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C. J. HARDISON

2,017,966

FLUID PRESSURE SWITCH

Original Filed March 23, 1933

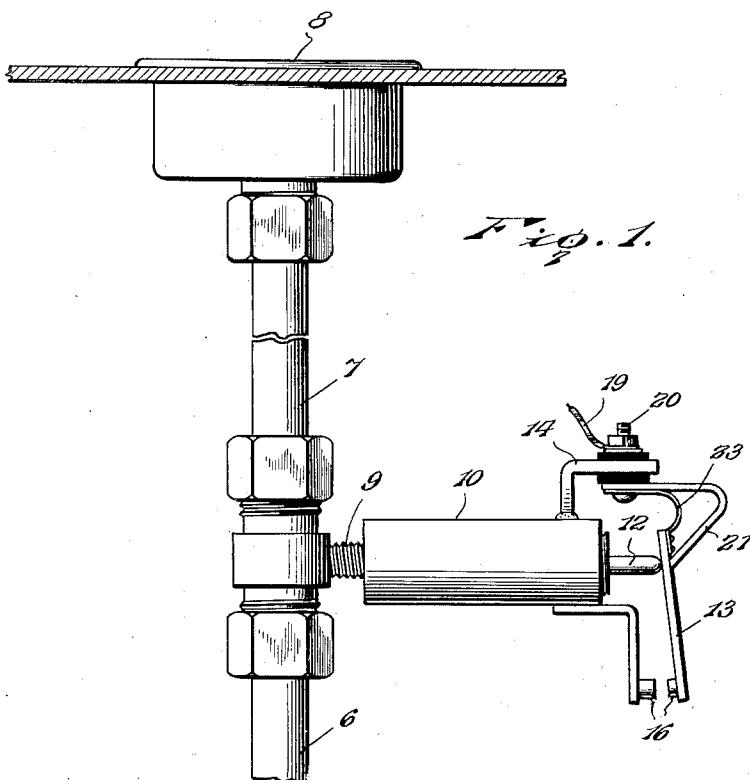


Fig. 1.

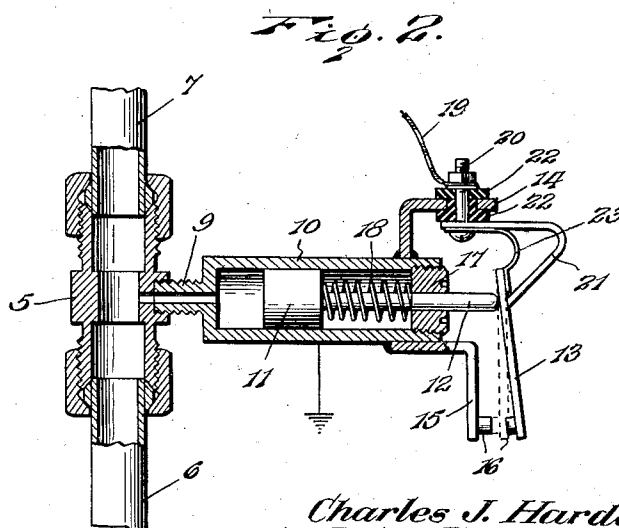


Fig. 2.

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UNITED STATES PATENT OFFICE

2,017,966

FLUID PRESSURE SWITCH

Charles J. Hardison, deceased, late of St. Petersburg, Fla., by Betty Hardison, administratrix, Jacksonville, Fla.; said Charles J. Hardison, assignor of fifty-one per cent to Maxey D. Moody, Jacksonville, Fla.

Original application March 23, 1933, Serial No. 662,401. Divided and this application June 20, 1934, Serial No. 731,513

2 Claims. (Cl. 200—82)

This invention relates to switches and more particularly to a switch especially designed for use in connection with automatic oil and temperature control systems of the type shown and described in the copending application, Serial No. 662,401, filed in the United States Patent Office March 23, 1933 now Patent No. 1,968,838, and of which the present application is a division.

The object of the invention is to provide a switch which will automatically close a circuit and successively illuminate a warning light and stop the engine of an automobile or other motor-driven conveyance, should, for any reason, the pressure or level of the oil in the lubricating system become so low as to endanger the bearings, cylinder walls or other parts of said engine.

A further object is generally to improve this class of devices so as to increase their utility, durability and efficiency.

In the accompanying drawing, forming a part of this specification, and in which similar numerals of reference indicate corresponding parts in all the figures of the drawing:

Figure 1 is a side elevation of the improved switch showing the same connected with one of the pipes of a lubricating system.

Figure 2 is a vertical sectional view.

The improved control switch, forming the subject-matter of the present invention, comprises a relatively short pipe section 5, one end of which is connected with the oil line 6 of the lubricating system of an automobile or other motor-driven conveyance and the other end thereof connected with a pipe 7 leading to an oil gauge, indicated at 8, and which may be mounted on the dashboard of the motor conveyance or at any other convenient point. Threaded in the pipe section 5 is the reduced nipple 9 of a fluid pressure cylinder 10 having a piston 11 operating therein and provided with a stem 12, the free or outer end of which engages a switch arm 13 carried by an overhanging bracket 14 projecting laterally from the cylinder, as shown. Secured to the cylinder 10 is a coacting switch arm 15, the arms 13 and 15 being provided with terminal contacts 16 which are normally held in open position by the pressure of the oil in the lubricating system acting on the piston 11.

Interposed between the piston 11 and a closure plug 17 threaded in the end of the cylinder 10 is a coiled spring 18, the purpose of which is to retract the piston 11 and permit the members 16 to contact and thus close an electrical circuit, one terminal of which is indicated at 19. Included in the electrical circuit is a warn-

ing signal and a motor control switch, not shown in the present application but illustrated and fully described in the co-pending application previously referred to, so that, should the flow of oil in the lubricating system, for any reason be interrupted or should the oil in the lubricating system fall below a predetermined level, the members 16 will contact and successively illuminate the warning signal and actuate the control switch to stop the engine. The conductor 19 of the electrical circuit is connected with a binding screw 20 on the overhanging arm 14, and secured to the lower face of said arm is a stop member 21, the purpose of which is to limit the outer or opening movement of the switch arm 13. Insulating washers 22 are interposed between the stop member 21 and the overhanging arm 14, as well as between the arm 14 and the nut of the binding screw 20, there being a spring 23 electrically connected with the stop member 21 and switch arm 13 for imparting the desired resiliency to said switch arm.

As the terminal 19 is electrically connected with the binding post 20, and as the contact members 16 of the control switch are normally open and held in open position by the pressure of the oil in the lubricating system, it follows that upon a diminution of the flow of oil in the lubricating system the spring 18 will retract the piston thereby causing the contact members 16 of the switch to engage and close the circuit through the warning light and then through the control switch, as will be readily understood.

While the switch is particularly adapted for use in connection with automatic oil and temperature control systems for automotive vehicles and other motor-driven conveyances, it will, of course, be understood that said switch may be used wherever a structure of this character is found applicable or desirable.

Having thus described the invention, what is claimed is:

1. A switch comprising a cylinder having its inner end open and adapted for connection with a lubricating system, a head closing the outer end of said cylinder and formed with an opening, a stationary contact carried by the outer end portion of said cylinder and having a portion extending radially therefrom, a bracket extending from said cylinder at the opposite portion thereof from the stationary contact and having an arm projecting outwardly thereof, a movable contact disposed in front of the cylinder and the radially extending portion of the stationary contact, a spring strip extending from an end of the mov-

able contact and having a portion extending horizontally under the arm of said bracket, a rigid strip overlying the horizontal portion of the spring strip and projecting forwardly with a portion bent to form a stop for engaging the movable contact and limiting movement thereof away from the stationary contact, an insulated fastener connecting the horizontal portions of the spring strip and stop with the arm of said bracket, a piston in said cylinder having a stem engaged through the opening of said head and contacting with the movable contact to separate the contacts when the piston is moved outwardly, and a spring urging the piston inwardly.

2. A switch comprising a cylinder having its inner end open and adapted to be connected with a lubricating system, a piston slidable in said cylinder and having a stem projecting from the outer end of the cylinder, a spring in the cylinder urging the piston inwardly, a stationary contact

carried by the outer end portion of said cylinder, a bracket carried by the outer end portion of the cylinder in opposed relation to the stationary contact, a movable contact disposed outwardly of the movable contact and extending across the outer end of the cylinder and engaged by the outer end of the piston stem, the piston when moved outwardly moving the movable contact out of engagement with the stationary contact, a spring strip extending from the inner end of said movable contact, a rigid stop having a portion for engaging the movable contact and limiting movement thereof away from the stationary contact, and a fastener connecting the stop and spring strip to said bracket in insulated relation thereto adapted to have a conductor connected therewith.

BETTY HARDISON,
Administratrix of Estate of Charles J. Hardison,
Deceased.