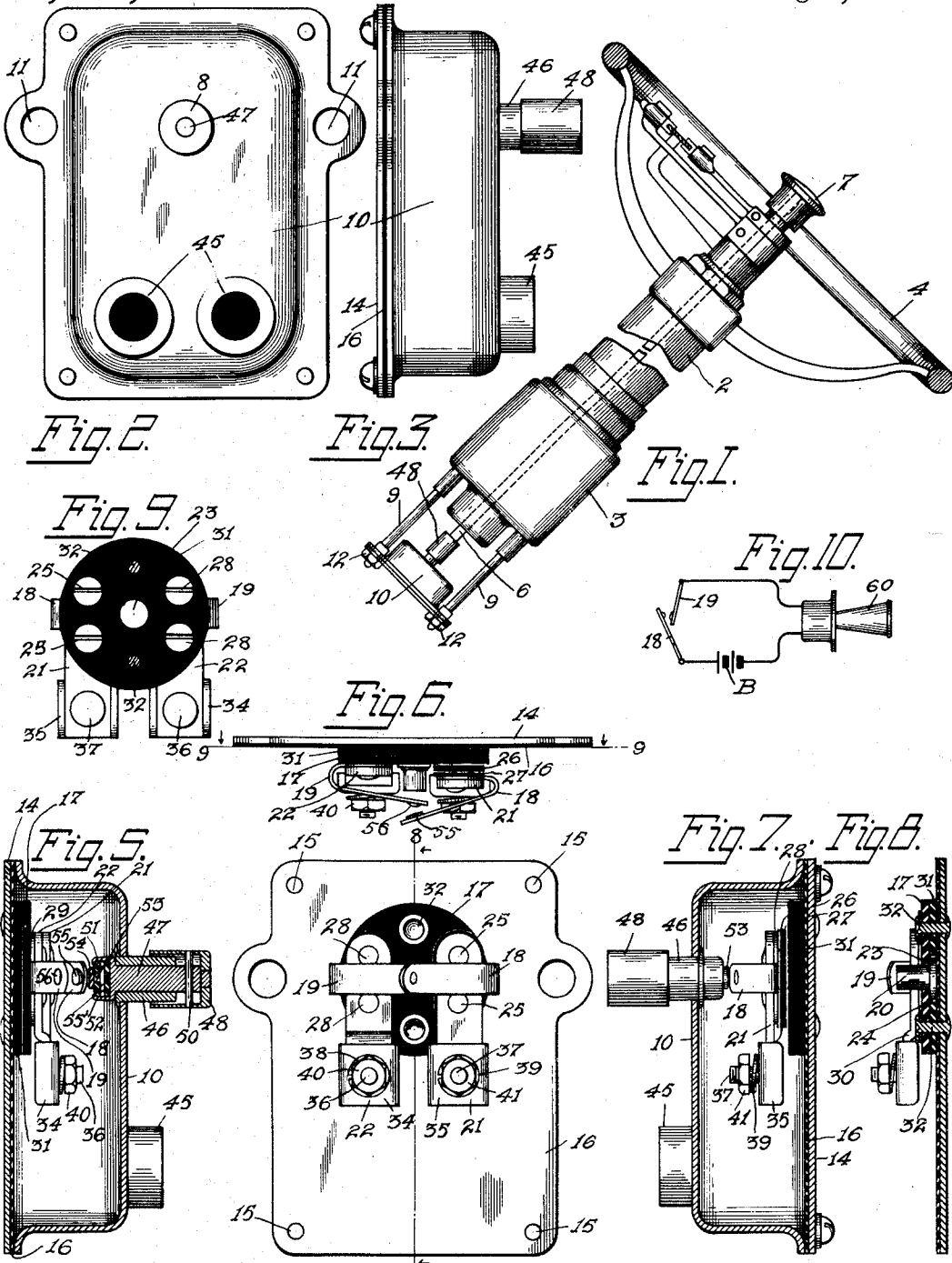


W. KAISLING.
ELECTRICAL SWITCH.
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1,386,626.

Patented Aug. 9, 1921.



Witnesses:
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UNITED STATES PATENT OFFICE.

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ELECTRICAL SWITCH.

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Specification of Letters Patent.

Patented Aug. 9, 1921.

Application filed April 21, 1917. Serial No. 163,563.

To all whom it may concern:

Be it known that I, WILLIAM KAISLING, a citizen of the United States of America, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Electrical Switches, of which the following is a specification.

My invention relates to electrical switches and circuit closers for use in completing electrical circuits, and has to do more particularly with circuit closers for use on automobiles and the like for controlling the signaling circuits of electrically actuated horns or warning devices.

One of the objects of my invention is to locate the actuating button for the electrical switch in a position so that it will be easily accessible to the operator of the car.

Another object of my invention is to locate the contact springs of the device in a position where they may be readily inspected and to arrange the said springs in such a manner that when the device is actuated the springs will make rubbing contact with each other, thereby insuring a good, clean contact for each actuation of the operating button.

It is a further object of my invention to produce an improved device of the class above described which embodies desirable features and advantages all in a simple, efficient and economical manner, and to the accomplishment of this object and such others as may hereinafter appear, my invention consists in the novel details of construction, parts and combination of parts hereinafter described and particularly pointed out in the appended claims, reference being had to the accompanying drawing forming a part thereof, in which the same reference characters indicate like parts throughout the several views and in which:

Figure 1 shows the steering column of an automobile with my device mounted thereon;

Fig. 2 shows a front view of the casing which incloses the contact springs of my device;

Fig. 3 is a side view of the same;

Fig. 4 is a view similar to that of Fig. 2 with the cap removed showing the internal construction of the contact mechanism;

Fig. 5 is a side view of Fig. 4 showing the casing and operating button in section;

Fig. 6 is an end view of Fig. 4;

Fig. 7 is a right side view of Fig. 4 showing only the casing in section;

Fig. 8 is a section view taken along line 8—8 of Fig. 4;

Fig. 9 is a sectional view taken along line 9—9 of Fig. 6;

Fig. 10 shows a circuit arrangement of a warning device adapted to be controlled by the switch mechanism of my invention.

Referring now more in detail to my invention, as illustrated, it comprises a steering post 2 of well-known construction, and consists, speaking generally, of a casing 3, steering wheel 4, and adjunctive parts not necessary to refer to, except that it is provided with bearings for the operating rod 6 which extends entirely through the center of the steering post and is provided at its one extremity with an operating button 7, and at its opposite extremity it abuts against a cylindrical cap 48 of the switch mechanism proper; and rods 9 for supporting the casing 10 in which is mounted the contact mechanism that controls the operating circuit of the warning device.

A pair of annular orifices 11 is provided in the casing 10 for receiving the extended threaded free ends of the rods 9 which are provided with shoulders for engagement with the periphery of the orifices 11. A pair of nuts 12 are provided and have screw-threaded engagement with the rods 9 to securely hold the inclosing casing 10 in place. The inclosing casing 10 is so positioned as to permit the actuating rod 6 to bear directly on the cap 48 of the switch mechanism.

Referring particularly to the switch mechanism, it comprises a mounting plate 14 provided at its four corners with orifices 15. Mounted directly on top of the plate 14 and of the same general contour, is a plate of insulating material 16 which may be of any approved material, such as micarta plate or the like. Centrally mounted on a line extending between the orifices 11 is a circular plate 17 of insulating material which supports the contact springs 18 and 19, limiting post 20 and terminals 21 and 22. Springs 18 and 19 are provided with contact points 55 and 56, respectively. The contact points 55 and 56 are rivetally secured to the contact springs.

An annular orifice 24 is provided in the center of plate 17 through which protrudes the limiting post 20 which is provided with a shoulder 23 for engagement with the un-

der side of the plate 17. Screws 25 are also provided which have screw-threaded engagement with threads cut in the terminal strip 21. These screws pass through orifices in the plate 17, shims 26 and 27, and the enlarged end portion 28¹ of spring 18 into the terminal strip 21 and securely hold these pieces in place. Likewise a pair of screws 28 are provided and have screw-threaded engagement with threads cut in the terminal strip 22. Likewise these screws pass through orifices in the plate 17 and the enlarged end portion 29 of spring 19 into the terminal strip 22 and hold these pieces in place.

A circular disk 31 is provided with a plurality of circular orifices situated in the same relative positions as the screws 25 and 28 and post 20 and into which the extended ends of these parts fit. This disk is disposed between the circular disk 17 and the plate 16, and a pair of rivets 32 is provided for securing the disk 17 and its attached members in position upon the mounting plate 14. The extended free end of terminal strip 22 is offset slightly as shown at 30 to bring the ends of the terminal strips 21 and 22 in the same plane. The said terminal strips 21 and 22 are provided with U-shaped clamping pieces 34 and 35. Bolts 36 and 37, which extend through orifices in the terminal strips and the said U-shaped pieces, are provided with lock washers 38 and 39, and nuts 40 and 41, respectively, for securing the connecting conductors thereto.

The cup-shaped cover 10 is provided with a pair of internally threaded bushings 45 into which the conduit that carries the connecting conductors fasten. A hollow cylinder 46 is suitably fastened to the casing 10 through which an actuating rod 47 passes. Rivetally secured to the rod 47 is an inverted cup-shaped cylinder 48 constituting an operating button or cap against which abuts, as hereinbefore mentioned, the operating rod 6. A pin 50 is also provided for securing the cup 48 to the rod 47. The inner end of rod 47 is enlarged and formed into a cup 52 to receive a button of insulating material 51. The end of the cup 52 is then spun over to retain the button 51 therein. Extending into the button 51 is a pin 53 provided with an enlarged head 54 for engaging with the contact spring 18. A cylindrical pin 55¹ is provided for securely fastening the pin 53 to the button 51.

Having described the parts that go to make up my complete device, I will now explain its function and use.

If a downward force is applied to the operating button 7, as by the hand of the operator driving the car, the said button 7 is forced downward and causes the contact spring 18 to be moved into engagement with the contact spring 19 to close a circuit for

warning device 60. The said circuit may be traced from one pole of the battery B through contact springs 18 and 19 (represented diagrammatically in Fig. 10) to one terminal of the warning device and through the warning device and from the other terminal thereof to the opposite pole of said battery B. When the hand of the operator is removed from the actuating button 7, the contact springs restore the actuating button to normal.

Owing to the fact that the contact springs 18 and 19 are mounted diametrically opposite each other, the contact point 55 of spring 18, upon engaging the contact point 56 of spring 19, moves laterally a short distance in one direction, while said contact point 56 moves laterally in the opposite direction a short distance, thereby causing the contact 55 to rubbingly engage and form a positive, clean contact with contact 56 of spring 19 before the said springs engage the limiting post 20.

From the foregoing, it is apparent that I have located the actuating button of the switch device in a very convenient position so that it is easily accessible to the driver of the car, it only being necessary to reach from the rim of the steering wheel to the center thereof to operate said actuating button, and it is also apparent from the foregoing description that, owing to the construction and location and the manner in which the contact springs operate, a rubbing engagement takes place between the contacts of these springs when operated to insure a positive contact and the closure of the circuit of the warning device.

In illustrating my invention, I have shown the preferred form, but it is to be understood that many changes and modifications thereof may be made. Therefore, I do not desire to be limited to the exact structure shown but aim to cover all changes and modifications as come within the spirit and scope of the appended claims.

What I claim as new and desire to secure by United States Letters Patent is:

1. A device of the character described including a cylindrical member, circuit closing means, an actuating element extending through said cylindrical member for operating said circuit closing means and provided with a reduced portion, an enlarged cup-shaped portion for the inner end of said actuating element, a contact actuating member located partially within said cup-shaped member but insulated therefrom, an operating button or cap provided with an aperture adapted to receive the reduced portion of said actuating element, and fastening means extending through said cap and said actuating element to secure said cap to said actuating element, said actuating cap having its outer periphery extending around

said cylindrical member to prevent foreign matter from entering said cylindrical member.

2. A device of the character described, including a steering column for an automobile or the like, a manually movable actuating button supported at one extremity of said column, an inclosing casing supported at the opposite extremity of said column including a base plate, a plate of insulating material of the same general contour as the base plate secured thereto, a plate of insulating material secured to said base plate, a pair of contact springs secured to said last named plate of insulating material having their fixed ends lying in parallel planes and their free ends bent back upon themselves so that the free extremity of one of said springs lies

immediately above the free extremity of the other of said springs, a contact operating plunger supported by said casing and provided with an actuating button lying immediately above the said springs, said button being insulatingly secured to said contact operating plunger, and a rod extending from said manually movable actuating button to said contact operating plunger for causing the operation of said springs when said actuating button is operated. 20 25

Signed by me at Chicago, in the county of Cook and State of Illinois, this 19th day of April, 1917, in the presence of two witnesses.

WILLIAM KAISLING.

Witnesses:

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