Dec. 10, 1929. L. BLACKMORE 1,738,755

SWITCH CONSTRUCTION

Filed May 5, 1927

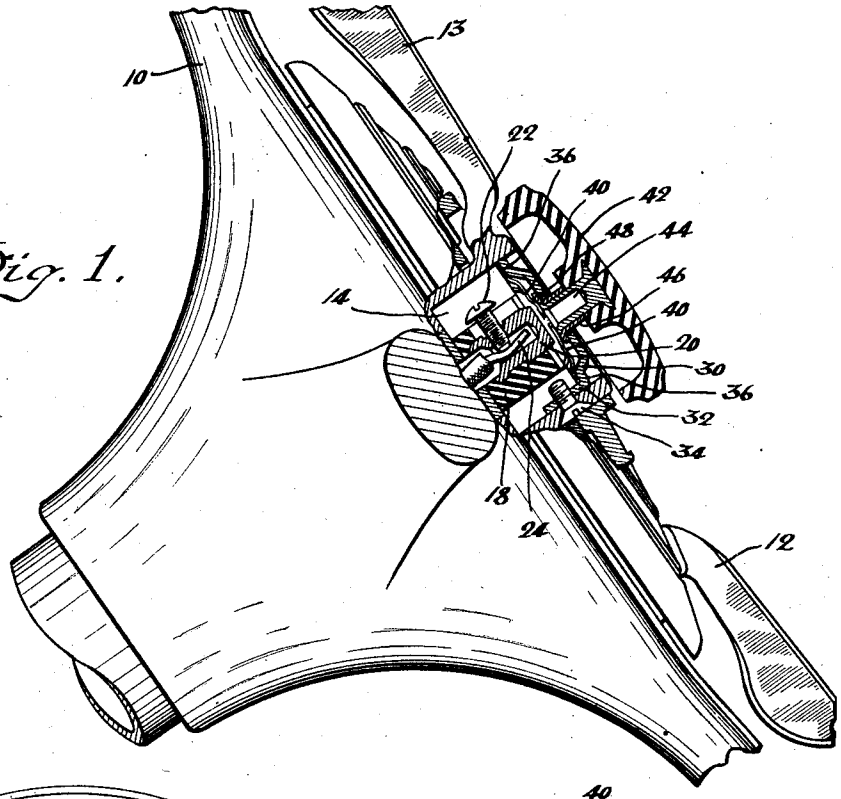


Fig. 1.

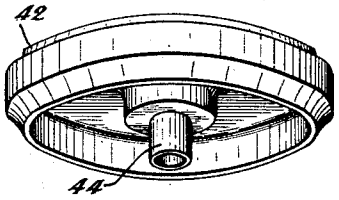


Fig. 2

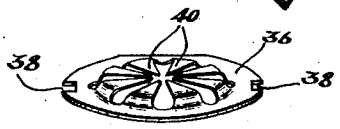


Fig. 4.

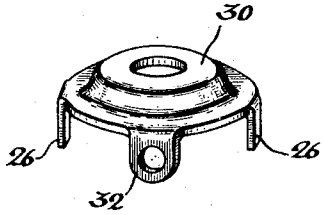


Fig. 3.

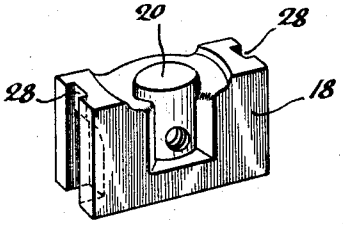


Fig. 5.

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UNITED STATES PATENT OFFICE

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SWITCH CONSTRUCTION

Application filed May 5, 1927. Serial No. 189,059.

My invention relates to an improved switch construction of the type commonly used on the steering wheel of a motor vehicle to actuate the horn or warning signal.

It has for its principal object the provision of such a switch wherein most of the parts may be made from stampings to lower the cost. A second object is to so construct the movable contact member that it will return the hand button to normal position without the use of a separate spring. Another object is to insure a direct and positive contact between the housing and the movable contact member instead of relying upon a spring or other member to transmit the current from one to the other. A still further object is to construct a switch in which the gap between the contact members is enclosed so that any sparking which may take place will not be visible.

With the above and other objects in view, my invention will be more clearly understood by referring to the specification and accompanying drawing, in which:

Figure 1 is a fragmentary longitudinal sectional view taken through the center of a steering wheel and showing my improved switch associated therewith.

Figure 2 is a detailed perspective view of the hand button.

Figure 3 is a detailed perspective view of the member which encloses the contact members.

Figure 4 is a detailed perspective view of the movable contact member.

Figure 5 is a detailed perspective view of the insulating base.

The reference numeral 10 indicates a steering wheel upon which are carried the control members 12 and 13. The control member 13 is provided with a central recess 14 in which fits an insulating base 18 made of any suitable insulating material. This base is shown in detail in Figure 5. Molded in the base 18 is a contact member 20 through one side of which is threaded a screw 22 serving to hold the wire 24 in the center bore of the contact member.

Secured to the insulating base by projections 26, which are bent into grooves 28, is a cup-shaped member 30, shown in detail in Figure 3. This member is provided with a lug 32, adapted to receive a screw 34 which secures the assembly in the control member 13. Clamped between the insulating base and the member 30 is a disc 36 provided with notches 38 through which the projections 26 extend. This disc is formed with a plurality of spring contacts 40 which are raised up from the disc proper and extend radially inward and taper toward their inner ends, as shown in Figure 4. The disc is preferably made of phosphor bronze or other similar material, so that the contacts 40 will have considerable spring and will return to their normal position after being depressed. They are arranged so that they will lie immediately over the contact member 20 which they are adapted to engage when depressed to close the circuit. It will be seen that the current will flow between the control member 13 which is grounded, the member 30 and the disc 36.

Held in a hand button 42, made of any suitable insulating material, is a hollow rivet 44, extending into the inside of the cup-shaped member 30 and having mounted upon it a spacer 46 provided with a flange 48. The rivet is turned over the end of the spacer to hold the latter in place. The spring contacts 40 bear against the flange 48 and one or more are moved into engagement with contact member 20 by the flange when the hand button is depressed. The inherent spring of the contacts serves to return the button to its normal position without the use of a separate spring for this purpose.

One object of the flange 48 is to provide a comparatively wide flat surface parallel to the face of the hand button, and which will serve to hold the button in a straight position normally. If the hollow member 44 were merely riveted over inside the member 30 without the spacer, the button would be quite likely to assume a tilted or cocked position at times, which would detract from its appearance.

Another object is to definitely limit the width of the gap between the contact member 20 and the contacts 40, so that this gap may be made comparatively small to provide bet-

ter operation of the device. Should the width of this gap be dependent upon the relation of assembled or riveted parts, a large gap would have to be provided to take care of extreme conditions, due to manufacturing variations.

An advantage of my construction is that due to the fact that the disc 36 is clamped in place by the member 30, a positive connection is made in a most direct manner.

It will be seen that I have provided a simple, inexpensive switch which is very easy to operate and which may always be depended on for a quick and positive contact.

It is thought from the foregoing, taken in connection with the accompanying drawing, that the construction and operation of the device will be apparent to those skilled in the art and that various changes in size, shape, and proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

I claim:

1. A switch construction comprising a base contact, a disc formed with a plurality of spring contacts, and a hand operable button adapted to move one or more of said spring contacts into engagement with said base contact, said button being returned to normal position by said spring contacts.

2. A switch construction comprising an insulating base including a base contact, a disc bearing against said base and formed with a plurality of spring contacts normally held away from said base contact, and a hand operable button adapted to move one or more of said spring contacts into engagement with said base contact.

3. A switch construction comprising an insulating base including a contact member, a cup-shaped member secured to said base, a disc clamped between said base and said cup-shaped member and formed with a plurality of contact portions, and a hand operable button adapted to move one or more of said contact portions into engagement with said contact member.

4. A switch construction comprising an insulating base including a contact member, a cup-shaped member secured to said base, a disc clamped between said base and said cup-shaped member and formed with a plurality of spring contact portions, a hand operable button, and a member secured in said button and adapted to move one or more of said contact portions into engagement with said contact member when said button is depressed.

5. A switch construction comprising an insulating base including a contact member, a cup-shaped member secured to said base, a disc clamped between said base and said cup-shaped member and being formed with a plurality of spring contact portions normally held away from said contact member to form a gap, a hand operable button, and a spacer associated with said button and having a flange fitting within said cup-shaped member, said contact portions normally bearing against said flange to definitely determine the width of said gap.

6. A switch construction comprising an insulating base including a contact member, a disc having a plurality of spring contact portions, a cup-shaped member secured to said base, a hand operable button, and a spacer associated with said button and having a flange fitting within said cup-shaped member, said contact portions normally urging said flange against the inside of said cup-shaped member to hold said button in a straight position.

7. A switch construction comprising an insulating base including a contact member, a cup-shaped member secured to said base, a disc clamped between said base and said cup-shaped member and being formed with a plurality of spring contact portions normally held away from said contact member to form a gap, a hand operable button, a hollow member secured in said button, a spacer fastened around said hollow member, and a flange on said spacer fitting within said cup-shaped member to limit the upward movement of said button and to definitely determine the width of said gap.

In testimony whereof I affix my signature.

LLOYD BLACKMORE.