C. S. PRICE.

ELECTRIC SNAP SWITCH.

APPLICATION FILED DEC. 23, 1919.

1,432,898. Patented Oct. 24, 1922.

Fig. 1.

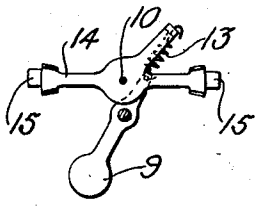


Fig. 2.

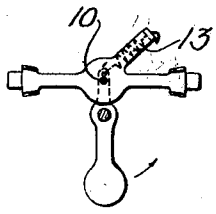


Fig. 3.

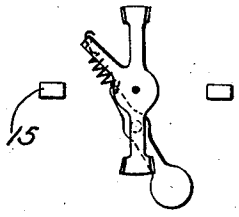


Fig. 4.

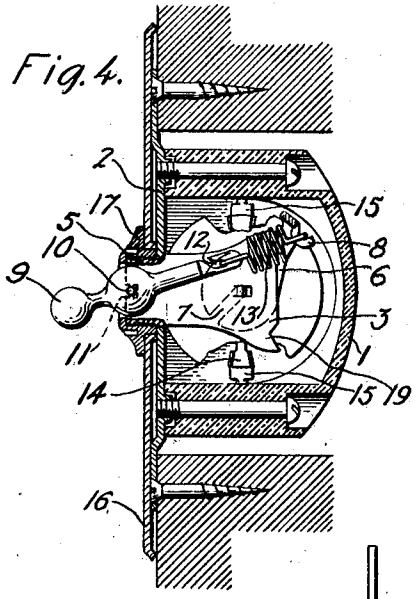


Fig. 5.

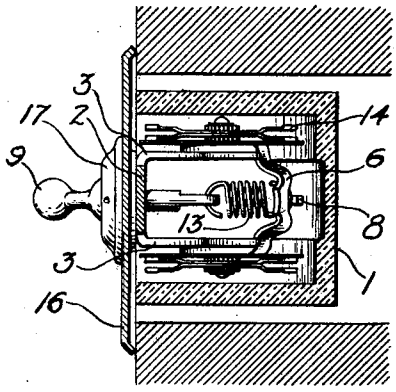


Fig. 6.

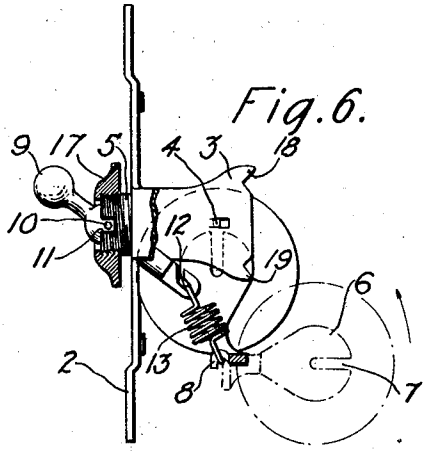
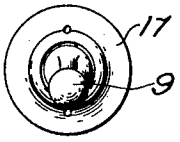


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES S. PRICE, OF RUTHERFORD, NEW JERSEY, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ELECTRIC SNAP SWITCH.

Application filed December 23, 1919. Serial No. 346,991.

To all whom it may concern:

Be it known that I, CHARLES S. PRICE, a citizen of the United States, residing at Rutherford, in the county of Bergen, State of New Jersey, have invented certain new and useful Improvements in Electric Snap Switches, of which the following is a full, clear, concise and exact description.

This invention relates to electric switches and more particularly to snap switches. Specifically it is a lever operated wall type snap switch.

It is the object of this invention to provide a lever operated snap switch of simple and inexpensive construction which is durable, efficient in operation, and easily and quickly assembled.

The characterizing feature of this invention comprises a U-shaped rocker member having a laterally projecting hook at its middle portion in combination with an operating lever also provided with a hook and a helical spring connected at one end to the hook of said rocker and at the other end to the hook of said operating lever. A further feature comprises the provision of a slot in which the fulcrum pin of the operating lever is seated. The above features lend themselves admirably to ease of assembly, as will be pointed out hereinafter in the detailed description.

The preferred form of this invention is a switch comprising a receptacle of porcelain or other insulating material forming a protective covering for the mechanism of the switch, a formed metal yoke to which the receptacle is attached, provided with screw holes for attaching the switch to a wall or other object and at its middle portion with two parallel inwardly projecting arms and an outwardly projecting threaded collar also at its middle portion, which may or may not form an integral part of the yoke, a U-shaped metal rocker member provided with a laterally projecting hook at its middle portion and a slot in each arm by means of which it engages a laterally projecting lug on each of the inwardly projecting arms of the yoke, an operating lever pivoted in a slot in the threaded collar and having an outwardly projecting arm by means of which the switch is operated and an inwardly projecting arm provided with a hook at its end, a helical spring provided with a loop at each end by means of which it engages at one end the hook on the operating lever and at the other end the hook on the rocker member, two sets of contact brushes attached to the arms of the rocker member, one set to each arm and insulated therefrom, four stationary contacts attached to the receptacle and cooperating with the contact brushes, a face plate provided with an aperture through which the threaded collar projects, and a nut engaging the threaded collar and the face plate for retaining the latter in place.

In the drawing, Figs. 1, 2 and 3 are diagrammatic illustrations showing the principle of operation of this switch; Fig. 4 is a longitudinal section of the switch; Fig. 5 is a lateral cross-section of the switch; Fig. 6 is a fragmentary view of the mechanism illustrating the facility with which the switch is assembled; and Fig. 7 is a front view of the operating lever and the nut for holding the face plate in position.

Referring first to Figs. 4 and 5, 1 is a receptacle of insulating material, 2 is a yoke providing a supporting structure for the entire switch as well as for the moving parts individually, 3 are parallel inwardly projecting arms integral with the yoke, 4 are outwardly projecting lugs, one on each of the arms 3, 5 is a threaded collar which may or may not form an integral part of the yoke 2, 6 is a U-shaped rocker member provided with a slot 7 in each of its arms, by means of which it engages the lug 4 and a laterally projecting hook 8, 9 is an operating lever provided with a fulcrum pin 10 engaging a slot 11 in collar 5 and a hook 12 at the end of its inwardly projecting arm, 13 is a helical spring provided with a loop at each end by means of which it engages at one end the hook 12 of operating lever 9 and at the other end hook 8 of rocker member 6, 14 are contact brushes attached to but insulated from rocker member 6 and movable therewith to make and break contact with stationary contacts 15, 16 is a face plate, and 17 is a nut engaging collar 5 and face plate 16 for retaining the latter in place.

In operation, rocker member 6 is quickly moved from the position shown in Fig. 4, where it bears against stop lug 18, to the opposite position where it bears against stop lug 19, stop lugs 18 and 19 forming integral parts of arms 3.

In Fig. 1, operating lever 9 is shown in

one operated position and contact brushes 14 are shown in contact with stationary contacts 15.

In Fig. 2, operating lever 9 is moving in the direction indicated by the arrow and the direction of the force exerted on the rocker arm through the medium of spring 13 has been shifted to the opposite side of fulcrum pin 10 from that in which it is indicated in Fig. 1. The tendency then is for the rocker member and contact brushes to be moved from the position in which they are shown in Figs. 1 and 2, and when the operating lever is moved far enough to put sufficient tension on spring 13, that movement will occur and the contact brushes will be quickly shifted to the position shown in Fig. 3. The reverse of the above action will occur when the operating lever is moved in the opposite direction.

The facility with which the operating mechanism of this switch is assembled is best described with reference to Fig. 6. Operating lever 9 is first put in position, its fulcrum pin 10 seating in slot 11 of collar 5. One end loop of spring 13 is then passed over hook 12 of operating lever 9, and hook 8 of rocker member 6 is engaged with the other end loop of spring 13 with the rocker member in the position indicated by the dot and dash outline. The rocker member is then turned in the direction indicated by the arrow and its slots 7 are engaged with lugs 4. It is then easily forced into its proper position. As the method of assembling the other parts is obvious from the illustrations, it will require no further description.

What is claimed is:

1. In a snap switch, an operating lever, a rocker member comprising a U-shaped metal stamping with a laterally projecting hook at its middle portion, a yoke to which said operating lever and said rocker member are pivotally attached, a spring attached at one end to said operating lever and at the other end to the hook of said rocker member, a movable contact member attached to said rocker member, and a stationary contact member cooperating with said movable contact member.

2. In a snap switch, a yoke comprising a bridge and two inwardly projecting arms integral with said bridge, an outwardly projecting threaded collar on said yoke and having a slot across its center portion, a face plate with an aperture through which said collar projects, a nut engaging said collar and said face plate, an operating lever with a fulcrum pin seated in the slot of said collar and comprising an outwardly projecting arm and an inwardly projecting arm and a hook at the end portion of said inwardly projecting arm, a rocker member comprising a U-shaped metal stamping with a laterally projecting hook at its middle portion pivotally attached to the arms of said yoke, a helical spring attached at one end to the hook of said operating lever and at the other end to the hook of said rocker member whereby said rocker member is operable by the movement of said operating lever, a contact member attached to and movable with said rocker member, and a stationary contact cooperating with said movable contact member.

3. In a snap switch, a yoke comprising a bridge and two inwardly projecting arms integral with said bridge, a collar on said yoke, a face plate with an aperture through which said collar projects, a nut engaging said collar on said face plate, an operating lever pivoted in said collar comprising an outwardly projecting arm and an inwardly projecting arm and a hook at the end portion of the inwardly projecting arm, a U-shaped metal rocker member with a laterally projecting hook at its middle portion, a spring pivotally attached at one end to the hook of said operating lever and at the other end to the hook of said rocker member whereby said rocker member is operable by the movement of said operating lever, a contact member attached to and movable with said rocker member, and a stationary contact cooperating with said movable contact member.

In witness whereof, I hereunto subscribe my name this 19th day of December A. D., 1919.

CHARLES S. PRICE.