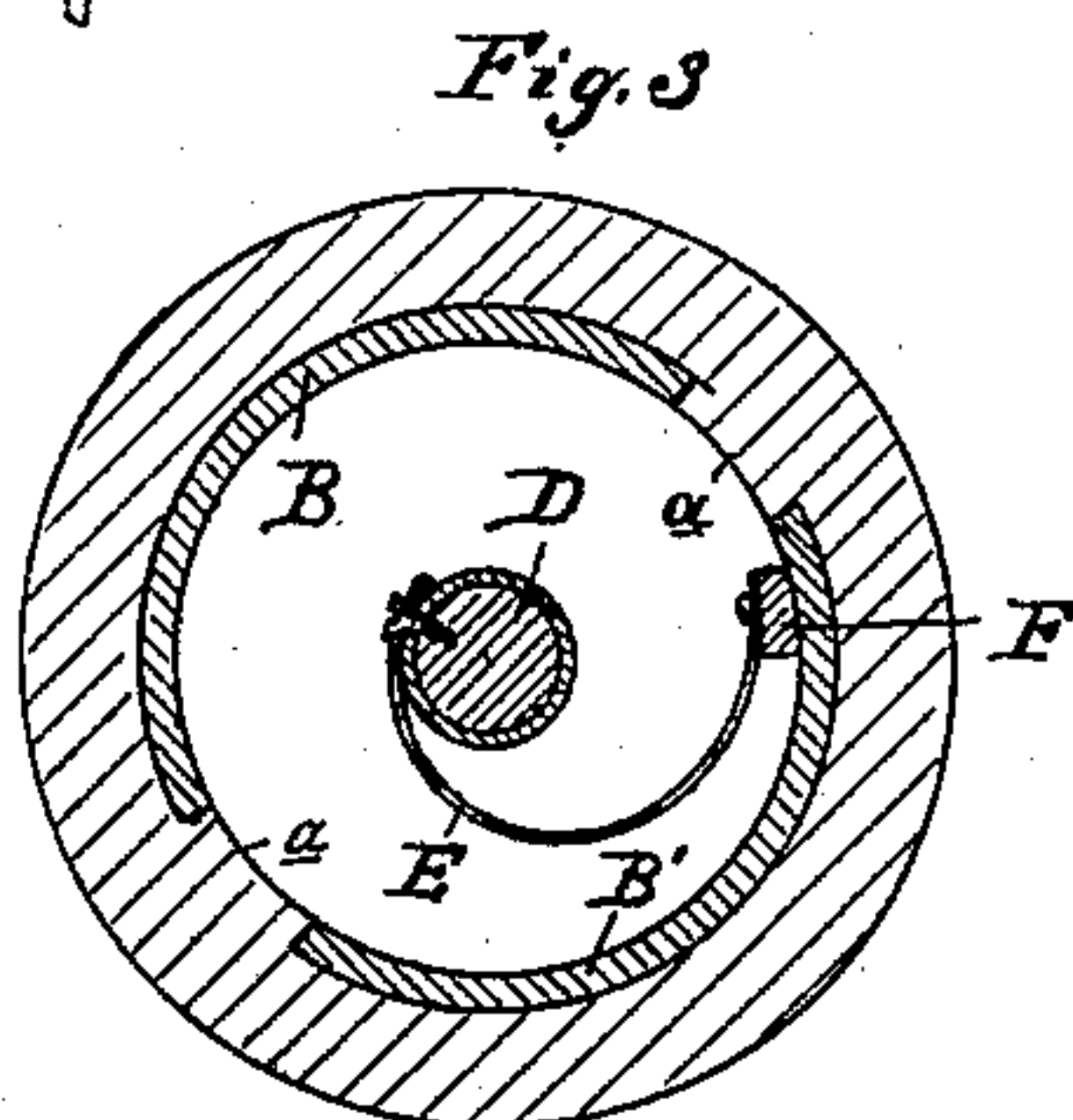
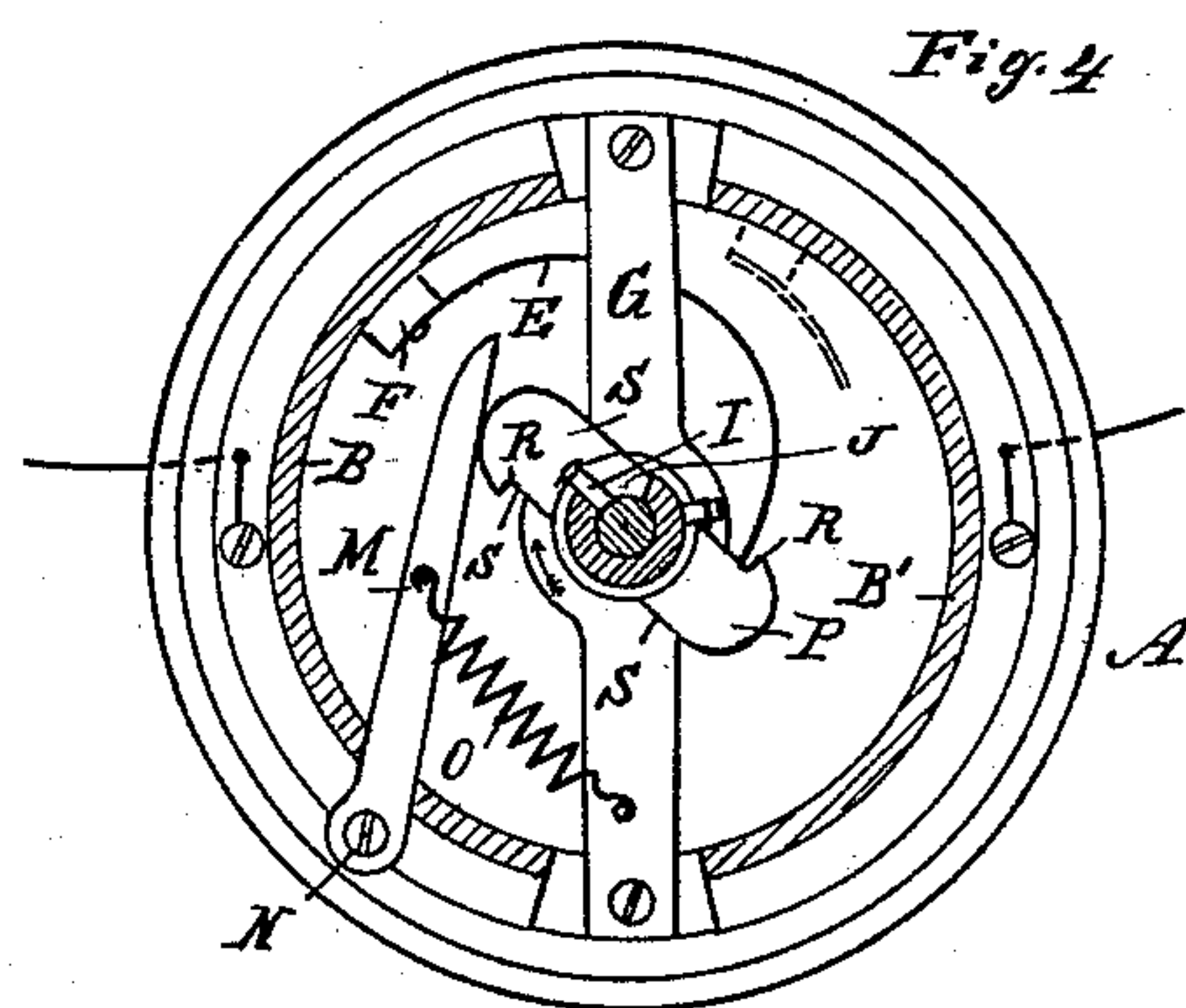
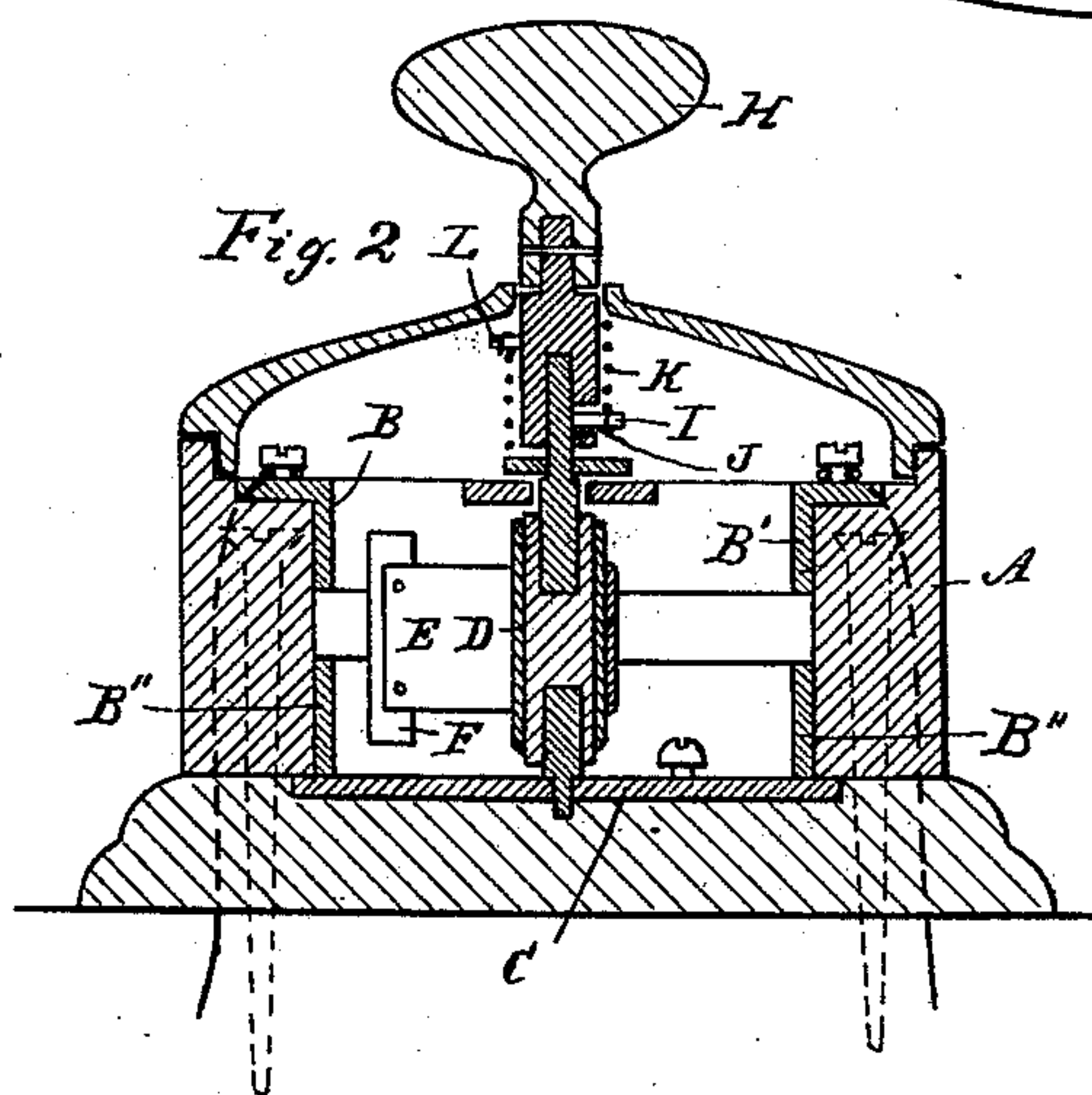
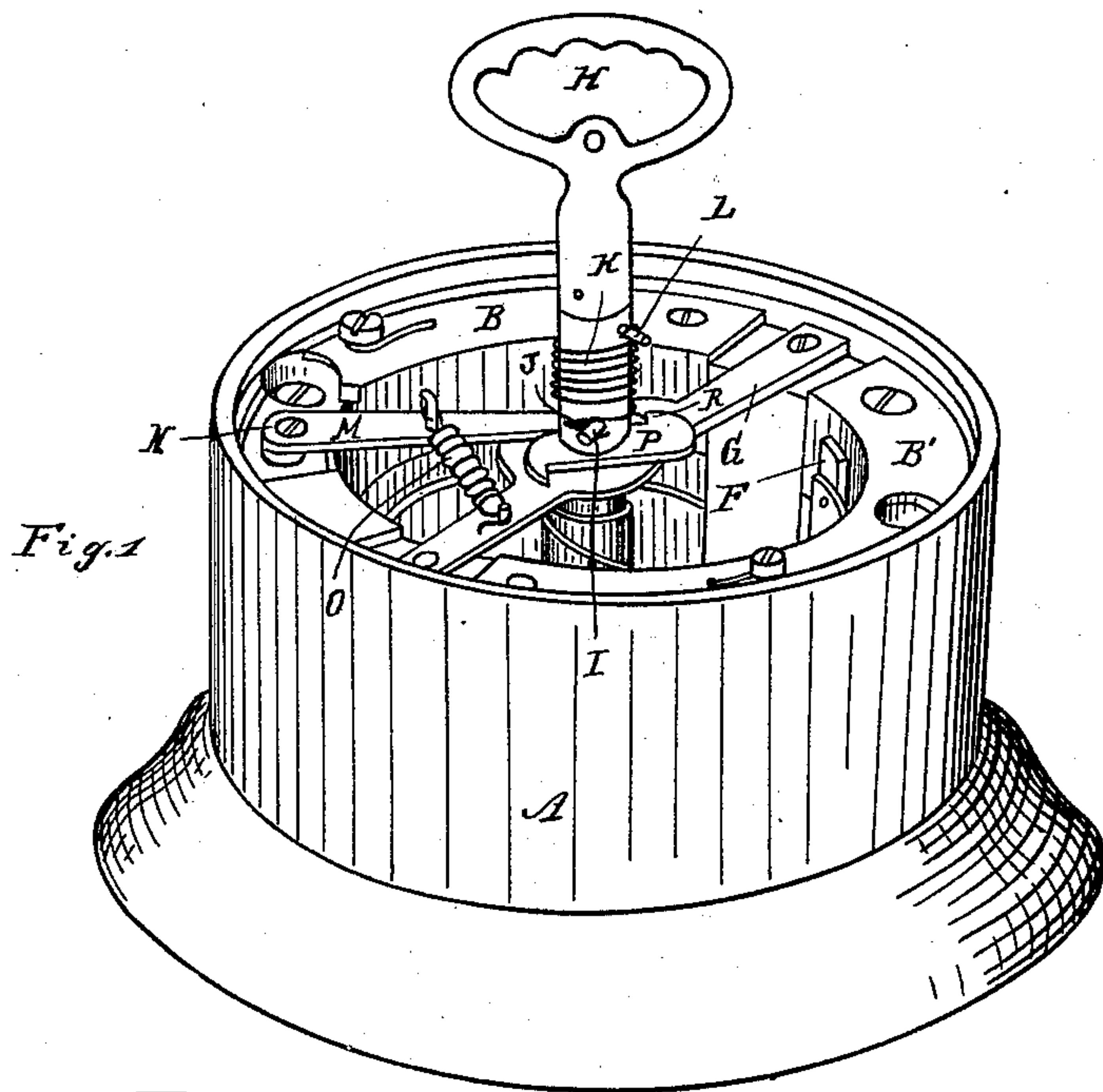


(No Model.)

J. F. McELROY.  
ELECTRIC SWITCH.

No. 387,526.

Patented Aug. 7, 1888.



Attest:  
John Schuman,  
Notary Public.

Inventor:  
James F. McElroy.  
By his Atty  
Thos. J. Sprague.



# UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF LANSING, MICHIGAN, ASSIGNOR OF ONE-HALF TO  
LEWIS C. BUTLER, OF SAME PLACE.

## ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 387,526, dated August 7, 1888.

Application filed March 17, 1887. Serial No. 231,242. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES F. McELROY, of Lansing, in the county of Ingham and State of Michigan, have invented new and useful Improvements in Electric Switches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to new and useful improvements in electric switches for electric-light and other circuits; and the object thereof is to prevent all possibility of "arcing" and to make its operation so simple and reliable  
15 that neither special care nor experience is required to operate it.

The invention consists in the peculiar construction, arrangement, and combination of the different parts, all as more fully hereinafter  
20 set forth.

In the drawings which accompany this specification, Figure 1 is a perspective view of my improved switch with the cover removed. Fig. 2 is a vertical central section thereof. Fig. 3 is  
25 a horizontal section. Fig. 4 is a plan showing it in a certain position during its operation.

A is a casing, preferably of wood or other insulating material.

30 B B' B'' B''' are segmental cylindrical contact-plates fixed to the inner walls of the casing. The contact-plates B B' are opposite each other and form, respectively, the positive and negative terminals of an electric circuit. The contact-plates B'' B''' are placed correspond-  
35 ingly below the contact-plates B B'; but they form only one terminal of a branch or other circuit, as they are electrically connected with each other by the metallic plate C on the bottom of the case.

40 D is a spindle carrying the spring E, to the free end of which the contact-piece F is secured.

G is a bridge arranged to form a bearing for the spindle.

H is a key for turning the spindle by hand.  
45 This key has a socket which engages loosely with the spindle; but a pin, I, secured to the spindle, engages into an oblong slot, J, in the key. A coil-spring, K, is placed around the lower end of the key, with one end of it secured to the pin I and the other end to the key,  
50 as at L. This spring acts with a torsional ten-

sion, which is sufficiently strong to automatically adjust the key on the spindle into the relative position shown in Figs. 1 and 4—that is, with the pin I in the rear end of the elongated slot J—so that in turning the key to the  
55 right the latter has no lost motion on the spindle.

M is a click pivotally secured at N and provided with the retracting-spring O. This click  
60 operates in connection with a ratchet, P, secured upon the spindle, and provided with two cogs, R, and two flat faces, S, all so arranged that when the parts are in the position shown in Fig. 1 the spindle is locked in position, and  
65 can only be turned to the right by a force sufficient to overcome the locking action of the spring of the click.

In practice, the parts being arranged and constructed as described, the operation is intended to be as follows: The switch being in  
70 the position shown in Fig. 1, the movable contact F electrically connects the contact B' (which is one of the terminals of the electric circuit) with the contact B'' below it, and if  
75 the spindle is now given a half-turn the movable contact F first breaks this electrical connection, and then forms a new connection between the contact B (which is the other terminal of the electric circuit) and the contact  
80 B'' below it.

In turning the movable contact F from one position into the other, the ratchet P and click M must pass through the position shown in Fig. 4, and as soon as this position is reached  
85 the tension of the spring O will force the spindle to accomplish the rest of the movement automatically and carry the movable contact with a quick jump from one set of stationary contacts over the intermediate insulation onto the  
90 other set of stationary contacts. At the same time the click will fall into its locking position with a loud sound, which indicates to the operator that the change is accomplished. This automatic jump of the movable contact pre-  
95 vents arcing, which in electric-light circuits often destroys or injuriously affects the switch. It will be further noticed that the operator can in no way prevent this jumping of the movable contact on account of the lost motion pro-  
100 vided between the key and the spindle.

As soon as the operator releases the key af-



ter accomplishing the operation, the spring K will force the key to automatically take up its lost motion.

It will be understood that the spring K is not an element necessary to accomplish the jumping of the movable contact, and it may therefore be omitted; but its use has the advantage that it turns the key into a fixed position which may be most handy for the operator, and at the same time renders the key less liable to be turned in the wrong direction, to the possible injury of the switch; and, further, the play provided between the key and the spindle will not puzzle an uninitiated or inexperienced operator.

What I claim as my invention is—

1. In an electric switch having fixed cylindrical contacts and a movable contact carried by a spindle, an actuating key or handle secured to said spindle and having a loose connection therewith, a ratchet secured to the spindle and provided with cogs and flat faces, and a spring-click operating in connection therewith to impel the spindle through the medium of the ratchet, substantially as described.

2. In an electric switch, the combination, with the fixed cylindrical contacts, of a spindle, a spring carrying the movable contact, a key secured to the spindle and having a loose connection therewith, a ratchet having cogs and flat faces, and a spring-click operating in

connection with said ratchet to form an impelling and locking device for said spindle, substantially as described.

3. In an electric switch having fixed cylindrical contacts, a movable contact carried by a spindle, and a spring-actuated impelling device on said spindle, a key or handle secured to said spindle and having a loose connection therewith, and a spring between said spindle and key arranged to take up such rotary play, substantially as described.

4. In an electric switch, the combination of the fixed cylindrical contacts B B' B'' B'', the spindle D, the movable contact F, carried by said spindle, the key or handle H, having a loose connection therewith, the ratchet P, secured to the spindle and having cogs R and flat faces S, and the spring-click M, all arranged to operate substantially as described.

5. In an electric switch, the combination of the fixed contacts B B' B'' B'', the spindle D, the movable spring-contact F, the key or handle H, having a loose connection therewith, the spring K, arranged to take up said play, the ratchet P, having cogs R and flat faces S, and the spring-click M, all substantially as described.

JAMES F. McELROY.

Witnesses:

ANDREW LESTER,  
L. C. BUTLER.