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SIGNALING DEVICE

Filed April 28, 1924

Fig. 1.

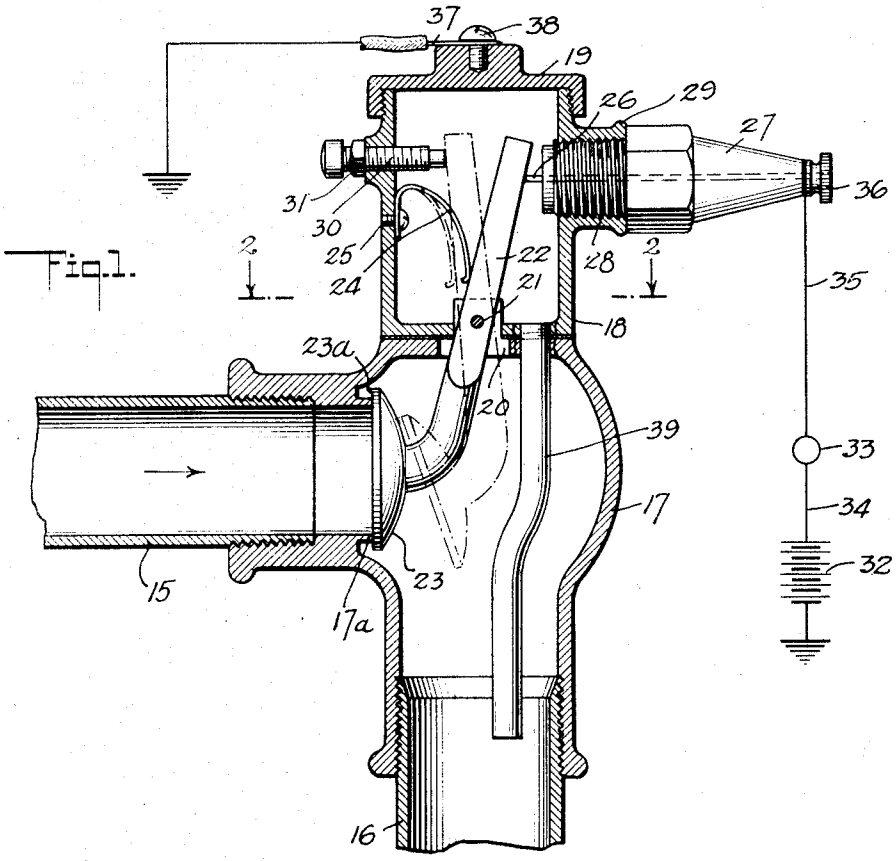
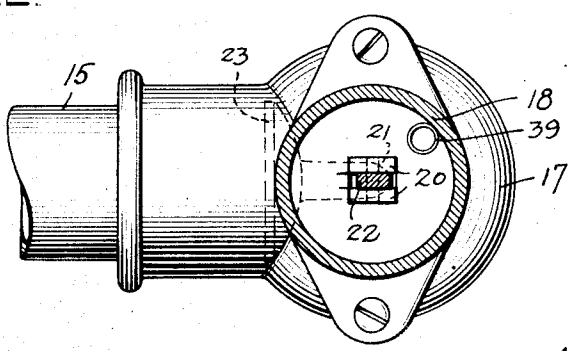


Fig. 2.



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SIGNALING DEVICE.

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My invention relates to and has for its purpose the provision of a device for use in fluid circulating systems of various characters to automatically signal or indicate in some suitable manner when, for any reason, the fluid ceases to flow through the system.

It is also a purpose of my invention to provide a signaling device which is particularly adapted for use in the cooling systems for internal combustion engines to indicate either by disrupting the ignition system and stopping the engine or actuating a visible signal within view of the vehicle operator, when the water in the cooling system fails to circulate.

I will describe only one form of signaling device embodying my invention, and will then point out the novel features thereof in claims.

In the accompanying drawings:

Figure 1 is a view showing in side elevation one form of signaling device embodying my invention in applied position with respect to the pipe of a cooling system for internal combustion engines;

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1.

Referring specifically to the drawings, in which similar reference characters refer to similar parts, my invention in its present embodiment is shown as interposed in the pipe line of a cooling system, such pipe line including a pipe 15 through which water flows in the direction of the arrow, to be discharged into a second pipe 16 disposed at right angles to the first pipe. The signaling device embodying my invention includes an elbow pipe casting 17 threadedly connected to the pipes 15 and 16 and provided with an abutment flange 17^a for a purpose which will be hereinafter described. Upon the upper end of the elbow 17 a casing 18 is secured, such casing having an upper open end normally closed by a screw cap 19. The elbow 17 and the casing 18 are provided at corresponding points with openings, and in the opening of the elbow 17 spaced ears 20 are secured so as to extend upwardly into the casing 18. A pin 21 is journaled in the ears and provides a pivotal support for a lever 22 which extends downwardly into the elbow and upwardly into the casing. This lever is provided at its lower end with a relatively flat dish shaped head 23 which is movable with the lever to occupy one extreme position in which it abuts the flange 17^a, as shown in solid lines in Figure 1, and another extreme position and which is disengaged from the flange, as shown in dot and dash lines in Figure 1.

The lever 22 is normally urged to the position in which the head 23 engages the flange 17^a by means of a spring 24 secured within the casing by means of a screw 25. In this urged position of the lever 22 it engages a contact 26 carried by a plug including a porcelain member 27 and a shell 28 threadedly fitted within a suitable socket 29 formed on the casing 18. In the other extreme position of the lever shown in dash lines, its upper end engages a stop screw 30 adjustably mounted in the casing 18 and adapted to be locked in adjusted position by means of a lock nut 31.

The lever 22 and the contact 26 co-operate to provide a circuit controller for controlling the supply of current from a battery 32 to a suitable signal 33. As shown in Figure 1, one side of the battery 32 is grounded, while the other side is connected to the signal 33 through a conductor 34, and the signal in turn is connected to the contact 26 through a conductor 35, a terminal post 36 on the plug being provided for the purpose of connecting the conductor to the contact. The cap 19 of the casing 18 is provided with a connector 37 connected to the cap by a screw 38 and grounded as shown.

In practice, during the normal flow of water from the pipes 15 to the pipe 16, the head 23 is held in the dotted line position shown in Figure 1, thereby maintaining the lever 22 out of engagement with the contact 26 so that current is not supplied to the signal 33. However, should the water for any reason fail to circulate from the pipe 15 to the pipe 16, the spring 24 will act to move the lever into engagement with the contact 26, thereby allowing current from the battery 32 to flow to and actuate the signal 33 in such manner that an indication, visible or otherwise, is given to the operator, thereby apprising him of the fact that the water is not circulating in the cooling system. As soon as the normal circulation of liquid through the pipes 15 and 16 is restored, it will be clear that the water will act upon the head 23 to move the lever 22 out of engagement with the contact 26, thereby disrupting the circuit and rendering the signal 33 inactive.

In order to prevent water entering the casing 18 and forming a conducting bridge be-

tween the lever 22 and the contact 26 so as to close the circuit for the signal 33 and thus give a false signal, I have provided a drain pipe 39 which extends downwardly into the elbow from the bottom of the casing 18 so that water entering in the casing through the openings in which the ears 20 are located will be drained from the casing to prevent such water reaching the level of the contact 26. As a further preventive, I have formed the head 23 with a lip 23^a which operates to deflect the water impinging against the head downwardly into the elbow, thus reducing the tendency of the water to pass upwardly into the casing 18.

The circuit controller comprising the lever 22 and the contact 26 can be employed to short circuit the ignition system of an internal combustion engine when water ceases to flow from the pipe 15 to the pipe 16, the stopping of the engine due to the short circuiting of the ignition system indicating to the operator of the vehicle that water in the cooling system is not circulating. It will of course be understood that in this adaptation of my invention it may be necessary to employ a hand operated switch (not shown) which is employed to close the ignition system independently of the circuit controller to allow the starting of the engine.

Although I have herein shown and described only one form of signaling device embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the spirit and scope of the appended claims.

What I claim is:

1. An electrical circuit controller for the fluid circulating systems of engines comprising in combination a connecting coupling adapted to form part of a fluid conduit, a casing secured upon the coupling and provided with a contact, said coupling and casing having registering openings, ears on the coupling extending through the opening in the casing, a lever pivotally mounted intermediate its ends on the ears with one end disposed in the casing and the other end in the coupling, means engaging the casing portion of the lever for normally urging the latter into engagement with the contact, a head on the coupling portion of the lever having a deflecting lip and adapted under the action of water flowing through the conduit to move the lever out of engagement with the contact, and screw means adjustable in the casing, and engageable by the lever for limiting the movement of the lever under the action of the water.

2. An electric circuit controller for fluid circulating systems of internal combustion engines comprising a casing adapted to form a part of a fluid conduit, a circuit controller including a contact in the casing, a lever movable to engage or disengage the contact, said lever having portions extending into the casing and conduit pipe, a head on the lever in the pipe adapted, under pressure of water flowing through the conduit, to move the lever out of engagement with the contact, a spring secured to said casing to move the lever into engagement with the contact, a drain pipe connected to the bottom of the casing and extending into the fluid conduit, and an adjustable element engageable by the lever to limit the movement of the lever in a direction away from the contact.

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