Dec. 23, 1924. 1,520,526

J. BERG

SWITCH DEVICE

Filed Nov. 5, 1921

Fig. 1.

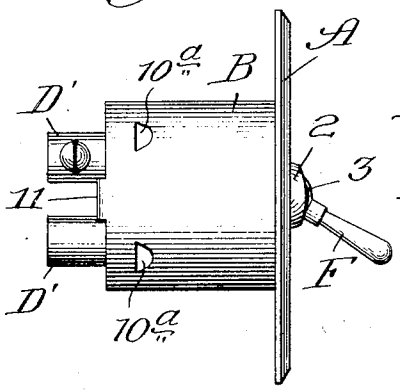


Fig. 2.

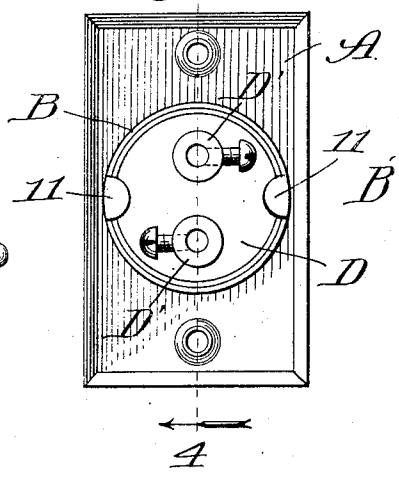


Fig. 3.

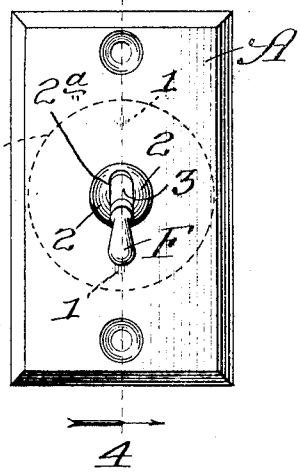


Fig. 4.

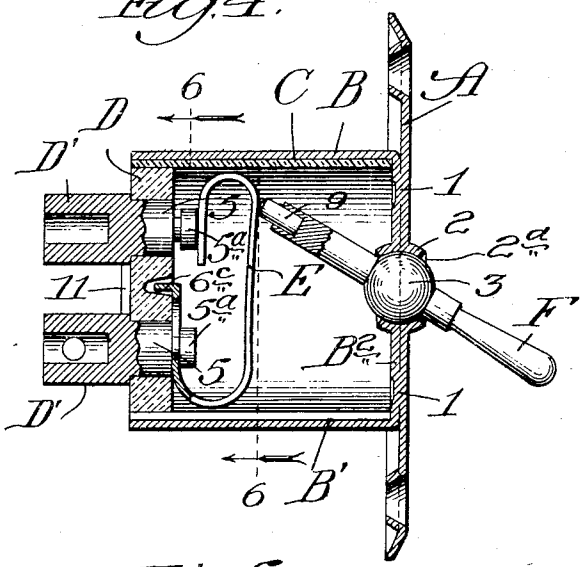


Fig. 6.

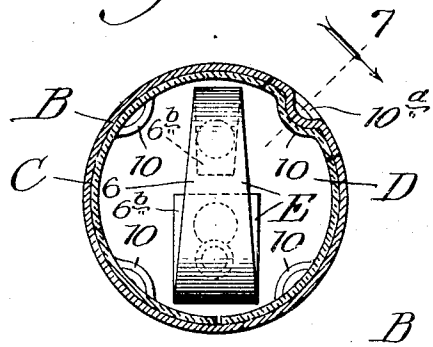


Fig. 7.

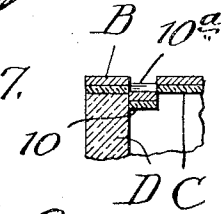


Fig. 5.

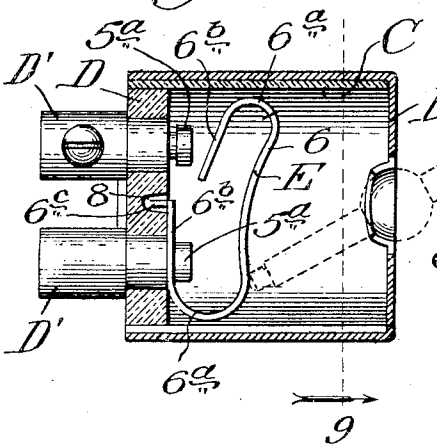


Fig. 8.

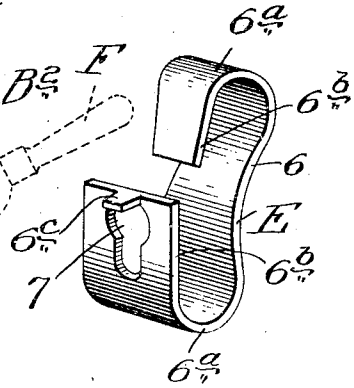
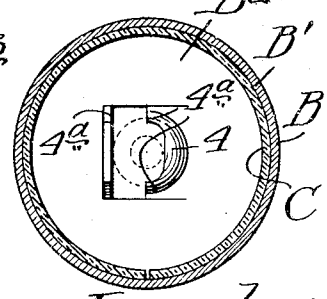


Fig. 9.



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Attys.

Patented Dec. 23, 1924.

1,520,526

UNITED STATES PATENT OFFICE.

JOHN BERG, OF CHICAGO, ILLINOIS, ASSIGNOR TO METAL SPECIALTIES MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SWITCH DEVICE.

Application filed November 5, 1921. Serial No. 513,058.

To all whom it may concern:

Be it known that I, JOHN BERG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Switch Devices, of which the following is a specification.

This invention relates particularly to a switch device, or circuit-closing device, which is particularly useful in connection with automobiles.

The primary object is to provide an improved switch device, which is of simple and cheap construction, and which is easily actuated.

In the illustration given in the accompanying drawing, the device is shown in a form suitable for mounting on a dash of an automobile. The drawing shows the device in its preferred embodiment.

In the drawing—

Figure 1 represents a side elevational view of the improved switch. Fig. 2, a rear elevational view of the same; Fig. 3, a front elevational view of the same; Fig. 4, a sectional view taken as indicated at line 4 of Fig. 2; Fig. 5, a similar sectional view, showing the attaching plate removed and the circuit-closing lever indicated by dotted lines; Fig. 6, a section taken as indicated at line 6 of Fig. 4; Fig. 7, a broken section taken as indicated at line 7 of Fig. 6; Fig. 8, a perspective view of a spring circuit-closer; and Fig. 9, a section taken as indicated at line 9 of Fig. 5, the switch closing lever being indicated by dotted lines, and one of the curved lips which hold the lever in position being shown open.

In the construction illustrated, A represents an attaching plate; B, a metal shell, or cup-like casing, which has a tubular portion B′, and a bottom portion, or front end wall, B^2; C, a lining, or sleeve, of insulation, which may be omitted, if desired; D, a strong disk of insulating material secured in the open end of the cup and equipped with a pair of contact-posts D′, which extend through the disk D and are firmly anchored therein; E, a spring leaf-form circuit-closer which normally occupies the open position shown in Fig. 5; and F, a circuit-closing lever having ball and socket connection with the end wall B^2 of the shell and the plate A which is suitably secured to said end wall.

The cup B, may be formed by a suitable drawing operation from a thin sheet metal disk. The end wall B^2, which constitutes the bottom of the cup, may be secured to the plate A in any suitable manner. In the illustration given, said bottom wall is spot-welded to the plate at points designated 1.

The plate A is provided centrally with on outwardly struck embossment 2, which is hemi-spherical and said embossment, is, however, provided with a slot 2^a, through which the handle of the lever F extends. The lever is provided at its central portion with a ball-like fulcrum 3. The end wall B^2 of the cup has an inwardly struck embossment 4, which is of approximately hemi-spherical form. Here, however, the metal forming the socket portion is severed from the metal of the wall B^2 sufficiently to provide two lips, 4^a. In the manufacture of the cup, the lips are, in the first instance, left projecting inwardly into the cup. After the cup is secured to the face-plate A, the lever is inserted through the cup, so that the handle will project through the slot 2^a. The lips 4^a are then closed to form the half-socket for the ball 3. The half-socket 4 is provided with a slot which corresponds with the slot 2^a of the outer half-socket.

The insulation sleeve C may be formed by rolling a small sheet of insulating material into tubular form. This sleeve is employed to insure against contact between the member E and the wall of the shell B. It may be omitted as unnecessary, if the spring E be sufficiently short.

The disk E may be formed from a plate of hard rubber, or other suitable insulating material. The binding posts B which are intended for connection with electric conductors, are provided with reduced portions 5, which are firmly anchored in perforations in the disk. The inner ends of the posts project somewhat beyond the inner surface of the disk. One of the posts is formed with a T-head 5^a to facilitate connection with the circuit-closer E.

The circuit-closer E is preferably formed by bending a strip of brass into general loop-form. Thus, the spring E has the

back, or web-portion, 6, the curved end portions 6^a, and the inturned extremities 6^b, which underlie the web 6, and are spaced a suitable distance therefrom. One of the portions 6^b is preferably made wider than the other and is provided with a T-slot, 7, which is adapted to engage the T-head 5^a of the corresponding post. The extremity of this member 6^b is provided with a lug 6^c which enters a recess 8 with which the disk D is provided on its inner surface. By suitably engaging the T-slot 7 with the T-head 5^a and entering the lug 6^c in the recess 8, the circuit-closing member E is suitably mounted on one of the posts B'. Normally, the other end portion 6^b of the circuit-closing member E is spaced a short distance from the inner end of the other post D', as it appears in Fig. 5.

The web-portion 6, of the spring member E, is preferably curved to somewhat approximate an arc having as its center the center about which the lever F swings. However, the arrangement is such that when the lever is swung from the dotted position shown in Fig. 5, to the full position shown in Fig. 4, the inner end of the lever, which is provided with an insulation point 9, will ride on the web-portion 6 of the member E and force the member to the circuit-closing position. When this action occurs, the free end portion 6^b of the circuit-closer is brought into contact with the inner end of the post D', and, in the further movement of the lever F, the spring E is forced to assume approximately the position shown in Fig. 4, the member 6^b having a certain amount of sliding contact with the inner end of the post. Thus, the contact points are kept clean and bright. Moreover, the lever F becomes automatically locked in the circuit-closing position shown in Fig. 4. That is, the lever swings past the dead-center, and the spring circuit-closer is held under sufficient compression to lock the lever in the circuit-closing position, it being noted that the lever bears against the ends of the slots with which the socket is provided, which thus serve as stops for the lever.

In the illustration given, the disk D fits within the outer end of the lining sleeve C. Stops 10 for the disk D are provided by striking the circumferential wall of the shell inwardly as indicated at 10^a. This will be understood by reference to Figs. 1, 6 and 7. The disk D is secured in position by means of clenching lugs 11 formed integrally with the free edges of the shell B. These lugs are bent inwardly after the disk is inserted against the stops 10.

The construction described is simple and may be cheaply manufactured, the parts being readily assembled. Furthermore, the device is admirably adapted to its purpose, and is strong and durable.

The foregoing detailed description has been given for clearness of understanding only, wherefore no unnecessary limitation of the invention should be understood, from such description, but the appended claims should be construed as broadly as permissible in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. In a device of the character set forth, the combination of a cup-like casing, an attaching plate secured to the end wall of said casing, said end wall and attaching plate being provided with complemental socket portions, a circuit-closing lever having a fulcrum portion mounted in the socket, a pair of contact-posts insulatingly mounted in the open end of said casing, and a spring circuit-closer having one end portion mounted on one of said contact-posts and the other end adapted to make contact with the other contact-post, said circuit-closer being actuated by said lever.

2. The combination of a metal cup, an attaching plate secured to the end wall of said cup, a ball-socket formed partly in the end wall of said cup and partly in the attaching plate, said socket being slotted, a circuit-closing lever having its intermediate portion provided with a ball mounted in said socket, and a circuit-closer mounted in the other end of said cup and engaged by said lever.

3. In a device of the character set forth, the combination of a metal cup having its end wall provided with an inwardly struck socket-portion comprising lips, an attaching plate secured to said cup and provided with a complemental socket portion, a circuit-closing lever having a ball mounted in said socket, said lever being insertable through the cup and held in place by pressing said lips into position, and a circuit-closer mounted in the other end of said cup and actuated by said lever.

4. In a device of the character set forth, the combination of an attaching plate, a metal cup carried by said attaching plate and having its end wall adjacent said plate, a lever mounted at the central portion of said end wall, an insulating sleeve in said cup, an insulating disk in the free end of said cup, a pair of contact-posts mounted on said disk, and a circuit-closer mounted on one of said posts and adapted to make contact with the other of said posts, said lever being adapted to actuate said circuit-closer.

JOHN BERG.