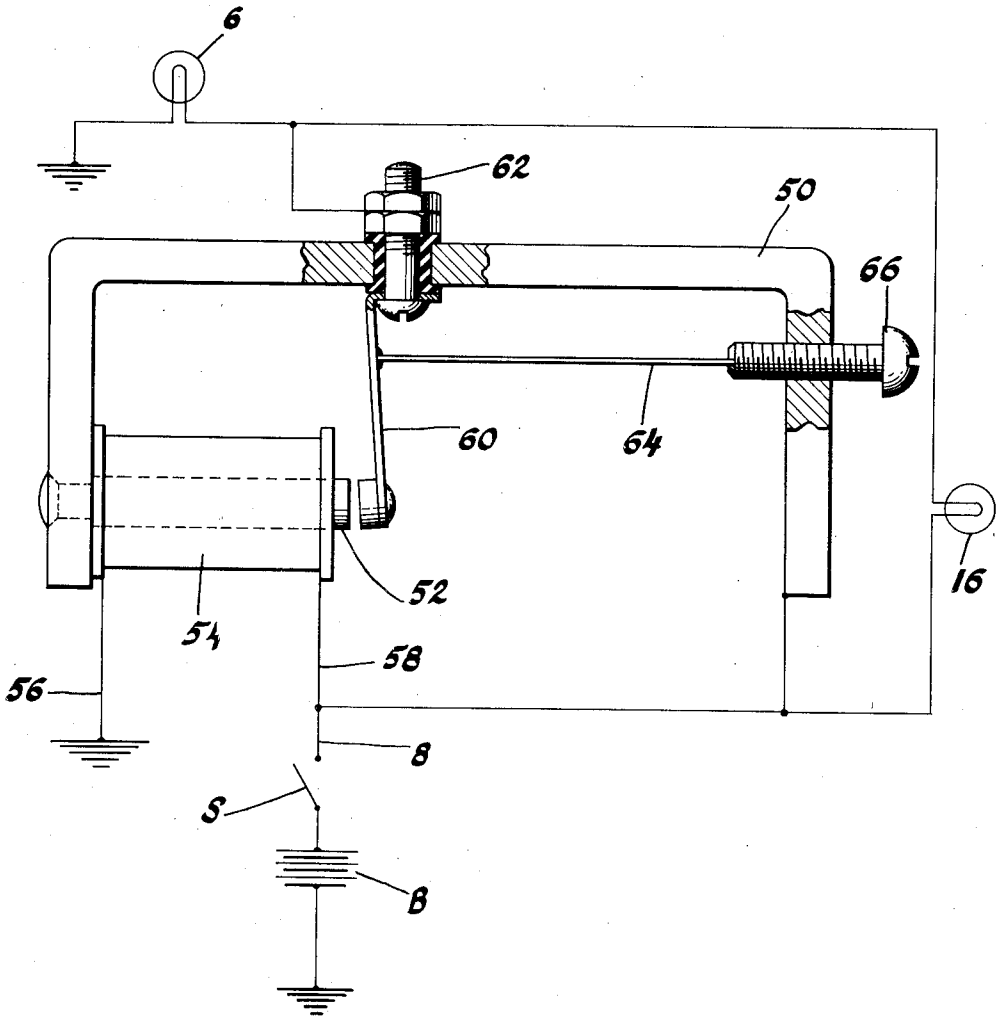
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SWITCH

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SWITCH

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3 Claims. (Cl. 200—113)

This is a division of application Serial No. 719,085, filed April 5, 1934.

The invention has to do with an automatic switch employed to produce flashing of the signal lights, when the circuit through it is closed, the switch being characterized by simplicity, economy and efficiency in operation.

In the drawing the figure shows the switch in a circuit in which it may be used.

B indicates the source of current which may be the usual automobile battery grounded on the chass's frame. The source is connected through switch S to conductor 8 which is in conducting relation with frame 50 which may be in the form of U as shown. To one end of the frame 50 is secured core member 52 about which is wound coil 54, suitably insulated from the core and frame, the two constituting an electromagnet grounded at 56 and connected by lead 58 to the supply lead 8. 60 indicates the armature of the magnet which is made of spring material, and is secured to the frame 50 by fastening means 62 suitably insulated from the frame. The length of resistance wire 64 connects a mid-point on the armature 60 to an adjusting screw 66. The resistance wire may be of any suitable material such as Nichrome. The securing means 62 likewise serves as the outgoing terminal of the flasher, and may be arranged in series with the lamp 6, or other part that it is desired to flash.

The operation of the flasher is as follows: When the parts are cold the resistance wire 64 holds the armature 60 out of engagement with the electromagnet, but when the circuit through the flasher is completed by closing switch S, current flows from the conductor 8 through the frame 50, screw 66, resistance wire 64, armature 60, securing means 62 to the lamp to be flashed. Some of the current likewise flows through lead 58 and winding 54 to ground, thereby energizing the electromagnet. However, the magnet is of insufficient strength to pull the armature 60 toward it when this action is resisted by the resistance wire.

The flow of current through the resistance wire heats it and causes it to expand, and this action plus the pull of the magnet allows the armature to engage the core 52. When this occurs, current then flows from the conductor 8 through the frame 50 and magnet core 52 directly to the armature 60, and out through the terminal 62, and very little flows through the resistance wire 64. The latter consequently cools and contracts withdrawing the armature 60 from contact with the core so that the current again flows through the resistance 64. When the resistance 64 carries all of the current going through the flasher to the lamp 6, the lamp burns dimly because of the reduction in voltage applied to it. When the resistance 64 is short-circuited by the armature 60 engaging the core 52, increased voltage is applied to the lamp causing it to burn brightly.

There is indicated at 16 a second lamp or other device which may be arranged in parallel with the automatic switch as shown so as to respond to fluctuations in voltage across the switch terminals. Thus when the resistance wire 64 carries all the current going to the signal a substantial voltage is applied to lamp 16 and it burns brightly but when the resistance is shunted by closing of the contacts at 52 very little voltage is applied to lamp 16, and it is practically extinguished.

It will be apparent that the switch herein described may be employed wherever it is desired to produce pulsations in current or voltage automatically.

I claim:

1. An automatic switch comprising an electromagnet, an armature therefor, contacts arranged to be closed by the movement of the armature in one direction and opened by movement of the armature in the other direction, a heat-responsive resistance element connected to the armature and adapted to normally hold it in position to break said contacts, but adapted upon thermal expansion to permit closing of the contacts, and conductors for independently supplying current to said contacts, element and electromagnet in parallel.

2. In an automatic switch the combination of a conducting frame, an electromagnet mounted on a core connected to the frame in conducting relation and having its winding insulated from the frame, an armature for the magnet mounted on the frame but insulated therefrom, said armature being adapted in one position to make contact with the core, a thermally responsive element connecting the armature with the other end of the frame, means for connecting one side of a circuit to the frame and to one end of the winding in parallel and means for connecting the other side of a circuit to the armature and to the other end of the winding in parallel.

3. A thermal flasher comprising a U-shaped electrically conducting frame, a magnet core secured in conducting relation to one arm of the U-shaped frame and projecting inwardly, a magnet winding on said core but insulated therefrom, a source of current, means for directly and

independently supplying current from said source to said winding, an armature for the magnet mounted on an intermediate portion of the frame and insulated therefrom, a thermally responsive resistance element connecting a movable portion of the armature with the opposite arm of the U-shaped frame, a conductor connecting the source and frame, and a return conductor connecting the armature to the other side of the source, the expansion of said resistance element upon passage of current through it to the armature being sufficient to cause the armature to make contact with the core of the magnet thereby short-circuiting the resistance element, enabling it to cool whereupon the cycle is repeated.

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