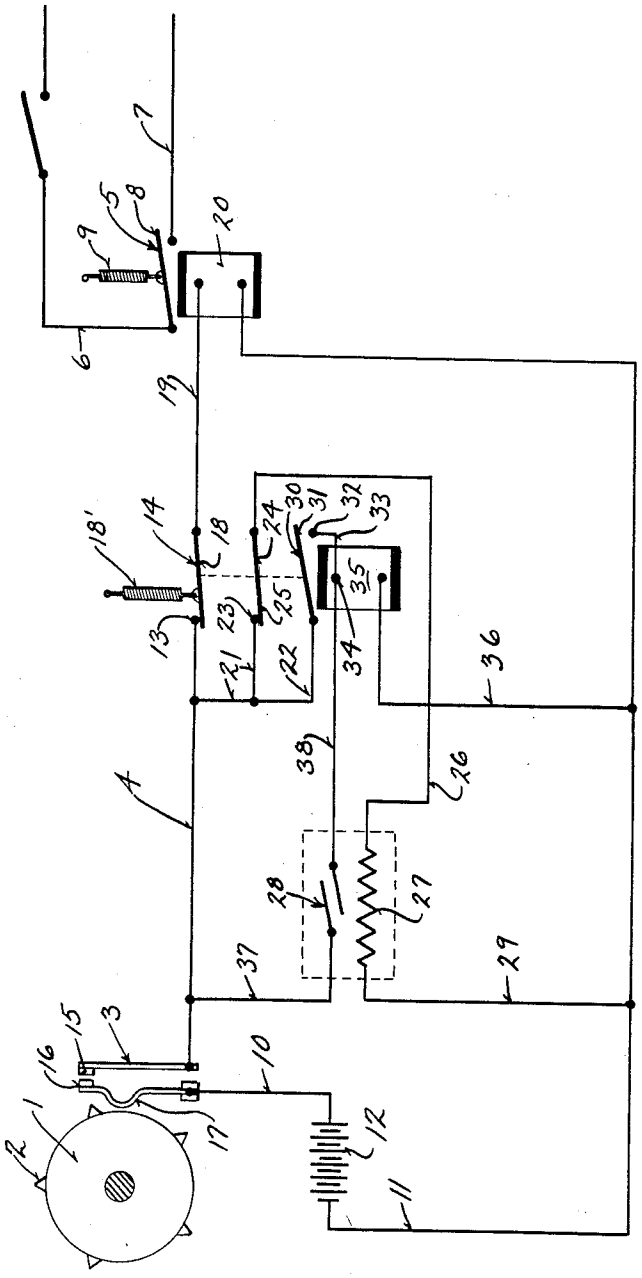
Oct. 13, 1959 J. B. HULL 2,908,848

AUTOMATIC LUBRICATING DEVICE FOR AUTOMOBILES

Filed March 19, 1956



INVENTOR
JAMES B. HULL

BY Young & Wright

ATTORNEYS

United States Patent Office

2,908,848

Patented Oct. 13, 1959

2,908,848

AUTOMATIC LUBRICATING DEVICE FOR AUTOMOBILES

James B. Hull, Milwaukee, Wis.

Application March 19, 1956, Serial No. 572,560

2 Claims. (Cl. 317—141)

This invention appertains to circuit control devices, and more particularly to novel means for actuating a switch for closing a circuit to initiate any desired mechanism.

One of the primary objects of my invention is to provide novel means for automatically closing a switch to operate a desired mechanism and thereafter automatically open the switch upon the starting of the mechanism.

Another salient object of my invention is to provide means for preventing the re-actuation of the switch should the means employed for operating the switch be held in an operative position for any reason.

It is now customary to provide on some automobiles a built-in lubricating system, by means of which the lubricant is supplied to the various fittings on the chassis by the operation of a switch button or the like for closing an electric circuit through a mechanism to force the grease to the fittings.

A further important object of my invention is to provide an automatic means for closing a circuit through the mechanism for the lubricating system after the vehicle has travelled a certain predetermined number of miles, whereby the lubrication of the vehicle will not be dependent upon the operator of the vehicle at all, and thus render the lubrication of the vehicle completely automatic.

In accordance with my invention, I propose to operate my control system from one of the counter wheels (say the 1,000 counter wheel), of the automobile odometer, so that when said wheel is turned to show the travel of 1,000 miles, my system will be placed in operation.

A still further object of my invention is to provide means for rendering my system inoperative after a certain length of time, so as to automatically release the switch of the lubricating system and to continue to hold the system inoperative to prevent the re-actuation of the switch of the lubricating system if the counter wheel of the odometer is held stationary for any length of time through non-use of the vehicle or the like.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed, and illustrated in the accompanying drawing, in which drawing, the single figure is a diagrammatic view of the wiring lay-out of my novel system for automatically operating a switch.

Referring to the drawing in detail, the numeral **1** indicates a counter wheel, say the 1,000th wheel, of an odometer now found in common use on automobiles, and this wheel is turned through its mechanism (not shown), after the vehicle has travelled a distance of 1,000 miles. In accordance with my invention outwardly projecting radially extending lobes **2** are formed on the periphery of this counter wheel and the lobes are so spaced that each time the wheel is turned to indicate passage of 1,000 miles, a lobe will be in operative position for actuating a switch **3** forming a part of my electrical control system **4**. The control system **4**, in turn, provides means for actuating a switch **5** for closing a circuit to initiate the

operation of a lubricating system (not shown) on an automobile now in common use. As illustrated, electric conductor wires **6** and **7** lead to the switch. The switch includes a switch lever **8** normally held in a circuit open position in any desired way, such as by a spring **9**.

My control system **4** includes feed and return wires **10** and **11** leading from a suitable source of electrical energy such as a storage battery **12**, which may be considered as the storage battery of the automobile with which my system is used. The switch **3** is incorporated in the length of the wire **10** and this wire leads to a terminal **13** of a switch **14** which will later be described. The switch **3** can take different forms, but as illustrated, the same includes a stationary contact member **15** and a resilient contact member **16** having a bowed portion **17**. The bowed portion **17** is disposed in the path of the lobes **2**, whereby as a lobe **2** engages a bowed portion **17** the resilient contact member **16** will be flexed so as to engage the stationary contact **15** to permit current flow through the wire **10**. Obviously, as a lobe **2** rides past the bowed portion **17** the resilient contact **16** will resume its normal circuit open position.

Now referring to the switch **14** the same includes a switch lever **18** having electrically connected therewith a conductor wire **19** leading to one terminal of a relay **20** and the other terminal of the relay has electrically connected therewith the return wire **11**. Obviously, the return wire **11** can be grounded to the frame of the automobile, as can one terminal of the battery. For the sake of simplicity, however, a return wire **11** has been used instead of a ground. The switch lever **18** is normally held in engagement with the contact **13** in any desired way, such as by a spring **18'**. Hence, when a lobe **2** of the counter wheel **1** actuates the switch **3**, a circuit will be closed through the relay **20** causing the energizing thereof, and the attraction of the switch lever **8** of the switch **5**, which can be considered in the present showing as an armature. The closing of the switch **5** will set in operation the common lubricating system now in use in some automobiles, as heretofore stated. It can be seen that current flow will be from the battery **12**, line wire **10**, through switch **3**, switch **14**, wire **19**, relay coil **20**, return wire **11** to battery. Leading from the conductor wire **10** between the switches **3** and **14** is a branch wire **21**. Electrically connected to the branch wire **21** is a second branch wire **22**. The branch wire **21** is electrically connected to a contact **23** of a switch **24** and this switch includes a switch lever **25**. Electrically connected with the switch lever **25** is a conductor wire **26** leading to one terminal of a heating element **27** of a bimetallic switch **28**. The other terminal of the heating element **27** of the switch is electrically connected by a wire **29** to the return wire **11**.

The branch wire **22** is electrically connected to a pivoted switch lever **30** of a switch **31** movable into and out of electrical engagement with a contact point **32**. The contact **32** is electrically connected by a conductor wire **33** with one terminal **34** of a relay **35**. The other terminal of the relay **35** is connected by a conductor wire **36** with the return wire **11**. The switch levers **18**, **25** and **30** are coupled together for synchronous movement and the spring **18'** normally holds the switches **14** and **24** in a circuit closing position and the switch **31** in an open position. The switch lever **30** of the switch **31** can be considered as an armature and upon energizing of the coil of the relay **35**, the switch lever **30** is attracted and is moved into circuit closing position with the contact **32** and the switch levers **18** and **25** of the switches **14** and **24** are moved away from their contacts to operate circuits. Now referring back to the switch portion of the bimetallic switch **28** one terminal thereof is electrically connected with the line wire **10** by a branch wire

37 and the other terminal thereof is electrically connected by a wire 38 to the terminal 34 of the relay 35.

Upon the closing of the switch 3 and the energizing of the relay 20 to automatically operate the switch 5, current also flows through wire 10, switch 3, branch wire 21, through switch 24, through wire 26, heating element 27, wire 29 back to ground. Upon the heating of the element 27 to a certain degree the switch 28 is closed and current flow is then as follows: through wire 10, switch 3, wire 37, through switch 28, through relay 35, wire 36 and back to return wire 11. Thus the relay 35 is energized attracting the switch lever 30, closing switch 31 and opening switches 14 and 24. Upon the opening of switches 14 and 24 current flow through relay 20 is interrupted and the switch 5 returns to its normal open position. With the opening of switch 24 the circuit through the heating element is likewise interrupted and upon the cooling of the element 27, the switch 28 automatically opens. Current flow is now through wire 10, switch 3, branch wires 21 and 22 through switch 31, through relay 35, wire 36 back to return wire 11. Consequently, switches 14 and 24 are held in their open position and switch 31 is held in its closed position. This is important and forms a vital part of the invention. It can be seen, that if for any reason the switch 3 is held closed for a considerable length of time, say through non-use of the automobile, the relay 35 will be continuously energized and thus the energizing of the relay 20 and the re-operation of the lubricating system is prevented.

While I have shown and described my control system utilized for initiating the operation of a lubricating system for an automobile, it is to be understood that my control system can be used for other purposes. It is also to be understood that the symbols used in the wiring diagram are merely illustrative and that other electrical devices, such as solenoids can be used in lieu of coils and pivoted armatures.

Various other changes in details may be made without departing from the spirit or the scope of this invention, but what I claim as new is:

1. An electric control device for initiating an automobile lubricating system in response to the indicated odometer mileage of the type having a normally open switch, electromagnetic means for closing the switch upon energizing thereof, an electric circuit including the electromagnetic means, mechanism responsive to distance travelled by an automobile for closing the circuit including, a mileage counter wheel of the odometer, a series of equally spaced radially extending lobes on the outer periphery of said wheel, a second switch having a stationary contact member and a resilient contact member, and a bowed portion on said resilient contact member adjacent said counter wheel and adapted to be moved by said lobes toward said stationary contact member to close said circuit, a bimetallic switch having a heating element in said circuit, a by-pass circuit controlled by the bimetallic switch upon the closing thereof by the heating of its element, electromagnetic means in said by-pass circuit, and switches in the first named circuit opened by said second electromagnetic means upon the energizing thereof by the closing of the bimetallic switch for breaking the circuit through said first named electromagnetic means and said heating element of the bimetallic switch.

2. An electric control device for initiating an automobile lubricating system in response to the indicated odometer mileage of the type having a normally open switch, electromagnetic means for closing the switch upon energizing thereof, an electric circuit including the electromagnetic means, mechanism responsive to distance travelled by an automobile for closing the circuit including, a mileage counter wheel of the odometer, a series of equally spaced radially extending lobes on the outer periphery of said wheel, a second switch having a stationary contact member and a resilient contact member, and a bowed portion on said resilient contact member adjacent said counter wheel and adapted to be moved by said lobes toward said stationary contact member to close said circuit, a bimetallic switch having a heating element in said circuit, a by-pass circuit controlled by the bimetallic switch upon the closing thereof by the heating of its element, electromagnetic means in said by-pass circuit, switches in the first named circuit opened by said second electromagnetic means upon the energizing thereof by the closing of the bimetallic switch for breaking the circuit through said first named electromagnetic means and said heating element of the bimetallic switch, a third by-pass circuit including said second mentioned electromagnetic means, and a switch in said circuit operated synchronously with the second named switch for maintaining said third by-pass circuit closed with the second mentioned electromagnetic means energized.

References Cited in the file of this patent

UNITED STATES PATENTS

1,826,477	Olpp	Oct. 6, 1931
1,840,114	Lazich	Jan. 5, 1932
1,893,223	Burkle	Jan. 3, 1933
2,029,327	Lippincott	Feb. 4, 1936
2,130,290	Polta	Sept. 13, 1938
2,539,179	Bevis	Jan. 23, 1951