(No Model.)

F. M. BENNETT.

ELECTRIC SWITCH.

No. 412,159. Patented Oct. 1, 1889.

Fig. 1.

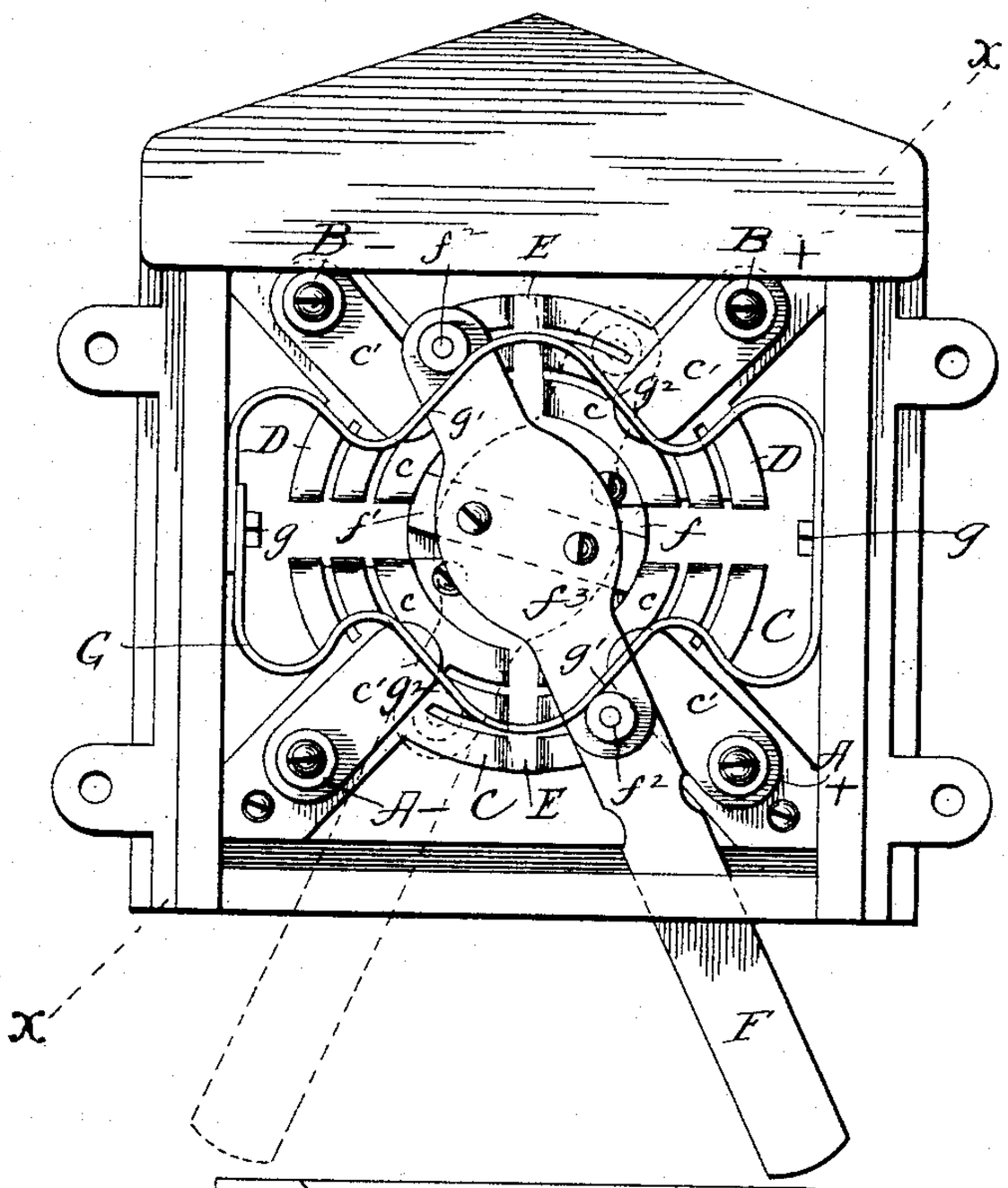


Fig. 2.

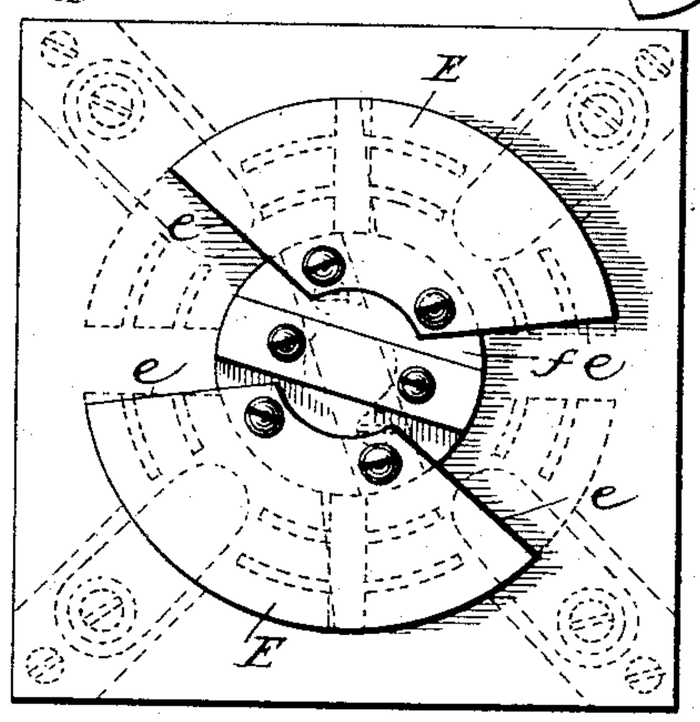
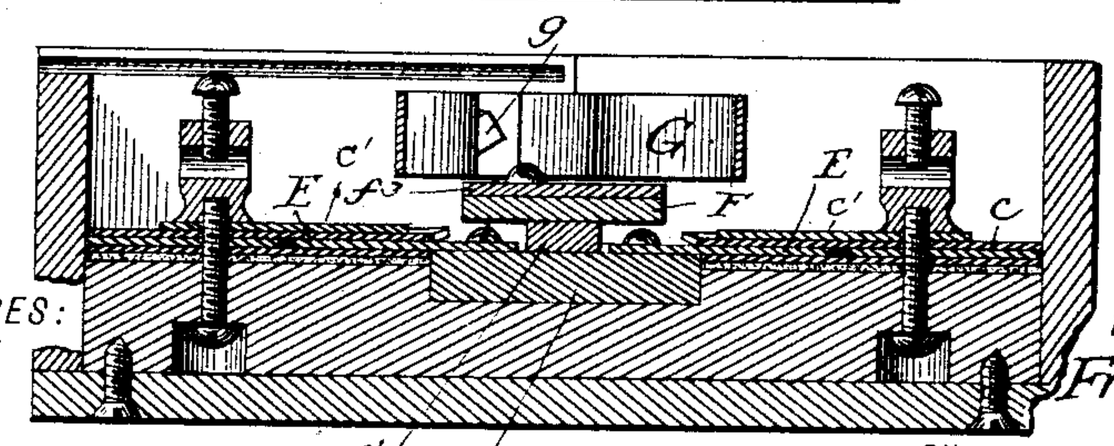


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRED M. BENNETT, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO WILLIAM CARROLL, OF SAME PLACE.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 412,159, dated October 1, 1889.

Application filed April 8, 1889. Serial No. 306,455. (No model.)

To all whom it may concern:

Be it known that I, FRED M. BENNETT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

My invention relates to electric switches, the particular object being to provide a quick-acting switch which shall be of cheap construction and efficient operation.

The invention consists in the details of construction, which will now be described with reference to the accompanying drawings, in which—

Figure 1 represents a front elevation of the switch shown in its casing, and Fig. 2 represents a section through the switch and its operating-lever. Fig. 3 represents a section of Fig. 1 on the line *x x*.

The switch is of the double-pole variety, and is of such construction that the terminals of the two circuits which it controls may be changed from one pair of binding-posts to another, as convenience dictates, without altering the action of the switch.

A A represent the binding-posts of one circuit. Then B B will represent the binding-posts of the other circuit. Each of these binding-posts is connected with one pair of the quadrant-plates C C and D D. Each pair of these plates are of the same construction, and the description of one pair will be sufficient for all. They are all mounted upon a sheet of asbestus or other insulating material placed against the face of the switch-base, and consist of two metallic plates of the general shape of a quadrant of a circle, placed one above the other, but pressed together by spring-plate *c'*, bearing upon the upper plate *c*. *c'* is held in position by a binding-post, as shown. The under plate *c* is secured to the base of the switch by screws, rivets, or in any other suitable manner. The edges of each plate are drawn up slightly to admit the wedge-shaped or knife-blade circuit-closer E. These edges are also slit laterally, so as to insure contact of the greatest amount of surface. The inner portion of the plates or the point of the quadrant is cut away on a circle to form a circular space in the middle, wherein the operating-lever F may be pivoted. This lever is connected with disk *f*, of insulating material, through the interposed block *f'*, the latter serving simply to raise the lever from the face of the switch in order that it may move freely across it. This disk also has attached to it upon opposite sides two circuit-closing plates E E. These plates are somewhat larger than the plates *c c*—that is, they are larger than a quadrant, but smaller than a semicircle. The edges *e e* of these plates are sharpened or wedge-shaped to enable them to pry apart the plates *c c* to effect an entrance. The position of the plates E shown is the one they occupy when the lever F is to the right. The two circuits are closed independently of each other. When the lever is in its extreme left position, the two circuits are thrown together, the current entering at A+, thence to B +, through the circuit to B —, and to A —.

It will be seen that inasmuch as the circuit-closing plates or blades E are longer than the plates C C D D connection will be made between two pairs of plates when the lever is turned before it is broken at the other pair; hence no sparking can take place.

The mechanism for imparting a quick movement to the lever consists of the double **S**-shaped spring G. This is formed from a single piece of spring metal folded over upon itself and secured in front of the face of the switch by screws *g g*, passing into the sides of the casing or box. Each side of the spring is bent in the form shown, which consists of two parallel sides *g' g'*, standing diagonally across the face of the switch, and two other parallel sides g^2 g^2, standing at the opposite angle across the face of the switch.

Upon the face of the lever F, I place two anti-friction rollers f^2 f^2, projecting at right angles therefrom and mounted upon studs. When the lever F is in either of its normal positions—that is, to the extreme right or left—these rollers are against one or the other pair of the parallel portions of the spring, and in the movement of the lever from one extreme to the other the sides of the spring are forced toward each other by the rollers; but as soon as they pass the turning-point where

the parallel sides meet the spring in attempting to free itself forces the lever quickly over, thus making a sudden change of the circuits.

It should have been stated before that the studs carrying the rollers are fixed in metallic plate f^3, forming a part of the lever F. It should also have been stated that the disk of insulating material to which the lever and its connections are attached rotates in a circular hole sunk in the base of the switch.

Having now described my invention, I claim—

1. In an electric double-pole switch, four pairs of plates, each pair in electrical connection with a binding-post and forming nearly a quadrant, springs for forcing said plates together, in combination with two circuit-closing plates mounted opposite each other upon a rotatable disk, the said circuit-closing plates being located in a plane coincident with the contact-points between the pairs of quadrant-plates, substantially as described.

2. In an electrical double-pole switch, four pairs of plates, each pair in electrical connection with a binding-post and forming nearly a quadrant, springs for forcing said plates together, in combination with two circuit-closing plates mounted opposite each other upon a rotatable disk, the said circuit-closing plates being located in a plane coincident with the contact-points between the pairs of quadrant-plates, a lever connected with said disk, and a spring for imparting a quick motion to the lever, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRED M. BENNETT.

Witnesses:
WM. A. ROSENBAUM,
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