April 13, 1926. 1,580,782

A. R. GROSS

SWITCH

Filed Nov. 9, 1923

Fig. 1.

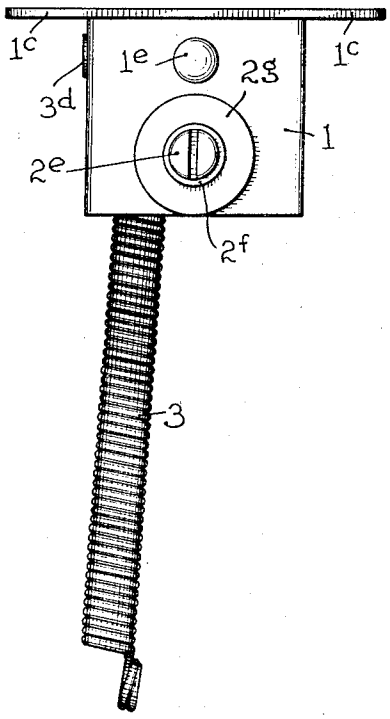


Fig. 2.

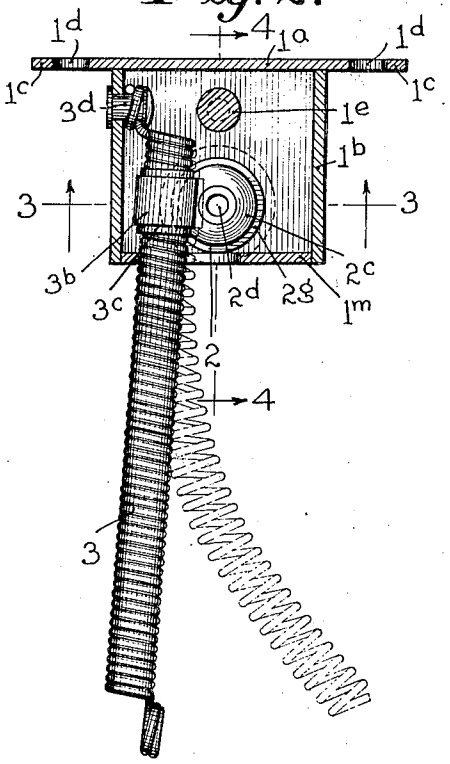


Fig. 3.

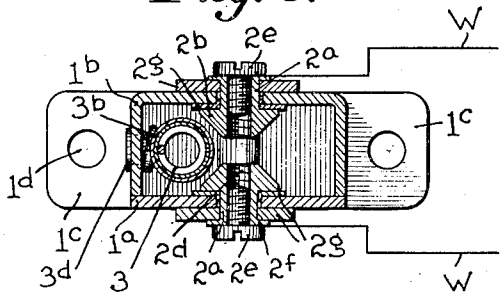
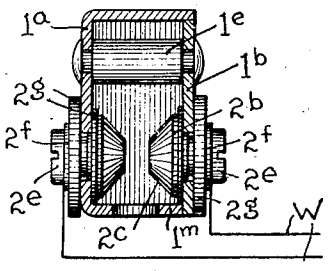


Fig. 4.



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UNITED STATES PATENT OFFICE.

ANGUS R. GROSS, OF BALTIMORE, MARYLAND.

SWITCH.

Application filed November 9, 1923. Serial No. 673,740.

To all whom it may concern:

Be it known that I, ANGUS R. GROSS, a citizen of the United States, residing at Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Switches; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

The invention is an improvement in electric switches, and one object of the invention is to provide a novel and durable electric switch, of simple construction, and adapted for various uses, such as for use in the electrical circuit of automobile stop-signals and the like wherein the switch casing is attached to the body of the automobile, and the bending member of the switch is connected to the clutch or brake rods thereof whereby when the rods are actuated the movable member will be actuated to bridge the contacts to complete the electrical circuit through the switch.

Another object of the invention is to provide a novel and durable electric switch, having but one bending part said part consisting of a flexible and extensible member adapted to receive all the strain of operating the switch thus making the switch extremely durable, and of greater simplicity than any switch heretofore known.

A further object of the invention is to provide a novel normally "open" switch having but one bending part, said part comprising a flexible and extensible spring adapted to bridge the gap between contacts within the switch casing when the member is flexed, or flexed and extended in proper direction but without regard to the amount of movement of the switch operating means.

Other minor objects of the invention will be hereinafter set forth.

I will explain the invention with reference to the accompanying drawing which illustrates one practicable embodiment thereof to enable others to adopt and use the same, and will summarize in the claims the novel features of construction, and novel combinations of parts, for which protection is desired.

In the drawings:

Fig. 1 is a side elevation of the switch.

Fig. 2 is a longitudinal section through the switch.

Fig. 3 is a section on the line 3—3, Fig. 2.

Fig. 4 is a section on the line 4—4, Fig. 2.

As shown in the drawings, my novel switch comprises a casing 1, in which are mounted two contacts 2 on opposite sides of the casing respectively, and a spring member 3 extending within the casing on the longitudinal axis thereof, the inner end of said spring being attached to the casing, so that when the spring is flexed and extended as shown in dotted lines in Fig. 2 the spring will bridge the gap between the contacts 2, to complete the electrical circuit through the switch.

Casing 1, preferably comprises two substantially U-shaped sheet-metal members 1^a and 1^b, adapted to be fitted together as shown in the drawings to form a substantially closed rectangular box adapted to house the contacts 2 and the inner end of the spring 3. Preferably, one leg of the member 1^a is widened, as at 1^c, and the outer ends of the portion 1^c are provided with perforations 1^d adapted to receive the screws or bolts by which the casing may be attached to the desired object. The opposite leg 1^m of the member 1^a is preferably made slightly less in width than the distance between legs of the member 1^b of the casing (as shown in Fig. 2) so that when the two members 1^a and 1^b are fitted together, as above described, the outer edges of the legs of the member 1^b will abut against the body of the member 1^a of the switch to properly space the members apart. Members 1^a and 1^b are preferably fastened together, when the parts of the switch have been properly assembled, by means of a rivet 1^e passing through opposite perforations in said casing members 1^a and 1^b thereby preventing the members from separating. Suitable openings as hereinafter set forth are provided in the casing 1 for the reception of the contacts 2 and for the passage of the spring member 3 into the casing.

Each contact 2 (preferably formed of brass or other conducting material) comprises a shank portion 2^a having a cylindrical head 2^b on its outer end, which head is preferably beveled as at 2^c as shown in the drawings, and for the purpose hereinafter set forth and each contact 2 is likewise provided with a tapped axial bore 2^d adapted to receive screw 2^e, which binds the conductor wire W to the contact 2 in the usual manner. Preferably the outer end 2^f of the bore 2^d

of the contact 2 is increased in diameter in order to allow said outer end to be riveted in place in the casing 1.

Contacts 2 are passed through opposite openings, of relatively large diameter, in sides of the casing 1, with the heads 2^b thereof disposed on the interior of the casing, and the outer ends 2^f of the shank members are bent or flanged outwardly, as shown in Fig. 3 to rivet the contacts 2 in place in the casing. In order to properly insulate the contacts 2 from the casing 1, suitable washers 2^g, of non-conducting material may be interposed between the heads 2^b and ends 2^f of the contacts 2 and the adjacent faces of the casing 1 when the casing 1 is made of conducting material. The lead wires W are fastened to the contacts 2 by means of screws 2^e in the usual manner.

Spring member 3 preferably passes through a suitable opening in the end of the casing 1, and is preferably disposed on the longitudinal axis of the casing, but to one side of the contacts 2 so as to normally be out of contact therewith. The inner end of spring 3 is fastened, preferably by a rivet 3^d to the top of casing 1, and the outer free end of spring 3 is adapted to be attached to any desired switch operating means, such as the clutch or brake rod of an automobile, or the like. Around the spring 3, intermediate its ends and adjacent the contacts 2, is a ring 3^b of conducting material, such as brass or the like, and ring 3^b is preferably insulated from the spring 3 by any suitable insulating material 3^c interposed between the ring 3^b and the spring 3.

By reason of the beveled heads of the contacts 2, as the spring 3 is in further flexed or extended the contact between the ring 3^b and the contacts 2, is rendered more positive, thus insuring efficient conduction between the contacts 2.

In assembling the switch the spring 3 may be riveted to the section 1^b and the contacts 2 may be riveted in place in the sections 1^a and 1^b before the sections 1^a and 1^b of the casing are fastened together by rivet 1^c.

When the switch casing is fastened in operative position to any suitable object, such as the floor boards of an automobile, and the outer free end of the spring 3 is attached to the clutch or brake rod thereof, as the rod is actuated the spring 3 will be both flexed and extended and the conducting ring 3^b on spring 3 will be brought into contact with both contacts 2, to complete the electrical circuit through the switch.

I do not limit my invention to use with any particular operating means, for obviously the switch might be useable for various purposes where the operating means has an irregular amount of travel (such as the clutch or brake rod of an automobile) and where it is desired to have an electrical circuit completed regardless of and without affecting the amount of movement of the operating means.

My invention provides a novel switch having but one movable part, which movable part is capable of being both flexed and extended to cause the member to bridge the gap between the contact members to complete the electric circuit through the switch.

I do not limit my invention to the exact form shown in the drawing, for obviously the form of the switch and its parts could be greatly modified without departing from the scope of the invention.

I claim:

1. A switch of the character specified comprising a normally closed casing having an opening in one face thereof; a pair of spaced contact heads insulated from the casing and extending into the casing from opposite walls thereof; and a helical spring extending through the opening into the casing adjacent the contact heads, and having its inner end secured within the casing; whereby when the spring is flexed the spring will bridge the contact heads and close an electric circuit therethrough.

2. A switch of the character specified comprising a normally closed casing having an opening in one face thereof; a pair of spaced contact heads insulated from the casing and extending into the casing from opposite walls thereof; a helical spring extending through the opening into the casing adjacent the contact heads, and having its inner end secured within the casing; a conducting ring mounted on and insulated from said spring adjacent the contact heads; and means for connecting the outer free end of said spring to a movable member, whereby when said movable member is actuated the spring will be flexed and cause the ring to bridge the contact heads and close an electric circuit therethrough.

In testimony that I claim the foregoing as my own I affix my signature.

ANGUS R. GROSS.