EOSTATS

Exam

Aug. 25, 1925. 1,550,909

A. McDOUGALL

DIMMER SWITCH

Filed Sept. 8, 1922

Fig. 1.

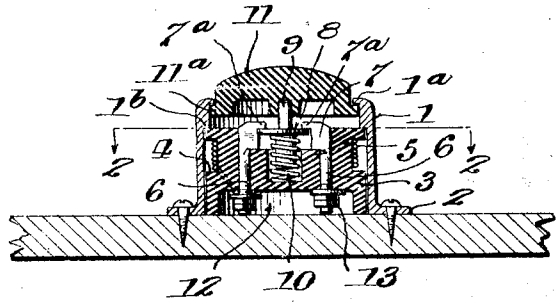
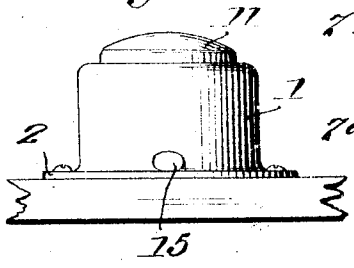


Fig. 2.

Fig. 3.



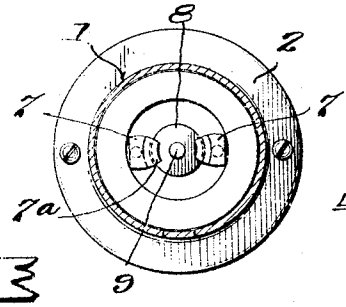
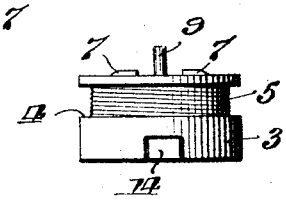


Fig. 4.



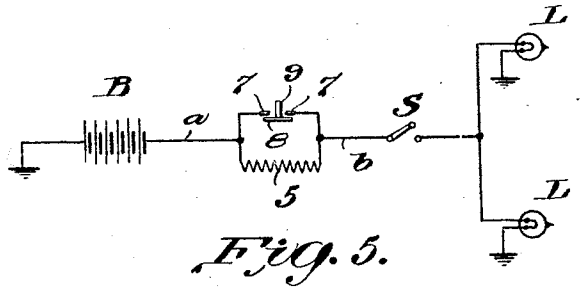


Fig. 5.

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201 RESISTANCES AND RHEOSTATS
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Patented Aug. 25, 1925. 1,550,909

UNITED STATES PATENT OFFICE.

ALEX McDOUGALL, OF COLUMBIA, SOUTH CAROLINA.

DIMMER SWITCH.

Application filed September 8, 1922. Serial No. 586,979.

To all whom it may concern:

Be it known that I, ALEX McDOUGALL, a citizen of the United States, residing at Columbia, in the county of Richland and State of South Carolina, have invented certain new and useful Improvements in Dimmer Switches, of which the following is a specification.

This invention relates to switches of the push button type, and especially to switches for controlling the amount of resistance in a circuit.

Although the invention is capable of a number of different uses, it has been especially designed for use as a dimmer switch for automobile headlights. As is well known, it is desirable, when approaching a car moving in the opposite direction, or on other occasions, to soften or dim the brilliancy of the headlights, and the object of the present invention is to provide a simple, compact, convenient and self-contained device by means of which this dimming can be readily accomplished with the least possible effort on the part of the operator.

In order that the invention may be readily understood reference is had to the accompanying drawing forming part of this specification, and in which:

Fig. 1 is a vertical section through my improved dimmer switch, complete;

Fig. 2 is a sectional plan, substantially on the line 2—2 of Fig. 1;

Fig. 3 is a side elevation of the complete switch;

Fig. 4 is a side elevation of the interior parts of the switch, with the casing removed; and

Fig. 5 is a diagram illustrating the circuit connections for the switch.

Referring to the drawings in detail, my improved push button switch comprises a cylindrical metallic casing 1, open at both ends, and having a flange 2 at one end by means of which it may be mounted upon and secured to a suitable support. Inside of the casing 1 is fitted a body or block 3 of insulating material. This is insertable through the open lower end of the casing, and its upper edge is received under an annular shoulder 1^b formed on the interior wall of the casing. In this way, when the parts are assembled, the block 3 is securely held in position.

Formed in the block 3 is an annular groove 4, and in this groove 4 is wound a suitable quantity of resistance wire 5. This may be insulated with enamel, asbestos, or other suitable material. The two ends of the coil 5 of resistance wire are electrically connected to two combination binding posts and contacts 6 which may be mounted in the block 3 and extend vertically therethrough. The upper ends of these binding posts are enlarged to form contacts 7 and each such contact carries an inwardly projecting lip or lug 7^a at its extreme upper end.

Adapted to form an electrical connection between the contacts 7 is a bridge plate 8 carried by a plunger 9, the plate and plunger being normally held up in contact with the under side of the lugs 7^a by means of a spring 10 which surrounds the lower part of the plunger below the plate and is received in a suitable recess formed in the center of the block 3. Thus the bridge plate 8 is normally in engagement with the contacts 7 and when in such position serves to short circuit the resistance wire 5.

In order to depress the plate 8 and move it out of engagement with the contact lugs 7^a, I provide a push button 11, preferably made of insulating material and fitted into the upper end of the casing 1. This push button has at its under side a socket fitting over the top of plunger 9, and is provided around its edge with a peripheral flange 11^a adapted to engage under an inturned marginal flange 1^a formed on the casing. It will be understood that the block 3 terminates a sufficient distance below the top of the casing to provide a space in which the push button 11 can reciprocate, and it will also be understood that a sufficient clearance is provided between the side faces of the contacts 7 and the bridge plate 8 to prevent such plate from engaging such side faces at the same time. Thus, when the push button 11 is depressed, the bridge plate 8 is caused to move downwardly and thus shifted out of contact with the lugs 7^a, thereby breaking the short-circuit, and throwing the resistance wire into circuit between the two binding posts.

The lower face of the block 3 is cut away to provide a recess 12 into which the lower ends of the binding posts 6 extend, such ends being provided with suitable nuts 13 by means of which wires extending to the circuit to be controlled can be attached to the binding posts. In order that these wires may be readily led to the outside circuit,

an opening 14 in the block 3 is provided and this is arranged to register with a similar opening 15 formed in the casing 1 as clearly shown in Fig. 3. The circuit wires extending from the battery to the lamps are led through these openings.

By reference to Fig. 5, the manner of connecting my improved dimmer switch in the ordinary lamp circuit of a motor vehicle will be readily understood. In this figure, the usual battery is indicated at B and the headlights at L, one side of both battery and lights being grounded. From the other side of the battery extends a wire *a* to one of the binding posts of my improved switch, and from the other binding post extends a wire *b* to the lamps, the usual dashboard switch S being included in this circuit. As above stated the resistance wire 5 is permanently connected to the two binding posts 6 of my improved switch.

From the above it will be understood that normally the bridge plate 8 is in engagement with the contacts 7, thus short-circuiting the resistance 5 and enabling the lamps to burn at full candle power. When it is desired to dim the lamps, the operator simply depresses the button 11 thus removing the bridge plate 8 from the contacts 7 and thereby inserting the resistance 5 in the circuit *a*, *b*.

My improved switch may be either mounted on the floor so as to be engaged by the foot of the operator, or it may be mounted on the side of the car so as to be engaged by his knee, or in any other suitable place.

What I claim is:

1. A resistance controlling switch comprising a cylindrical casing, open at both ends, one end of said casing having an outwardly extending annular radial flange adapted to be secured against a flat surface, and the other end of said casing having an inwardly extending annular flange, a push button movably mounted in and closing said last mentioned end of the casing, and limited in its outward movement by said inwardly extending flange, a circuit closer arranged to be operated by said push button, said circuit closer comprising a pair of spaced contacts and a bridging member, and a resistance coil having its ends connected with said contacts, said coil and contacts lying wholly within said casing and bodily removable therefrom as a suit.

2. A resistance controlling switch comprising a cylindrical casing open at its ends, a block of insulating material insertable into said casing from one end, said block having an annular groove and a central recess formed therein, a resistance wire wound in said groove, a push button movably mounted in the other end of said casing, a spring seated in said recess and supporting said push button and means within said casing, and controlled by said push button, for short circuiting said resistance wire.

3. A resistance controlling switch comprising a cylindrical casing open at its ends, a block of insulating material in said casing, said block having an annular groove formed therein, a resistance wire wound in said groove, a push button movably mounted in and closing one end of said casing, a circuit closer comprising a pair of combined contacts and binding posts and a bridge plate, said combined contacts and binding posts being connected with the ends of said resistance wire and adapted to be also connected with the circuit to be controlled, a spring tending to move said bridge plate in one direction, and said push button serving to move it in the opposite direction, said circuit closer in its entirety, including the spring, being carried by said block of insulating material, and all of said parts being insertable and removable as a unit into and from the end of the casing opposite that in which the push button is mounted.

In testimony whereof I affix my signature.

ALEX McDOUGALL.