C. J. LEDWIDGE.

ELECTRIC SWITCH.

APPLICATION FILED APR. 20, 1920.

1,434,217. **Patented Oct. 31, 1922.**

Fig. 1.

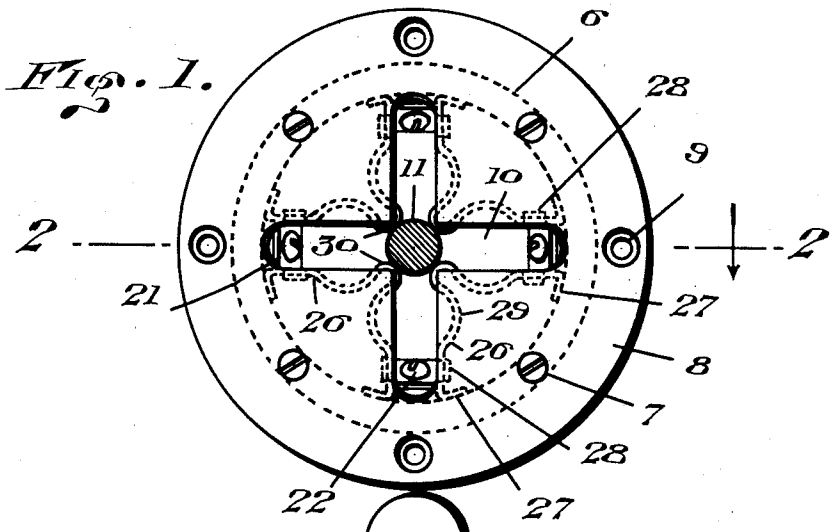


Fig. 2.

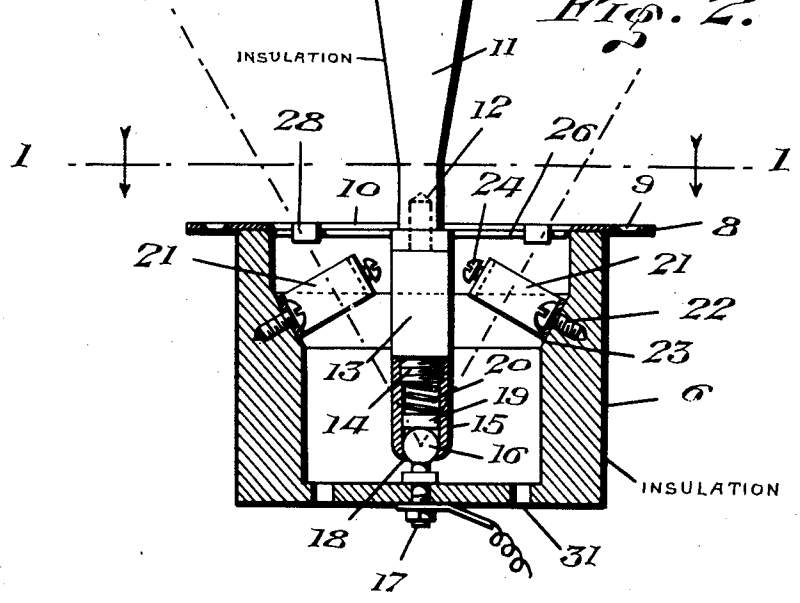
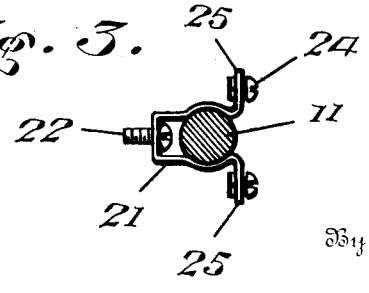


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHRISTOPHER JAMES LEDWIDGE, OF HOT SPRINGS, ARKANSAS.

ELECTRIC SWITCH.

Application filed April 20, 1920. Serial No. 375,323.

To all whom it may concern:

Be it known that I, CHRISTOPHER J. LEDWIDGE, a citizen of the United States, residing at Hot Springs, in the county of Garland and State of Arkansas, have invented certain new and useful Improvements in an Electric Switch; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to electric switches, and aims to provide such a switch for controlling a plurality of electrical circuits, such as signalling circuits of vehicle signals as disclosed in my Patent No. 1,314,407 granted Aug. 26, 1919, although the switch can be used for other suitable purposes.

The object of the invention is the provision of a novel and improved switch having a handle member mounted for movement in several directions from a central normal or idle position, whereby several circuits can be controlled selectively, according to the wishes of the operator, with means for the engagement of the handle member when moved to the several positions for closing the circuits.

Another object is the provision of novel means for mounting said handle member for swinging movement in different directions, to make contact in being moved to the different positions, and for the electrical connection of a common conductor.

A further object is the provision of novel means for retaining the handle in central or idle position, yet permitting the handle to be manually moved in any one of several radial directions, and in the embodiment as herein disclosed, said means serves to hold the handle normally at the intersection of slots in the face plate of the casing in which the handle moves toward the ends of the slots for making the electrical connections.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein:—

Figure 1 is a face view of the switch, showing the handle in section on the line 1—1 of Fig. 2.

Fig. 2 is a diametrical section on the line 2—2 of Fig. 1, showing portions in elevation.

Fig. 3 is a detail view of one of the contacts.

The casing 6 is cup-shaped, and has its rim secured to the rear side of a face plate 8 by means of screws 7, or the like, and the margin of the said plate or disk 8 extends beyond the wall of the casing 6 to be attached to the dash of an automobile or other suitable instrument board or support, said marginal portion of the plate having apertures 9 for the reception of screws or other means for securing said plate to the support. The plate 8 is provided with an X-shaped slot 10 at the mouth of the casing 6, for the movement of the handle 11, which is of insulating material. The inner end of the handle is secured on a stem 12, at one end of a cylindrical contact member 13, the other end of which has a stud 14 screw threaded within one end of a bearing sleeve 15. The other end portion of said sleeve is fitted on a ball or spherical head 16 of a binding post or bolt 17 extending through the bottom of the casing 6 centrally thereof, and serving as a terminal connection for a common conductor of the several circuits. The last named end of the sleeve 15 has an annular inturned lip 18 engaging behind the ball 16 thereby providing a flexible or universal joint for the handle, enabling it to be swung in various directions, or radially into any one of the branches of the slot 10 from the intersection thereof. A pressure disk 19 is disposed slidably within the sleeve 15, and an expansion spring 20 is confined between the disk 19 and stud 14, thereby moving the disk 19 into engagement with the ball 16 and tending to move the handle away from said ball whereby the lip 18 frictionally engages said ball. This provides good electrical connection between the binding post and said sleeve 15 with which the cylindrical contact member 13 is in electrical connection.

The contacts 21 of the several circuits are located within the casing below the outer ends of the radial slots, and are of U-shape with their intermediate portions seating against an annular inclined shoulder 23 with which the inner surface of the casing 6 is provided, and said portions of the contacts

are clamped to said shoulders by means of screws 22, thereby supporting the contacts in inclined upwardly converging position for the reception and engagement of the contact member 13. The arms of the contacts 21 are curved apart to snugly receive the contact member 13 and hold same against accidental disconnection, and the conductors of several circuits can be connected to the screws 22 or can be connected to terminal bolts or screws 24 carried by the outturned ends 25 of the contacts 21, whichever is preferred.

In order to retain the handle in central neutral position, retaining snap springs 26 of wire or other suitable resilient material are employed, which have portions extending along the diverging edges of the slots 10 behind the plate 8 and the terminals 27 of said springs 26 are bent at an angle toward one another to bear against the rim or wall of the casing 6. The plate 8 has ears 28 extending from the edges of the slots near the other ends thereof bent in back of the springs 26 to secure them to the plate, although other equivalent means can be used for holding said springs, with their bends free to flex at the corners between the slots 10. The arms of the springs 26 are bowed or curved apart, as at 29, and said springs have loops 30 at their bends projecting slightly from the corners of the plate 8 at the intersection of the slots whereby to hold the handle in central position. The handle can be moved manually into any branch of the slots between the corresponding loops 30 which are thereby sprung apart, and the contact member 13 is then snapped into the corresponding contact 21 to close the corresponding circuit. In returning the handle into central position, the handle again springs past the loops 30 and in moving to the intersection of the slots, the loops 30 which are sprung apart will snap behind the handle, while the opposite loops will stop the handle, thereby retaining it in central position. Thus, the handle will be stopped and retained in central position in a convenient and efficient manner, yet permitting the handle to be swung radially into any one of the slots.

The bottom or other portion of the casing 6 has apertures 31 for the passage of the electrical conductors (not shown) which are connected to the contacts 21 whereby several circuits can be controlled by the movement of the handle in various directions in to the slots 10, such as for controlling different signal lamps, or the like.

Having thus described the invention, what is claimed as new is:—

1. A switch comprising a casing having a face plate provided with slots extending from a central point in different directions, a handle movable in said slots and having a contact member within the casing mounted pivotally therein, contacts within the casing for the engagement of said contact member when the handle is moved toward the outer ends of said slots, and a resilient member at each corner between said slots, said resilient members retaining the handle at the central point of the face plate and being spaced apart and yieldable for permitting the handle to snap between and past any pair of resilient members into the corresponding slot, said resilient members being spaced from the slots excepting at the corners between the slots so that the handle in being moved into any one of said slots will not disturb the resilient members excepting when passing and snapping between the resilient members in entering a slot or returning to said central point.

2. A switch comprising a casing having a face plate provided with slots extending from a central point in various directions, a binding post carried by the casing having a ball therein, a sleeve fitted over said ball and having a lip engaging behind same, a contact member attached to said sleeve, a handle carried by said member and movable in said slots, a member within said sleeve bearing against said ball, and an expansion spring between said members, and contacts mounted within the casing for the engagement of said contact member when the handle is moved to the outer ends of said slots.

3. A switch comprising a casing having a face plate provided with slots extending from a central point in various directions, a binding post within the casing, a contact member, a handle carried by said member movable in said slots, contacts mounted within the casing for the engagement of said contact member when the handle is moved to the outer ends of said slots, and a connection between said contact member and binding post including a ball on one of them and a sleeve secured to the other fitted over said ball and having a lip engaging behind the ball, and spring means within said sleeve for separating the sleeve and ball to bring the ball and lip into contact.

4. A switch comprising a casing having a face plate provided with slots extending from a central point in various directions, a handle movable in said slots having a contact member mounted within the casing for swinging movement in various directions, contacts mounted within the casing for the engagement of said contact member when the handle is moved to the outer ends of said slots, and springs having portions projecting from the corners between said slots for retaining the handle at said point, said portions of the springs being separated and yieldable to enable the handle to pass and snap between any pair of said portions to enter the corresponding slot, and

said portions being disconnected across the slots so that the handle can be snapped and passed between the corresponding pair of spring portions in entering a slot without otherwise disturbing the springs.

5. A switch comprising a casing having a face plate provided with slots extending from a central point in various directions, a handle movable in said slots having a contact member within the casing mounted for swinging movement in various directions, contacts mounted within the casing for the engagement of said contact member when the handle is moved to the outer ends of said slots, and a spring for each corner between said slots including a resilient loop projecting beyond such corner and portions extending along the corresponding diverging edges of the slots, so that the springs are disconnected and separated across the slots, and whereby said loops retain the handle at said central point and permit the handle to be moved and snapped between any pair of loops in entering the corresponding slot.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTOPHER JAMES LEDWIDGE.

Witnesses:
GEO. P. WHITTINGTON,
G. P. BUMPASS.