium of a steel ring washer 29 serves to clamp the flanged neck 30 of the casing down on the top edge of the nipple. With this device, the casing 5 may be tightly screwed to

the nipple without rotating it, thus permitting the accurate setting of the casing without regard to the position of the nut-ring 27 when it is finally screwed tight. It will be understood also that instead of using different colored bulbs, we may get the same result by partly coloring the glass-window 7 or by using separate glasses in the form of rosettes or lenses.

What we claim as new is:

In an apparatus of the class set forth, a casing having an open front side and means for attaching it to a radiator nipple, a pair of lamp bulbs in the casing, a housing or cup attached to the under side of the casing and having a closed depending tubular member, a rod removably attached at its upper end to the casing and depending through said tubular member and attached to the lower end thereof, an inner tube slidably mounted on the rod within said depending tube, a spring surrounding said rod between said casing and said inner tube adapted to restore the parts to normal, a pair of lamp-contacts within the cup, and a contact adapted to be moved by the inner tube and to make successive contacts with the lamp-contacts as the inner tube moves upwardly, a heat-sensitive substance being enclosed within the aforesaid tubes.

In testimony whereof we hereunto affix our signatures this 22nd day of May, 1924.

ROBERT P. McCURDY.
FREDERICK W. HOCHSTETTER.