

(No Model.)

2 Sheets—Sheet 1.

W. C. BRYANT.
ELECTRIC SWITCH OR CUT-OUT.

No. 391,943.

Patented Oct. 30, 1888.

Fig. 1.

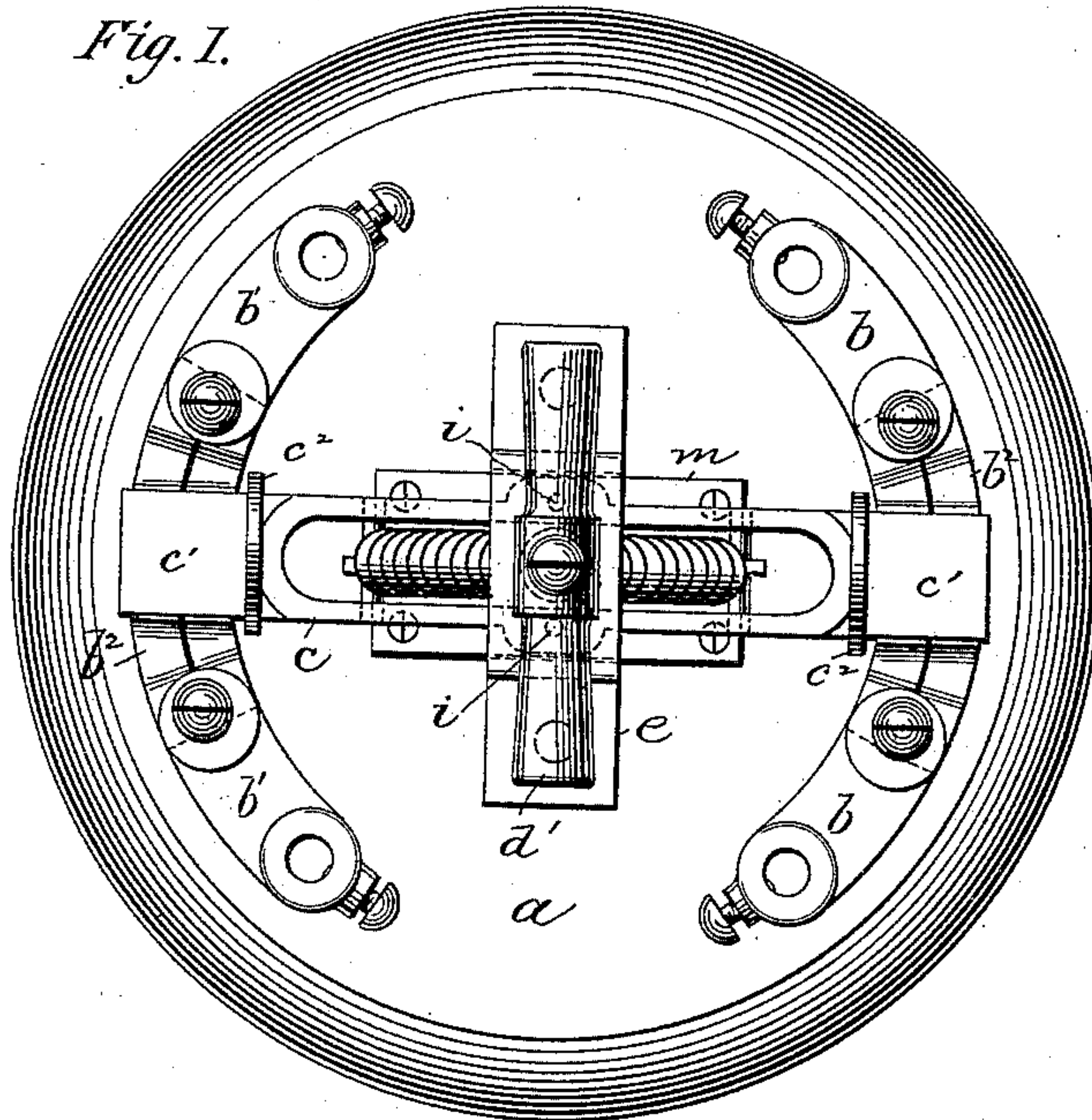
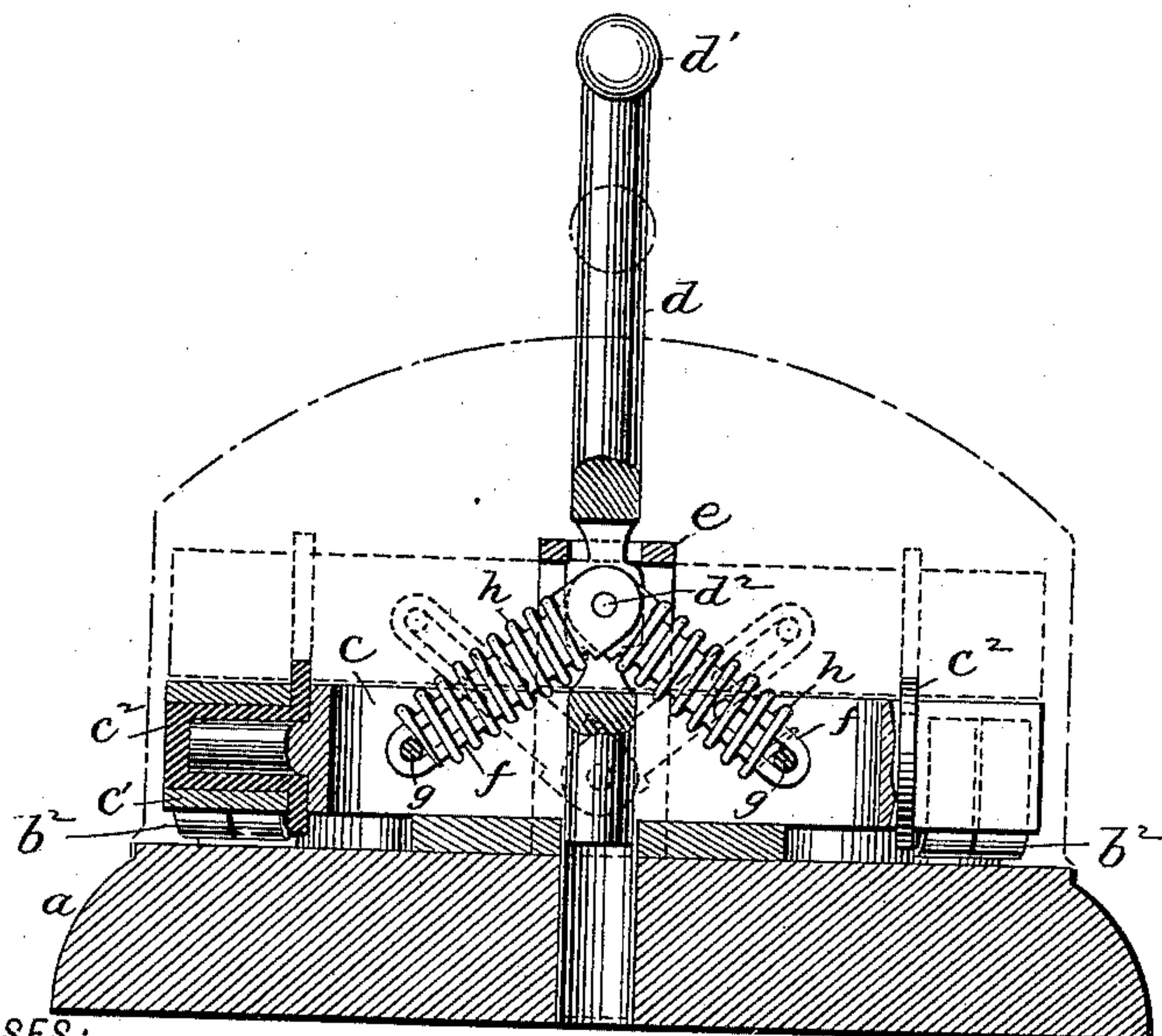


Fig. 2.



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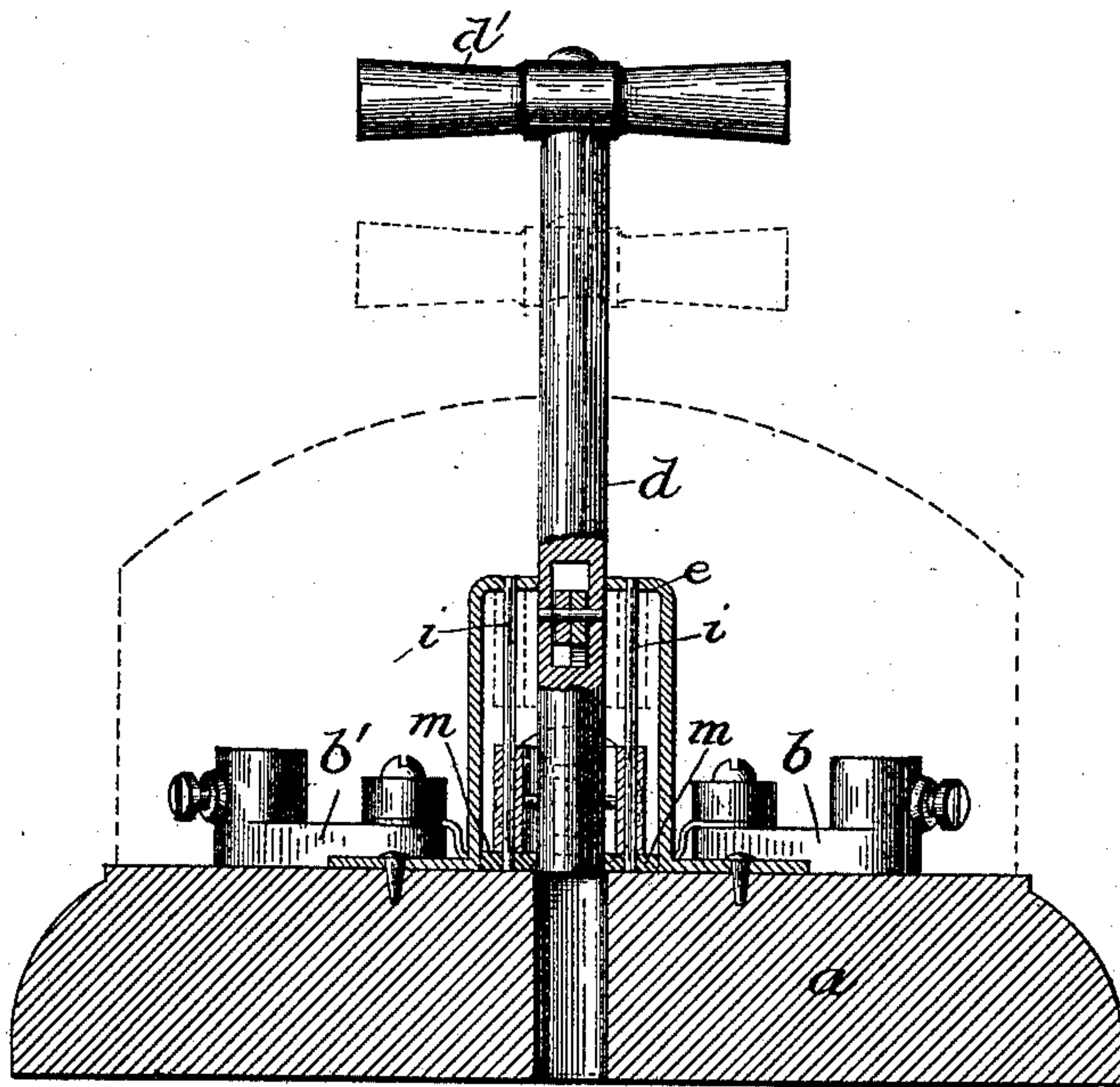


Fig. 3.

Witnesses,

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UNITED STATES PATENT OFFICE.

WALDO C. BRYANT, OF WATERBURY, CONNECTICUT.

ELECTRIC SWITCH OR CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 391,943, dated October 30, 1888.

Application filed June 23, 1888. Serial No. 277,952. (No model.)

To all whom it may concern:

Be it known that I, WALDO C. BRYANT, a citizen of the United States, residing in Waterbury, county of New Haven, and State of Connecticut, have invented a certain new and useful Improvement in Electric Switches or Cut-Outs; and I do hereby declare that the following is a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to electric switches or cut-outs, with particular reference to that class of switch in which the contact-piece has a motion through a certain distance independent of the handle, the said motion being controlled by a spring or weight. This form of switch is familiarly known as the "snap-switch," and its function is to prevent the formation of a destructive "arc" when the current is interrupted.

In general, the switch which I have invented consists of a movable bar or contact-piece the whole movement of which is controlled by a power independent of the handle. The handle has a longitudinal motion and its function is simply to change the position of a pair of springs, so as to make their line of force coincide with the direction of movement of the contact-bar.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the device, and Fig. 2 a vertical section. Fig. 3 is a vertical section taken at right angles to section shown in Fig. 2.

The device is a double pole-switch.

a represents the base, and *b b* and *b' b'* the binding-posts of the two lines. The contact-brushes *b²* are attached to each of them, and are bent upward with their faces opposite each other and slightly flaring to admit the circuit-closing bar, as will be set forth.

c represents the circuit-closing bar. At each end it is provided with a metallic block, *c'*, which is insulated from the intermediate portion of the bar *c²*, representing the insulating-piece. The bar has a longitudinal opening or slot through which passes a thrust and draw rod, *d*, having a suitable handle or cross-head, *d'*. This rod moves through a guiding-frame, *e*, and is adapted to slide in a central

perforation in the base *a*. The motion of the rod is therefore a reciprocating one. The rod has pivoted to it at the point *d²* a pair of links, *f f*. These links are slotted at their outer ends, as shown, and through the slots pass pins *g*, which are arranged transversely in the opening of the bar.

h h are coil-springs surrounding the links and resting against the pins *g* and shoulders on the inner ends of the links. These springs are put in under tension.

In Fig. 2 the position of the circuit-closing bar is shown down—that is, holding the circuit closed. Now it will be readily seen that by forcing the rod *d* down the spring *h* will be compressed by reason of the shortening of the distance between pins *g* and the pivot *d²*, and when the said pivot reaches a position below the line of the pins *g* the power which has been stored in the springs will be exerted in an upward direction against the pins and force the circuit-closing bar upward with a quick movement into the position shown in dotted lines. By withdrawing the rod the same result takes place, only in an opposite direction. The pivot *d²* is pulled to a point above pins *g*, and the springs then force the circuit-closing bar downward with a quick movement.

Referring to Fig. 1, there is shown in dotted lines two pins, *i i*, which are fixed at their upper ends into the frame *e*, and at the lower ends into the base *a*, or a plate, *m*, secured to the base. The circuit-closing bar is provided with perforations through which these pins pass, and the said bar slides upon them when making its movements. These pins serve to hold the bar rigid and prevent any vibration or warping.

The whole device is covered, as shown in Fig. 2 in dotted line. It will thus be seen that I have provided a snap-switch which may be operated by a pull and push, rather than a rotary movement. This is in many instances desirable.

Having now described my invention, what I claim is—

1. In an electric switch or cut-out, the combination, with a movable circuit-controlling bar and the circuit-terminals, of a reciprocating rod or handle and a pair of springs, both of which are connected with the rod at the

same point thereon and with the bar, the point of connection with the rod being normally out of line with the points of connection with the bar, substantially as described.

5 2. In an electric switch or cut-out, the combination, with the movable circuit-controlling bar and the circuit-terminals, and a manually-operated reciprocating element, of a pair of springs, said springs being each connected at
10 one of their ends with said circuit-controlling bar, and at their other ends with said reciprocating element, whereby a movement of the reciprocating element will effect a change in
15 the direction of force of the springs with respect to the circuit-controlling bar, substantially as described.

3. The combination, with the movable circuit-controlling bar, of a reciprocating rod, a pair of links pivoted to the rod and to the said bar, the point of connection with the rod being out of line with the points of connection with the bar, and springs supported upon the links and exerting their force against the rod and the said bar, as described. 20

In witness whereof I have hereunto affixed
my name in the presence of two subscribing
witnesses. 25

WALDO C. BRYANT.

Witnesses:

NATHANIEL R. BRONSON,
GEO. E. TERRY.