

(No Model.)

J. HUTCHINSON.
SNAP SWITCH.

No. 480,948.

Patented Aug. 16, 1892.

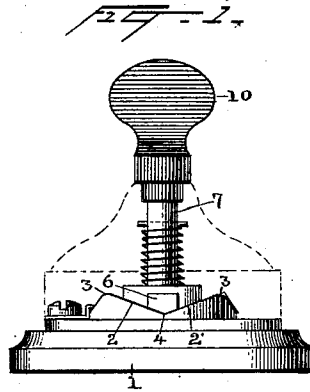


Fig. 5.

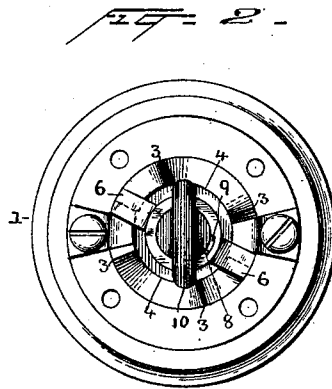
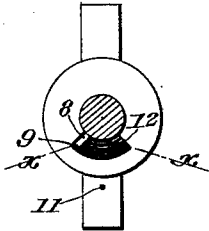
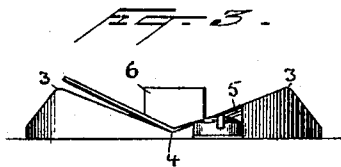
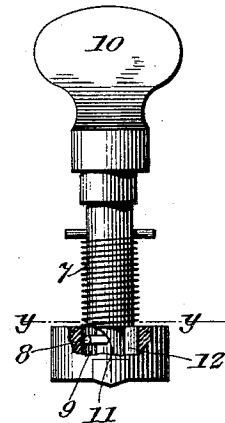


Fig. 4.



Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

JOSEPH HUTCHINSON, OF NEW YORK, N. Y., ASSIGNOR TO THE EDISON
GENERAL ELECTRIC COMPANY, OF SAME PLACE.

SNAP-SWITCH.

SPECIFICATION forming part of Letters Patent No. 480,948, dated August 16, 1892.

Application filed January 12, 1891. Serial No. 377,408. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HUTCHINSON, a citizen of the United States, residing at New York, county and State of New York, have invented a certain new and useful Improvement in Snap-Switches or Circuit-Closers, of which the following is a specification.

The present invention relates to switches of a class ordinarily employed for making and breaking the circuit of incandescent lights.

My object is to provide an improved switch in which the circuit shall be made and broken by a sudden or snap action, as is customary in switches of this character, and to produce more perfect electrical contact between the several parts of the switch than is usual.

The invention consists in a snap-switch having a track or way provided with a series of double inclines, with electrical contacts in the alternate depressions formed by each pair of inclines arranged in the manner hereinafter described, and a movable arm for connecting said contacts; and the invention consists, also, in certain features of construction and combinations hereinafter more specifically described.

In the accompanying drawings, which illustrate the invention, Figure 1 is a side view of the switch. Fig. 2 is a plan thereof. Fig. 3 is a view showing the shape and arrangement of one of the metal contacts of the switch, the switch-arm resting thereon. Fig. 4 is an enlarged view of the switch spindle, handle, and the switch-arm, a part being broken away on line *xx* of Fig. 5; and Fig. 5 is a view on line *yy* of Fig. 4.

1 is a base for the switch of insulating material, such as vulcanized fiber. The base is provided with an extension, which forms a circular track or way for the rotary switch-arm. This track has at regular intervals a series of double inclines 2 2'. In the switch illustrated there are eight inclines, thus forming four apexes 3 and four depressions 4, as will be seen in Fig. 2. On the base just outside of the track, adjacent to two opposite apexes, are mounted metal terminals 5, to which the circuit-wire may be connected. Said terminals or contacts are placed in the position indicated in Figs. 2 and 3, so that

the contact extends over a portion of the incline 2' and over the whole of the incline 2. The end of the contact adjacent to incline 2 is left free or disconnected from the base and tends to move slightly away from the face over which it rests, so that it has a spring action on the contact-bar. The opposite end of the contact is let into the surface of the incline, so that the contact-bar will slip readily onto it. The lower face of the cross-bar 6 is shaped to fit the angle or bend in the contact-plates, as appears in Fig. 3. This bar is mounted on a spindle 7 in such a way that it may move vertically thereon, but will be turned with the spindle. In the form illustrated the pin 8 on the spindle transmits motion to the cross-bar, there being a certain amount of lost motion between the spindle and bar, owing to the slot 9 in the latter. One end of a spiral spring rests against a pin on the spindle and the opposite end is connected to the cross-arm at 11. When the handle 10 is turned to operate the switch, the pin 8 moves the switch-arm by pressing against the side 9 of the slot where it is normally held; but when the arm reaches its highest point it is instantly thrown forward by the spring. The handle 10 is screwed onto the shank in such manner that if a user attempts to turn the switch in the wrong direction the handle will unscrew.

The operation of this switch is as follows: Suppose the cross-bar to rest in two of the depressions in which there are no contacts. To close the circuit, the handle 10 will be turned to the right, causing the cross-bar to ride by the inclines 2 2' until said bar reaches its highest point, when the tension of the spring on the spindle suddenly carries the cross-bar down incline 2' in an oblique direction onto the contact-plates. The bar does not make contact with the plates until it is partially under way down the incline 2'. Instead of falling vertically onto the contacts, as is usual, the cross-bar makes a sliding snap-contact and comes to rest with two faces bearing against the contact-plates, owing to the fact that they are bent as heretofore described. The spring ends of the contact-plates tend to make a firmer contact between the plates and

the cross-bar both when the bar rests in its lowest position on said plates and when it is being moved over them.

Having thus described the invention, what I claim is—

1. A circuit making and breaking switch having a circular track with a series of double inclines, contacts in the alternate depressions, and one end of each contact being in the form of a free spring formed by the inclines, said contacts being fitted onto the two inclined faces of the depressions, and a rotary cross-arm movable over the inclines for connecting said contacts, substantially as described.

2. The combination, in a circuit making and breaking switch, of a circular track having a series of double inclines and contacts in the

alternate depressions formed by said inclines, said contacts covering a portion of one incline and one end of each contact being in the form of a free spring and all of the opposite inclines, substantially as described.

3. The combination, in a circuit making and breaking switch, of a circular track for a switch-arm, having a series of double inclines, and contact-plates in the alternated depressions formed by said inclines, one end of each of said contact-plates being in the form of a spring, substantially as described.

This specification signed and witnessed this 31st day of December, 1890.

J. HUTCHINSON.

Witnesses:

CHAS. E. ESTABROOK,
EDWARD A. STEVENSON.

It is hereby certified that in Letters Patent No. 480,948, granted August 16, 1892, upon the application of Joseph Hutchinson, of New York, New York, for an improvement in "Snap-Switches," errors appear in the printed specification requiring correction as follows: In lines 9-10 and 21-22, page 2, the words "and one end of each contact being in the form of a free spring" should be stricken out and the same inserted after the word "depressions" in line 12, and after the word "inclines" in line 23; and said word "inclines" in line 23, should read *incline*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 30th day of August, A. D. 1892.

[SEAL.]

GEO. CHANDLER,

First Assistant Secretary of the Interior.

Countersigned:

N. L. FROTHINGHAM,

Acting Commissioner of Patents.