

953,354.

Patented Mar. 29, 1910.

Fig. 1.

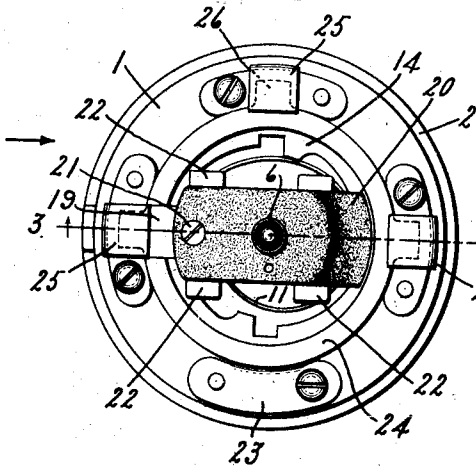


Fig. 2.

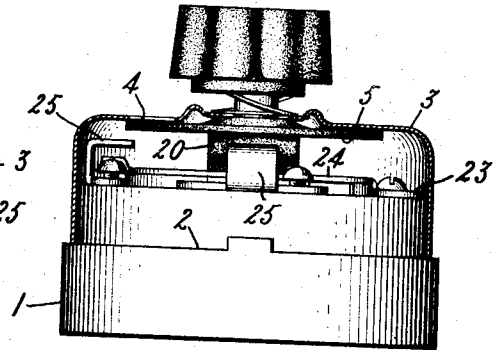


Fig. 3.

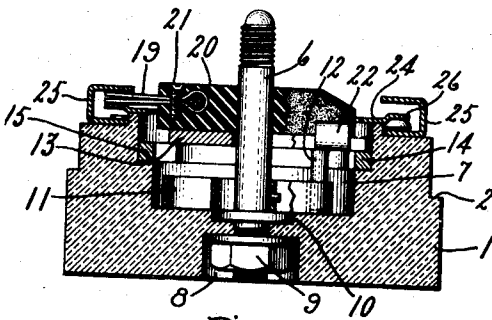


Fig. 4.

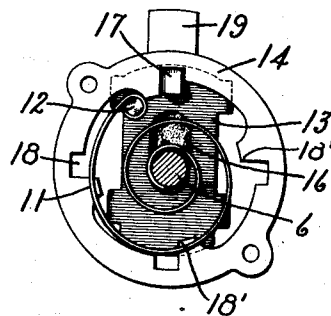


Fig. 5.

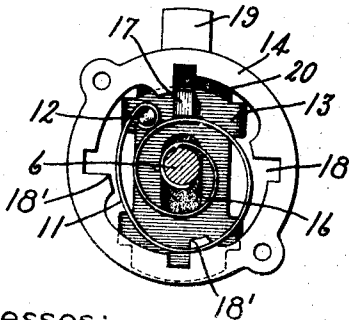
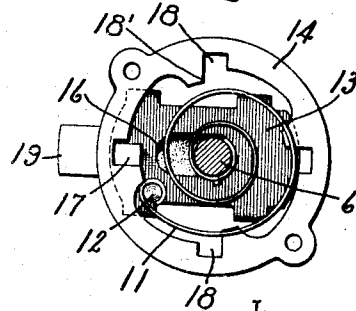


Fig. 6.



Witnesses:

Benjamin B. Hull
Margaret E. Hoolley

Inventor:

George E. Stevens,

by *Albert H. Davis*
Att'y.

UNITED STATES PATENT OFFICE.

GEORGE E. STEVENS, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SNAP-SWITCH.

953,354.

Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed September 16, 1908. Serial No. 453,290.

To all whom it may concern:

Be it known that I, GEORGE E. STEVENS, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Snap-Switches, of which the following is a specification.

This invention relates to electric switches of the quick-break type, and its object is to simplify and improve the operative parts of such a switch, to confer greater durability, and to lessen the cost of manufacture.

This switch comprises a rotatable spindle, a spiral spring attached thereto at one end, a radially movable and rotatable catch-plate attached to the other end of said spring, a large stationary annular stop-plate concentric with the spindle, and a switch-blade rotatable on the spindle and carried by the catch-plate.

Details of construction will be set forth in the following specification and claims, read in connection with the accompanying drawing in which,

Figure 1 is a top plan view with the knob, cover and dial removed; Fig. 2 is a side elevation, with the cover in section, looking in the direction of the arrow in Fig. 1; Fig. 3 is a diametrical cross-section of Fig. 1 on the line 3—3, and Figs. 4, 5 and 6 illustrate the working parts in successive positions.

The base 1 is made of insulating material, such as molded porcelain, and has a shoulder 2 to support the sheet metal cover 3, in which is an opening 4 to expose indicia on a dial 5 which rotates with the switch blade loosely pivoted on the spindle 6 of the switch. The base is hollowed out to house the working parts of the switch, the recess 7 being preferably circular and concentric with the spindle. In the underside of the base is a central recess 8 to receive the nut 9 on the lower end of the spindle. A collar 10 on the spindle is let into the base and serves to steady the spindle.

In the lower part of the recess 7 is placed a flat spiral spring 11 concentric with the spindle. Its inner end is fixed to the spindle and its outer end is fastened to a wrist pin 12 depending from a catch-plate 13 which is supported by a stationary annular stop-plate 14 resting on a shoulder 15 in the wall of the recess 7. The catch-plate has a central longitudinal slot 16 which permits it to turn upon and slide radially of the spindle

in a transverse plane. At one end the catch-plate has a downwardly-projecting lug or catch 17 adapted to enter radial notches 18 in the annular stop-plate adjacent to the stops 18'. The number of notches may vary, but it is preferred to use four, as illustrated, spaced ninety degrees apart.

A switch-blade 19 is rotatably mounted on the spindle, being preferably secured in a carrier 20 of insulating material, such as a block of hard rubber, ebony or fiber. The switch illustrated has a single blade composed of a strip of resilient metal doubled upon itself with the bend inserted into a slot in the carrier 20 where it is secured by a transverse screw 21. The carrier is received between upturned lugs 22 on the catch-plate, so that these two parts are maintained in superposition, the catch-plate being slidable lengthwise of the carrier.

The switch illustrated is designed to connect an incoming lead with any one of three branch leads, for the purpose, for example, of controlling a ceiling fan motor having three speeds. The lead from the line is attached to a plate 23 which is in electrical connection with an annular contact 24 concentric with the spindle and resting on the upper surface of the base. At three other points around the base, ninety degrees apart, are clips 25 to each of which a branch wire is attached. The clips overhang the contact 24, which is preferably provided with tongues 26 extending outwardly under said clips. The resilient ends of the switch-blade enter between the clip and tongue and close the circuit therethrough, as shown in Fig. 3.

The operation is as follows: Figs. 4, 5 and 6 are bottom plan views of the spring, stop-plate, catch-plate, switch-blade and carrier in three different positions. Fig. 4 shows the parts at rest, with the catch 17 engaged in a notch 18 in the stop-plate. When the spindle is turned (clockwise in Fig. 1 but counterclockwise in Figs. 4, 5 and 6) the spring is wound, and pulls on the wrist pin 12, drawing the catch out of the notch 18 to the position shown in Fig. 5. The instant the catch clears the corner of the stop 18', the torsion of the spring suddenly throws the catch-plate and carrier around to the left. But as the spring expands it slides the catch-plate outwardly again so that after a quarter revolution the

catch engages the next stop, as shown in Fig. 6. The spring thus performs three functions, to wit,—retracting the catch from the notch, quickly turning the catch-plate and blade carrier, and projecting the catch into reengagement with the stop-plate.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. A snap switch comprising an insulating base, a stop-plate secured to said base, a rotary spindle, a catch-plate movable transversely of the spindle and cooperating with the stop-plate, a rotary switch-blade operatively engaging said catch-plate, and a spring connected to said catch-plate and said spindle and operating to retract said catch-plate, turn it angularly and project it into reengagement with the stop-plate.

2. A snap switch comprising an insulating base, a stop-plate secured to said base, a rotary spindle, a catch-plate movable transversely of the spindle and cooperating with the stop-plate, upwardly projecting lugs on said catch-plate, a rotary switch-blade engaged by said lugs, and a spring connected

to said catch-plate and said spindle and operating to retract said catch-plate from engagement with said stop-plate, turn it angularly and project it into reengagement with said stop-plate.

3. A snap switch comprising an insulating base, an annular stop-plate secured to said base, a rotary spindle, a catch-plate movable transversely of said spindle and cooperating with the stop-plate, a rotary switch-blade mounted on said spindle and having sliding connection with said catch-plate, and a spiral spring located in a recess in the insulating base, connecting said spindle and catch-plate and operating to retract said catch-plate from engagement with the stop-plate, turn it angularly and project it into reengagement with said stop-plate.

In witness whereof, I have hereunto set my hand this fourteenth day of September, 1908.

GEORGE E. STEVENS.

Witnesses:

JOHN A. McMANUS, Jr.,
CHARLES A. BARNARD.