

(No Model.)

F. G. BERON.
ELECTRIC SWITCH.

No. 526,988.

Patented Oct. 2, 1894.

Fig. 1.

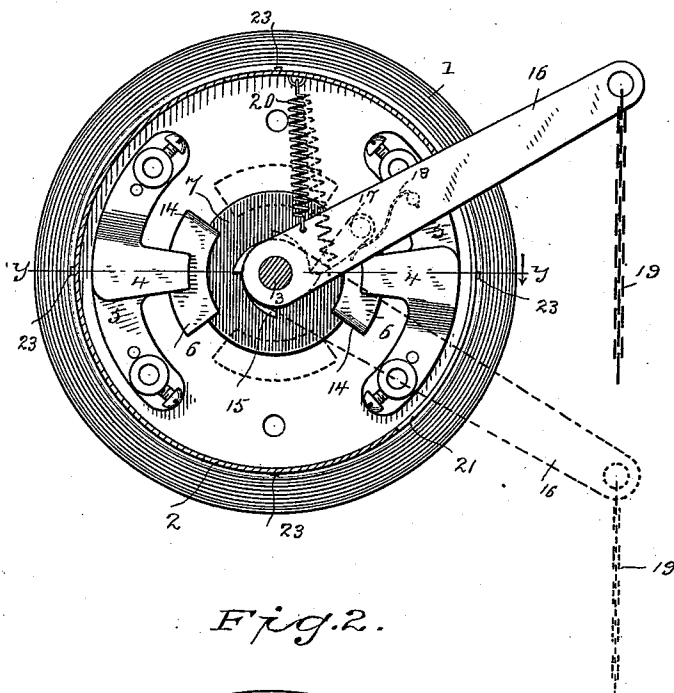


Fig. 3.

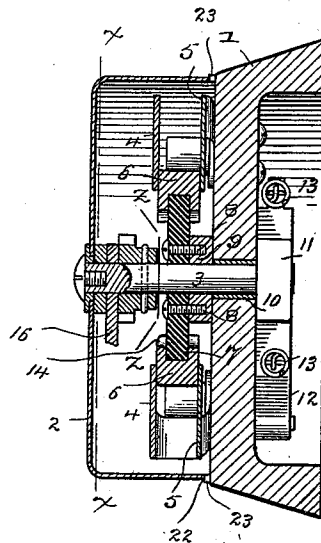


Fig. 2.

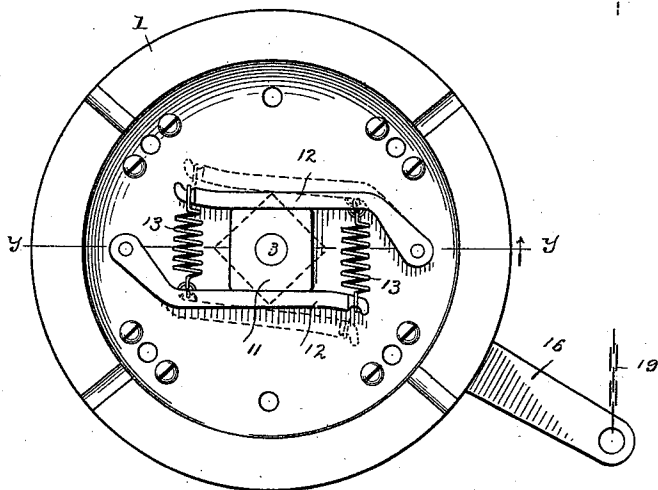
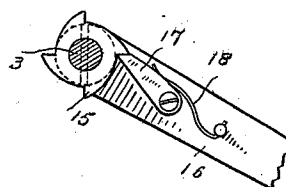


Fig. 4.



WITNESSES

H. A. Lamb.
S. V. Richardson.

INVENTOR

Frank G. Beron
By A. M. Wooster
Atty.

UNITED STATES PATENT OFFICE.

FRANK G. BERON, OF WATERBURY, CONNECTICUT, ASSIGNOR OF ONE-HALF TO JAMES F. GAFFNEY, OF SAME PLACE.

ELECTRIC SWITCH.

NO. 526,988, dated October 2, 1894.

Application filed June 21, 1894. Serial No. 515,275. (No model.)

To all whom it may concern:

Be it known that I, FRANK G. BERON, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Electric Switches; 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.

My invention has for its object to provide a double pole electric snap switch which shall be adapted for general use but especially adapted for attachment near the ceiling of a room and to be operated by a chain or cord, whereby the additional wiring required where switches are placed in position to be operated by hand is wholly avoided.

My invention furthermore relates to the special construction and combination of parts which I will hereinafter fully describe and then specifically point out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a section on the line xx in Fig. 3; Fig. 2, a rear view of the switch detached; Fig. 3, a section on the line yy in Figs. 1 and 2, and Fig. 4 is a detail view of the operating lever the section being on the line zz in Fig. 3 looking toward the left. In Figs. 1, 2 and 3 the contacts are shown in position to close the circuit.

1 denotes the base; 2, the cap; 3, the shaft; 4, the upper stationary contacts and 5 the lower stationary contacts. Both of the stationary contacts of each pair may or may not be spring contacts. I preferably however, make the upper contacts rigid and the lower contacts of spring metal, the construction of the rotating contacts being such that but little resiliency is required thus enabling me to make the contacts of a metal possessing a high degree of conductivity. This is an important feature, as it is well known that brass and bronze alloys possessing a high degree of resiliency do not possess as high a degree of conductivity as other alloys possessing less resiliency or spring quality, pure copper being the best conductor of all.

6 denotes rotating contacts which are carried by an insulating disk 7 upon the shaft.

This disk is shown as secured by screws 8 to a collar 9 which is itself rigidly secured to the shaft in any suitable manner.

10 denotes a bushing in the base through which the shaft passes. At the lower end of the shaft is an angular block 11 the opposite sides of which are engaged by arms 12 themselves pivoted to the under side of the base.

13 denotes springs one end of each of which is attached to the free end of one of the arms the other end of each spring being attached to the other arm near its base. The action of these springs is to cause the arms to bear upon the sides of the block with the full strength of the springs, the springs yielding when the block is rotated with the shaft and the arms acting to complete the forward movement of the shaft, insulating disk and rotating contacts with a snap, as will be clearly understood from Fig. 2 in which the intermediate position of the angular block and the corresponding position of the arms are shown in dotted lines. It will be seen that just as soon as the angles of the block have passed the center the springs will act to complete the movement and return the arms to their normal position as clearly shown in full lines. The front end of each of the rotating contacts is beveled as at 14 so as to insure that the end of the contact will pass under the upper stationary contact and not be stopped by engagement with the end thereof. The shaft may be operated by a handle or in any suitable manner. I preferably however, employ a pawl and ratchet mechanism as illustrated in the drawings, so as to enable me to place the switch at the ceiling and render it unnecessary to bring it down into position to be operated by hand thus dispensing with considerable additional wiring.

15 denotes a ratchet which is rigidly secured to the shaft; 16, an operating lever which turns freely on the shaft; 17, a pawl carried by the lever and engaging the ratchet; 18, a spring acting to hold the pawl in operative position; 19, a chain (a cord may of course be used if preferred) connected to the outer end of the operating lever by which the switch is operated and 20 a spring one end of which is connected to the operating

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lever and the other to some fixed portion of the switch, in the present instance the cap, by which the operating lever is returned to its normal position after each actuation of the switch.

The operation will be clearly understood from the drawings. Suppose, the parts being in the position shown, that it is desired to open the circuit. The operator simply pulls down upon the chain or cord the effect of which will be to move the operating lever from the position shown in full lines to the position shown in dotted lines. As the ratchet has four teeth it is obvious that each movement of the operating lever will give a quarter turn to the shaft and insulating disk and will move the rotating contacts from the position shown in full lines in Fig. 1 to the position shown in dotted lines. The instant the operator releases the chain spring 20 will return the operating lever to its normal position. The circuit is closed in the same manner that it is opened, that is, by a pull upon the chain or cord. The second movement of the operating lever carries the rotating contacts forward another quarter turn, changing the position of the contacts from that shown in dotted lines to the position shown in full lines. A single movement of the operating lever therefore either opens or closes the circuit.

The cap is provided with a slot 21 through which the operating lever passes and with one or more notches 22, four being preferably provided, on its inner edge which engage lugs 23 on the base. These lugs and notches hold the cap against rotary movement and also permit adjustment of the cap so as to permit slot 21 to be moved to any position that may be necessary to accommodate the operating lever to different positions of the base.

Having thus described my invention, I claim—

1. The combination with a suitable base

having an upper and a lower contact on each side, of a shaft carrying a rotary insulating disk provided with contacts on opposite sides adapted to engage the contacts on the base, an angular block and a ratchet, an operating lever carrying a pawl engaging the ratchet, a spring acting to return the operating lever to its normal position when released, each actuation giving a quarter turn to the shaft, ratchet and disk to either open or close the switch, pivoted arms engaging opposite sides of the block and springs connecting said arms and acting to complete each actuation with a snap.

2. The combination with a suitable base having an upper and a lower contact on each side, of a rotary shaft carrying an insulating disk provided with contacts on opposite sides and at its lower end with an angular block 11, mechanism for imparting a quarter turn to the shaft, disk and block at each actuation, pivoted arms adapted to engage the opposite sides of said block, and springs connected to opposite arms and adapted to yield and permit the arms to move outward when the shaft block and disk are actuated, and acting when the center is passed to complete the movement and open or close the switch with a snap.

3. The combination with a suitable base having upper and lower contacts, of a shaft carrying an insulating disk provided with contacts adapted to engage the contacts on the base, an angular block 11 and a ratchet, spring controlled arms engaging the opposite sides of the block whereby each movement of the block is completed with a snap, an operating lever carrying a pawl which engages the ratchet and a spring acting to return the lever to its normal position after each actuation.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK G. BERON.

Witnesses:

ROBERT A. LOWE,
E. H. NICHOLS.