(No Model.)

E. WESTON.

SWITCH OR CIRCUIT BREAKER FOR ELECTRIC CIRCUITS.

No. 316,097. Patented Apr. 21, 1885.

Fig. 1.

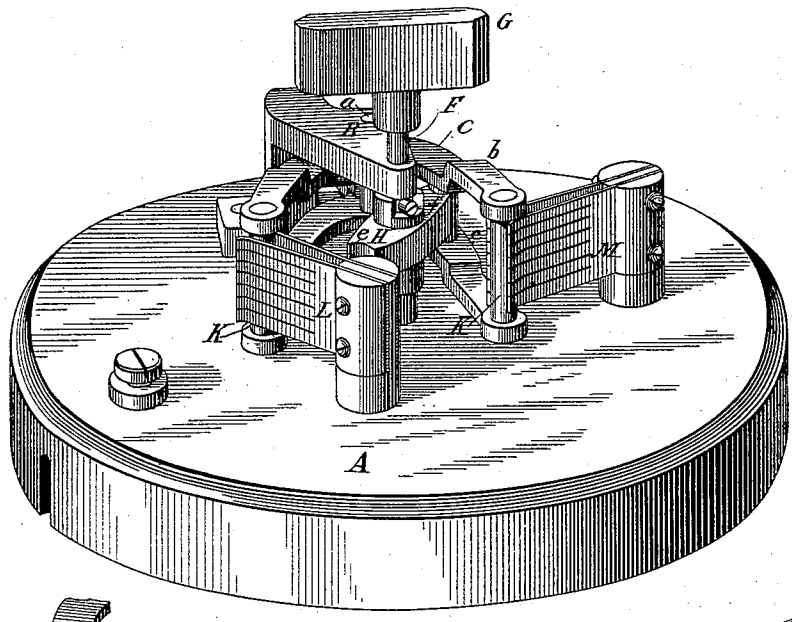


Fig. 2.

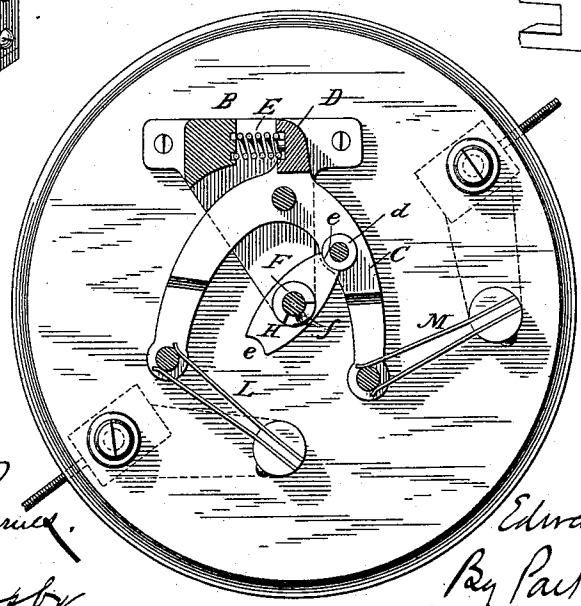


Fig. 3.

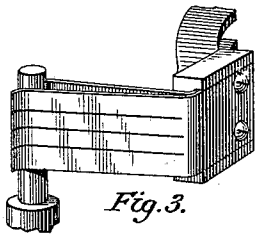
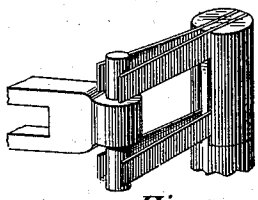


Fig. 4.



Attest:

Raymond A. Barnes.

W. Finsby

Inventor:

Edward Weston

By Parker W. Page

atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

EDWARD WESTON, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE UNITED STATES ELECTRIC LIGHTING COMPANY, OF NEW YORK, N. Y.

SWITCH OR CIRCUIT-BREAKER FOR ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 316,097, dated April 21, 1885.

Application filed November 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WESTON, a subject of the Queen of Great Britain, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Switches or Circuit-Breakers for Electric Circuits, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

In an application filed by me September 26, 1884, No. 144,035, I have shown and described a circuit-controlling apparatus that is adapted to make or complete one circuit at the instant of interrupting or breaking another, this device consisting of a lever impelled in one direction by a spring, and operated by a cam carried by a revolving spindle, so as to be brought out of engagement or contact with a set of contact springs or terminals connected with one circuit, and instantly thereafter into contact with the terminals of another circuit.

My present invention consists in a modified form of switch or circuit-breaker constructed on the same general mechanical principle, but adapted for use with one circuit only to make and break the same, the switch being what is known as a "gong-switch"—that is to say, one designed for use with a main circuit over which very powerful currents flow, and for the successful control of which, so far as its interruption and completion at any given point are concerned, the ordinary forms of circuit-breakers are inadequate.

According to my present invention I employ a frame approximating in shape to the letter **V**, and pivoted at a point near the apex of the angle formed by the two sides. Between the plates or bars forming one side of the frame is a bar or roller, and between the two sides is a spindle carrying an oval cam or button with notches cut in the ends. This cam impinges upon the roller and shifts the whole frame from side to side. A spring acts upon the frame, forcing it over in one direction, so that when turned by the cam against the spring it will return with a sudden movement when released by turning the cam until the roller leaves the notch by which it is held. At the ends of the frame are contact-bars, and contact springs or plates are placed in proper position to press upon the same when the frame is turned to either side.

The construction of this device and the modifications that may be made in the construction will be described by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the instrument. Fig. 2 is a plan and part sectional view of the same. Figs. 3 and 4 are perspective views of the portions of the device, illustrating different modifications in construction.

The operative portions of the switch are mounted on a suitable insulating base or stand, A, provided with the usual means of connecting the device with the conductors of an electric circuit. To this base is secured a casting, B, with upper and lower sides, between which the moving portions of the switch are mainly supported.

C is a **V**-shaped lever or frame arranged to turn about the pin *a*, set in the casting B.

The sides of the frame C may consist of two pieces, *b c*, as in Fig. 1, or of slotted plates, as shown in Fig. 4; or they may be made in many other ways, the particular construction in this regard being largely a matter of choice.

Between the casting B and a short projection, D, from the frame or lever C, is interposed a stout spiral spring, E. A stud or pin, with or without a roller, *d*, is carried by one arm or side of the frame C. A spindle, F, with a key, G, is mounted between the two sides of frame C in the casting B. On this spindle is an oval button or cam, H, with notches *e e* cut in its sides. This cam is loose on the spindle, but its movement around the same is limited by a small screw, *f*, extending from the spindle into a groove or slot in the sleeve forming a part of the button. This button impinges upon the roller *d*, so that if the spindle and cam be turned in either direction the frame or lever will be forced to one side, compressing the spring E. The arms or sides of the frame carry at their ends bars or studs K, and in proper positions on the base A are mounted contact plates or springs L M, with which the bars K make contact when turned to one side by the cam. The frame may obviously carry the contact-plates and the bars or studs be

fixed to the base A, as shown in Fig. 3, when desired, and in other respects the mechanical construction and arrangement of these parts may be considerably varied without departure from the invention. The conductors of the circuit are connected with the plates L M. If the spindle be turned in either direction, the connection between the plates may be established through the metal frame C, and if the roller be brought into one of the notches in the cam, the parts will be held in this condition. If the spindle be then turned slightly in either direction, the frame will be driven by the force of the spring out of contact with the plates L M. The frame is free to move in the direction in which it is impelled by the spring the instant that the roller leaves the notch by which it has been held.

The advantages gained by this form of switch are many. It is necessary, for example, in gong-switches to have ample contact-surface; to give sufficient play or movement to the separable contact-surfaces, so that there will be no danger of the continuance of an arc after mechanical separation has taken place; to provide for the instantaneous separation of the switch-terminals, and to so construct the device that it cannot be injured or disarranged by the manipulation of unskilled persons. All of these requirements are fully met in the apparatus which I have described.

What I claim as my invention is—

1. The combination, with circuit terminals or contacts, and a spring-impelled lever having two contacts adapted to engage with the circuit-terminals, of a spindle, and a cam or button thereon for acting upon the lever and forcing the same into the position in which it completes the circuit between the line-terminals or permitting it to recede from such position, as herein set forth.

2. The combination, with two contacts or sets of the same, forming the terminals of a severed circuit, of a pivoted spring-impelled lever having contact-surfaces at the ends and adapted to engage with the line-contacts, a spindle and cam thereon for operating the lever and making or breaking the circuit between the line-contacts, as and for the purpose specified.

3. The combination, with the two terminal contacts L M, of the V-shaped frame or lever having contacts at its ends and pivoted in position to bring said contacts into engagement with the contacts L M, a spring tending to bring the said contacts into engagement, a spindle, and cam or button acting upon the frame or lever for controlling its position, as herein described.

4. The combination, with the line-terminals L M, of the V-shaped lever C, carrying contacts K and the roller *d*, the spindle and cam or oval button with notches therein for shifting the lever by impinging upon the roller *d*, as herein described.

In testimony whereof I have hereunto set my hand this 25th day of November, 1884.

EDWARD WESTON.

Witnesses:
H. A. BECKMEYER,
JOHN C. YOUNG.