

Patented Sept. 7, 1926.

1,598,932

UNITED STATES PATENT OFFICE.

JOHN M. PETTUS, OF ONTARIO, CALIFORNIA.

AUTOMOBILE SIGNAL SWITCH.

Application filed October 27, 1924. Serial No. 746,157.

My invention relates to improvements in switches used in stop and turning signals for automobiles, such switches being connected with the brake mechanism or with any other suitable movable part of the machine to be automatically closed by movement thereof.

Switches of the type to which I have referred, commonly employ relatively stationary and movable members having to-acting contacts which are normally separated by means of a spring. The movable member is connected by elastic means with the brake mechanism or some other movable part of the machine and the stationary member is rigidly secured to the frame, floor or some other stationary part of the vehicle. Switches installed in this manner, very often bind and as no lateral movement of the stationary member is permitted, accurate engagement of the fixed and movable contacts, very often fails to take place. It is hence, one object of my invention to improve upon switches for automobile signals, by providing anchoring means for the relatively stationary member of the switch, of such nature as to permit free lateral movement of said member in all directions. Thus, possible binding of the switch is prevented and accurate contact engagement is insured, thus producing a more sensitive and more efficient switch.

Another aim of the invention is to provide an extremely simple and inexpensive switch structure.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawing.

Figure 1 is a side elevation showing the manner of installing the switch.

Figures 2 and 3 are central longitudinal sectional views cut in planes at right angles to each other and illustrating the switch open.

Figure 4 is another longitudinal sectional view, showing the switch in its closed position.

Figure 5 is a transverse sectional view on line 5-5 of Fig. 3.

Figure 6 is a fragmentary sectional perspective showing a slightly different form of construction.

The drawing above briefly described illustrates preferred features of construction

and while such features are hereinafter specifically described, it is to be understood at the outset that within the scope of the invention as claimed, modifications may be made.

The numeral 1 designates an elongated cylindrical, metal casing whose ends are preferably closed by appropriate end members 1^a and 1^b respectively, said end members being secured to the cylindrical wall of the casing, in any preferred manner. A pair of binding posts 2 are shown passing through the wall of the casing 1, at diametrically opposite points, these binding posts being suitably insulated from the metallic casing structure. In the form of construction illustrated in Figs. 2 to 5, an insulating sleeve 3 is disposed in the casing in contact with its side wall, and the binding posts 2 pass through this sleeve, said posts having curved heads 4 at their inner ends which constitute stationary contacts. Differently shaped heads 4^a are shown on the binding posts 2, in the form of construction shown in Fig. 6, and for reasons to be hereinafter become evident, the insulating sleeve 3 is omitted in this last named form of construction. An insulating plunger is slidable within the casing, said plunger preferably comprising a disk of insulation, this disk being identified in most figures of the drawing, by the numeral 5, while it is indicated at 5^a in Fig. 6. The disk 5 or 5^a, as the case may be, is provided with a central slot 6, in which the inner end of a plunger-operating member 7 is secured, said member preferably consisting of a flat strip of metal having its inner end extended entirely through the opening 6, longitudinally split, and oppositely bent to provide lugs 8 which engage the disk and prevent the strip from withdrawing therefrom. Contacting with the side of the disk opposite the lugs 8, is a contact ring which is identified in most figures by the numeral 9, but is indicated in Fig. 6 at 9^a. The contact ring is preferably stamped from sheet metal and to secure it in place upon the disk, its peripheral edge is provided with laterally stamped claws 10 which are clinched around the peripheral portion of the disk, said disk having notches 11 of suitable depth to receive the tongues and hold the contact ring and disk against relative circumferential creeping. The ring 9 or 9^a does not contact with the operating member 7, it being provided with a central opening 12 whose edge is spaced around said

operating member, so that the disk 5 or 5^a serves to insulate said member from the ring.

The peripheral portion of the ring 9 is adapted to bridge the gap between the contacts 4, when the plunger 5 is moved to the position shown in Fig. 4, the edge of said ring and the edge of the plunger 5, then sliding along the insulating sleeve 3. When the construction of Fig. 6 is employed, the peripheral edge of the disk 5^a slidably engages the wall of the casing 1, but the ring 9^a is of such a diameter as to prevent its edge from touching said wall. This edge however is adapted to engage the stationary contacts 4^a, as will be clear from Fig. 6. Thus, it will be seen that Fig. 6 discloses a simplified modification of the invention, in that the disk 5^a not only insulates the ring 9^a from the operating member 7, but also insulates said ring from the wall of the casing.

The operating member 7, above referred to, passes through a slot 13 in the end member 1^b and is held against turning by this slot, and due to the fact that the walls of the opening or slot 6 snugly engage said operating member, the disk 5 or 5^a is held against turning, and the tongues or claws 10 prevent turning of the ring 9 or 9^a with respect to the disk.

A coiled compression spring 14 is housed within the casing 1, around the operating member 7, one end of said spring abutting the end member 1^b of the casing, while its other end engages an insulating washer 15 which contacts with the ring 9 or 9^a. This spring exerts its force to normally hold the switch in the open position disclosed in Figs. 2 and 3, but it of course compresses to permit closing of the switch as seen in Fig. 4, when the member 7 is pulled outwardly.

Provision is made for connecting the casing 1 with a stationary part of an automobile, so that it may have free lateral movement in all directions. In the present showing, an anchoring wire 16 is loosely connected at 17 to the end member 3, this wire being attached to the vehicle at 18. An elastic connection is provided between the member 7 and a part 19 of the brake mechanism, or with some other desired movable part of the machine, said elastic connection preferably comprising a coiled tension spring 20 and a wire 21. The spring 20 has greater strength than the spring 14, so that when the member 19 moves, spring 20 will pull upon the operating member 7 to close the switch. Then, upon further movement of said member 19, the spring 20 will stretch.

By connecting the switch with the vehicle in or substantially in the manner shown and described, there is no danger of any parts

of the switch binding, as lateral shifting of said switch is permitted to allow for any inaccuracies in the movements of parts, thus insuring accurate contact engagement under all conditions.

It will be seen from the foregoing that the device is simple and inexpensive, may be easily installed, and that it will be highly efficient and desirable. As excellent results have been obtained from the details disclosed, they are preferably followed, but within the scope of the invention as claimed, modifications may of course be made, as above pointed out.

I claim:—

1. A switch comprising a cylindrical casing wall having substantially opposed internal contacts insulated from each other, closures for the ends of said wall, one of said closures having an elongated central slot, an insulating disk slidably received in said wall and having an elongated central slot, said disk also having circumferentially spaced notches in its peripheral edge, a flat contact ring engaging the side of said insulating disk adjacent said one closure and having integral circumferentially spaced claws at its edge clinched around the insulating disk and seated in the aforesaid notches, said contact ring having an internal diameter greater than the length of the slot in said insulating disk, a flat metal strip passing through the two above mentioned slots and having a lateral projection at its inner end contacting with the side of the insulating disk opposite said contact ring, and a coiled compression spring surrounding said strip and engaging said one closure and said insulating disk, said spring serving to move said contact ring and disk to a normally switch-open position and serving also to hold said insulating disk in engagement with said lateral projection of said strip.

2. A switch comprising a cylindrical metal casing wall having spaced internal contacts insulated from said wall, an insulating disk whose edge slidably engages the inner side of said wall and is formed with circumferentially spaced notches, a flat contact ring engaging one side of said insulating disk and of less external diameter than said disk, whereby it is held by the disk against touching the aforesaid wall, the edge of said ring having disk embracing claws seated in the aforesaid notches, and a metal operating member for said insulating disk, said operating member being secured to the disk and being thereby insulated from said contact ring.

In testimony whereof I have hereunto affixed my signature.

JOHN M. PETTUS.