

(No Model.)

E. WESTON.
ELECTRICAL CIRCUIT BREAKER.

No. 301,023

Patented June 24, 1884.

Fig. 1.

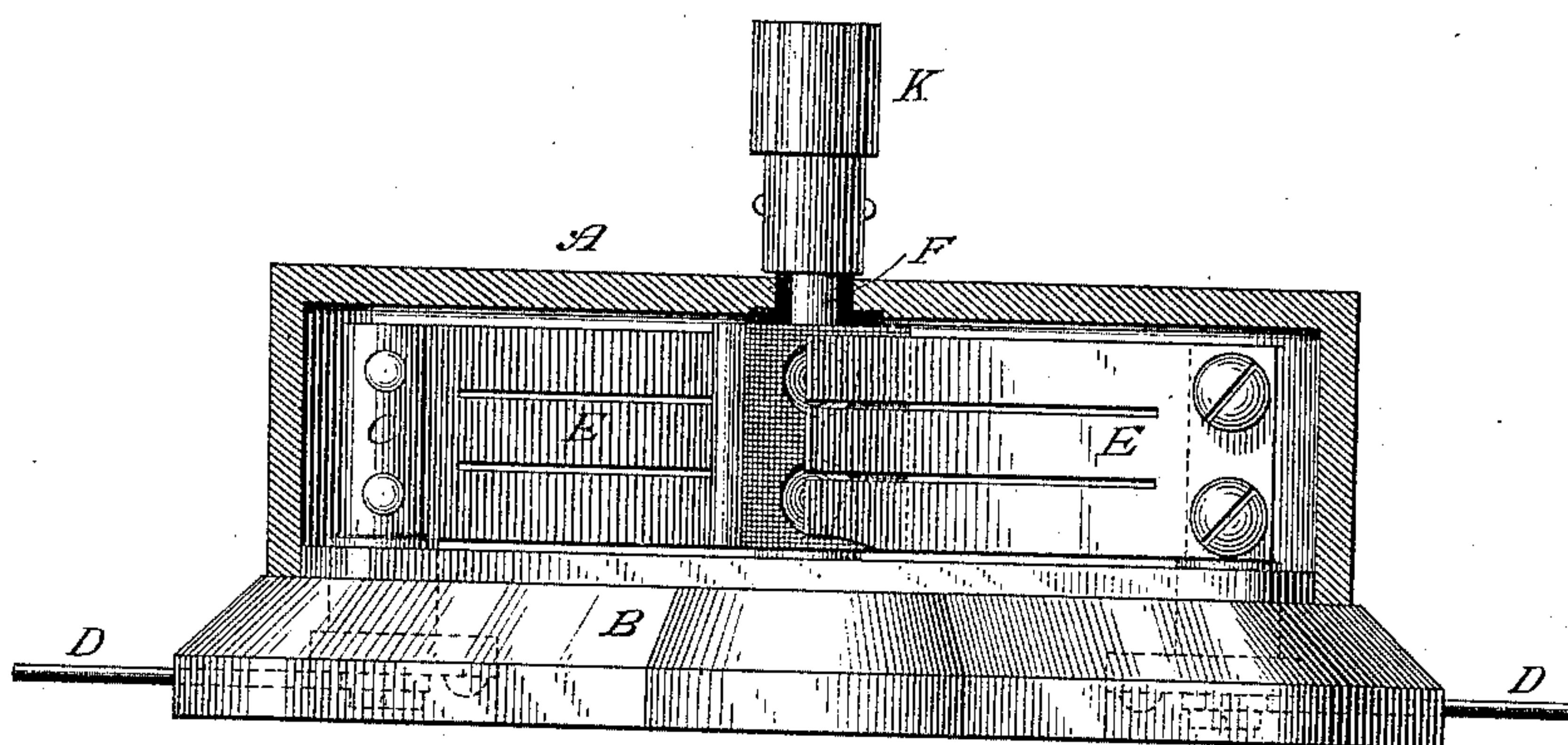
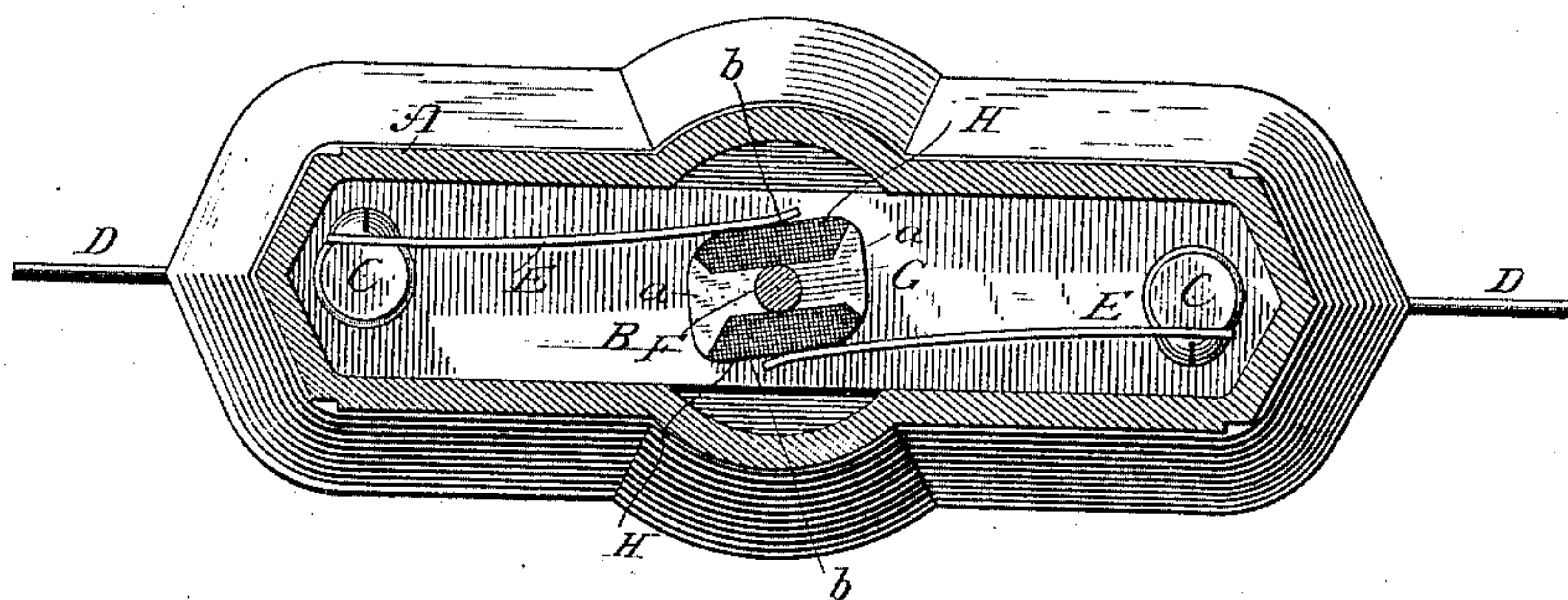


Fig. 2.



Attest:
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UNITED STATES PATENT OFFICE.

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

ELECTRICAL-CIRCUIT BREAKER.

SPECIFICATION forming part of Letters Patent No. 301,023, dated June 24, 1884.

Application filed September 12, 1883. (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 Electrical Circuit-Breakers, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

In another application filed by me I have shown and described a device for making and breaking an electric circuit in which a contact-plate capable of being rotated is arranged in conjunction with two springs in such manner that a continuous turning of the plate in one direction first closes and then breaks the circuit, the latter operation being effected instantaneously by the action of the springs, which separate from the plate at the same instant of time. In this device, and in others heretofore used where the sudden snap or reaction of one or more springs is made available for breaking the circuit, provision is made for turning or operating the switch in one direction only. This is ordinarily done by using the springs as pawls to engage with insulating-teeth and prevent the backward movement of the switch. In practice it has been found that switches of this description are constantly being injured by ignorant and unskilled persons, who, in attempting to turn the switch backward, bend the springs out of shape or wrench the thumb-piece so as to render the device useless. My object is therefore, primarily, to produce a switch the construction of which will permit it to be turned in either direction, and still prevent the formation of an arc between the separable points of contact by effecting an instantaneous separation of these points when the switch is operated for interrupting the circuit. To accomplish this I use a contact-plate mounted on a suitable spindle and partly surrounded or inclosed by pieces of insulating material, and a spring or springs that impinge thereon. The plate and the insulating-pieces attached thereto are of such conformation that when they are turned to bring the plate in contact with the spring or springs the latter will exert a force to throw the plate around and out

of contact, or else into a position where the fullest and most complete contact is made, in which event it will be held there until again turned. It results from this that the switch cannot be turned and left in a position where the electrical connection is incomplete, while the force of the spring or springs is so applied that an instantaneous separation of the points of contact is effected, and burning thereby avoided, unless a special effort be made on the part of the person operating the switch to prevent it.

In describing more fully my invention reference will be made to the accompanying drawings, which exhibit a simple and practicable form of circuit-breaker constructed to accomplish the results above described.

Figure 1 is a view in elevation of the instrument, the box or casing being shown in section. Fig. 2 is a horizontal section of Fig. 1, taken just above the contact-springs.

The inclosing-box A may be of any ordinary kind, and is mounted, for convenience, on a base, B, in which are set two posts or standards, C C. The conductors D D of an electric circuit lead to these posts. Two stout spring-plates, E, of copper or other metal, are fastened to the posts C C in the manner shown, and extend within the box slightly beyond its center. Between the springs E is set a spindle, F, having a bearing in the bottom, and passing through the top of the box. On the spindle F is fixed a metal plate, G, shaped as shown, to the sides of which are attached the insulating-pieces H H, these three parts forming a block with insulating sides or faces and conducting ends, and having a shape approximately oval in cross-section, with four flattened portions—one on each end and one on each side. When thus constructed, the spindle will be held by the force of the springs in either one of two positions, one of which is that illustrated in Fig. 2, the other position being that in which the springs impinge upon the conducting ends *a*. If the spindle be turned by a thumb-piece, K, away from either of these positions, the springs will have a tendency to throw it back into the position from which it was turned, or into the other position, according to the extent of the movement imparted to it by hand. If

the springs are in contact with the ends *a a*, for instance, and the spindle be turned sufficiently to the left or right, the block will be thrown around so that the springs will rest on the faces *b b*, the circuit being instantaneously broken by this operation. A similar action takes place on turning the spindle to complete the circuit.

In the drawings I have shown two springs, *E*, and in practice I prefer this arrangement, as it effects a simultaneous separation of the circuit at two points. One of these springs might be dispensed with, however, as will be readily seen.

The exact shape of the block composed of the plate and pieces of insulating material may be considerably varied. For example, it may be oval in cross-section, or nearly rectangular, with rounded corners or of any similar shape, to cause it to be shifted by the force of the springs into one or the other of the positions described.

What I claim as my invention is—

1. In an electrical-circuit breaker, the combination, with a rounded or oval block having flattened insulating and conducting faces, and means for rotating the same, of one or more contact-springs impinging upon said block, and arranged for operation in substantially the manner herein shown.

2. The combination, with the rounded or oval block, composed of a metal plate, and insulating-pieces attached thereto, and arranged to present the flattened conducting and insulating faces *a a b b*, of the contact-springs impinging on said faces, as described.

In testimony whereof I have hereunto set my hand this 7th day of September, 1883.

EDWARD WESTON.

Witnesses:

PARKER W. PAGE,
W. FRISBY.