

(No Model.)

S. BERGMANN.
ELECTRIC SWITCH.

No. 400,732.

Patented Apr. 2, 1889.

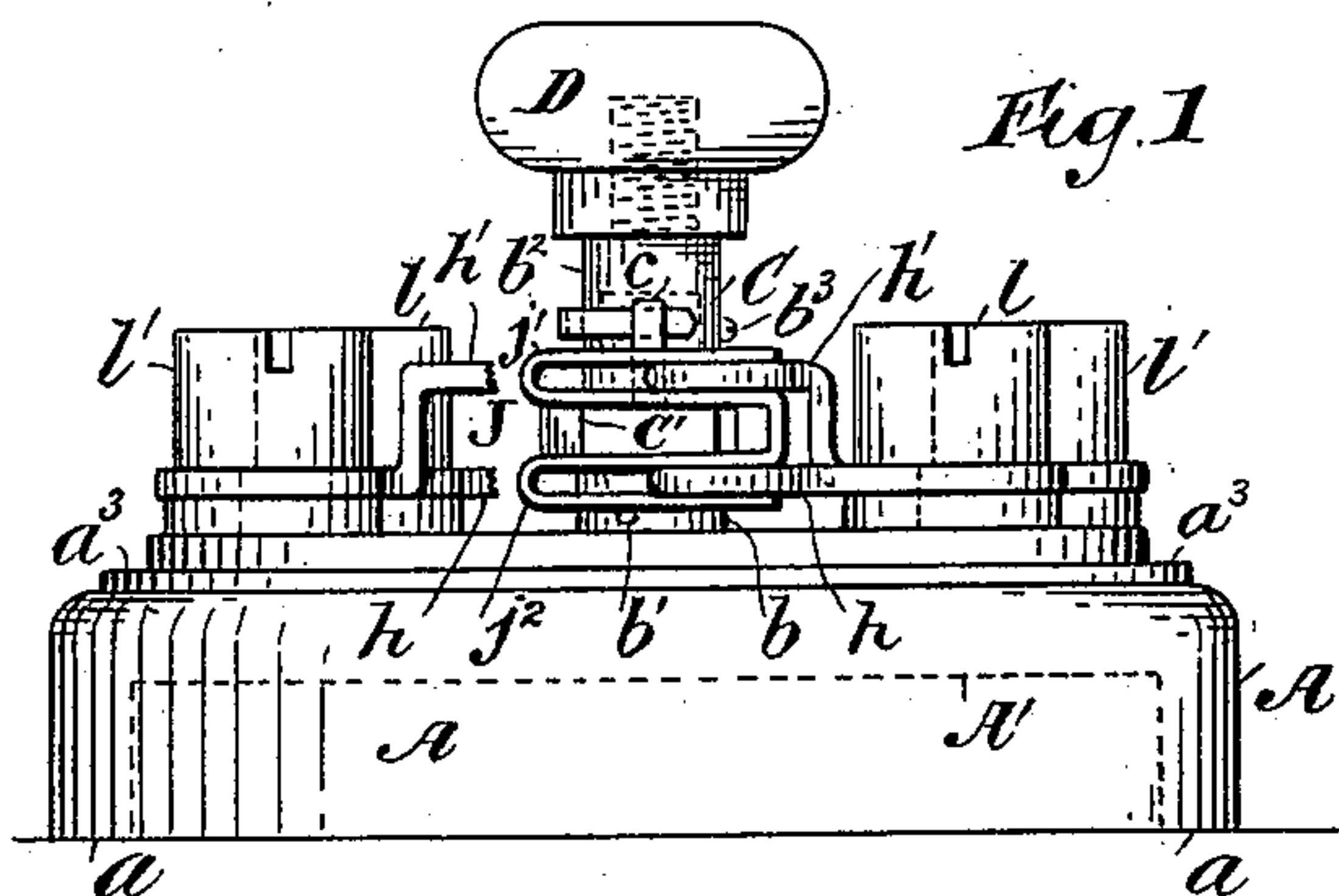


Fig. 1

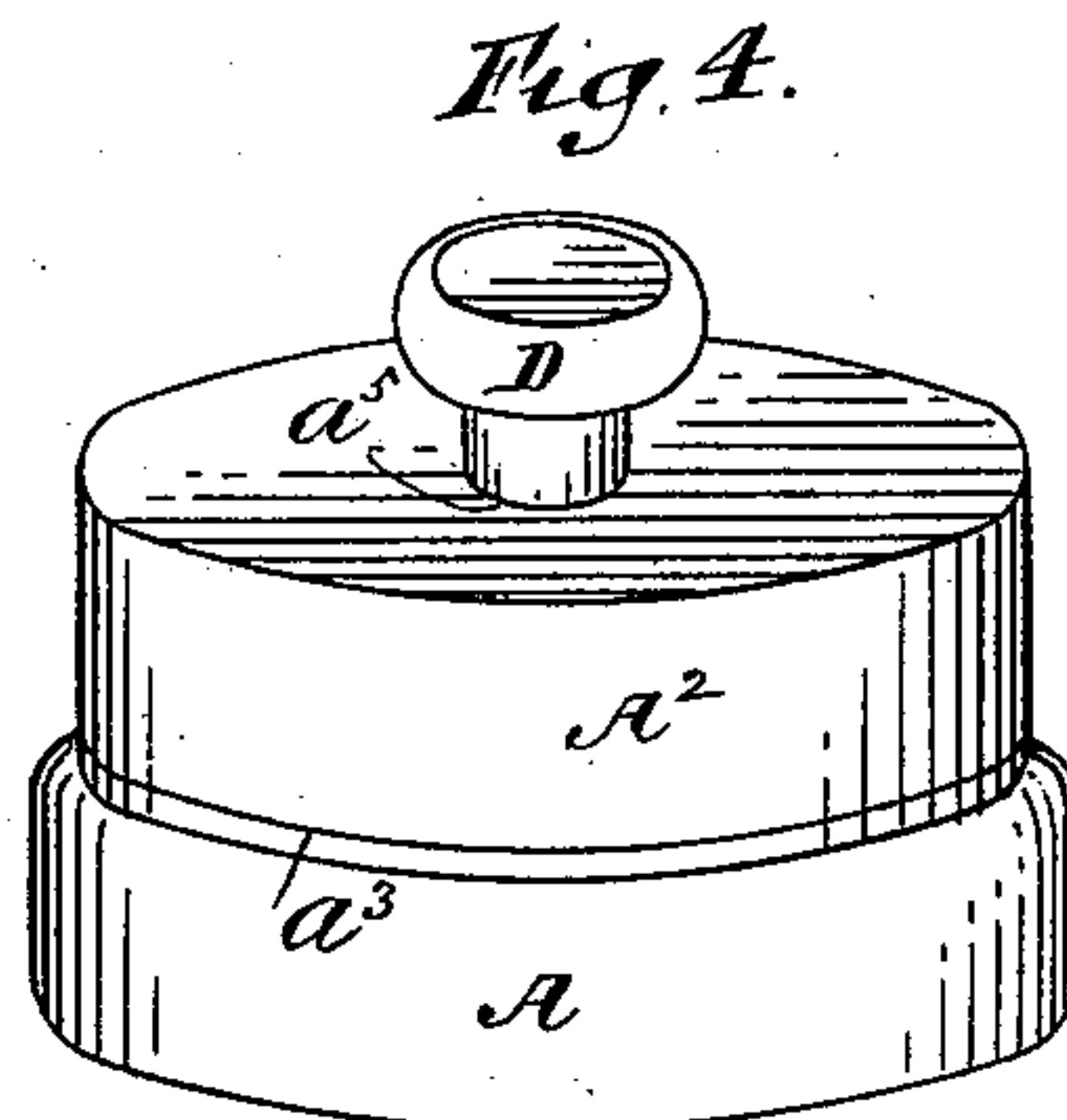


Fig. 4.

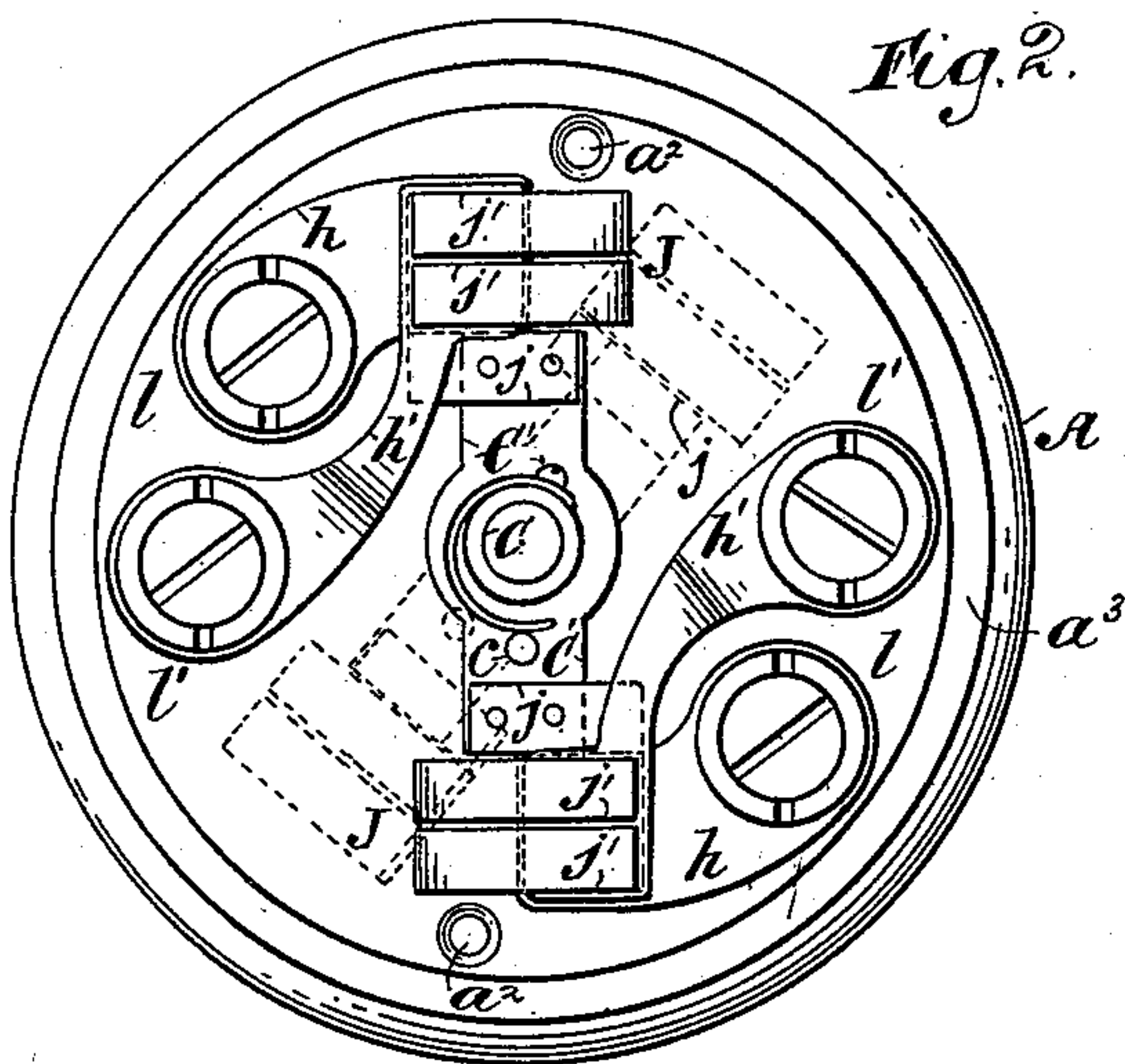


Fig. 2.

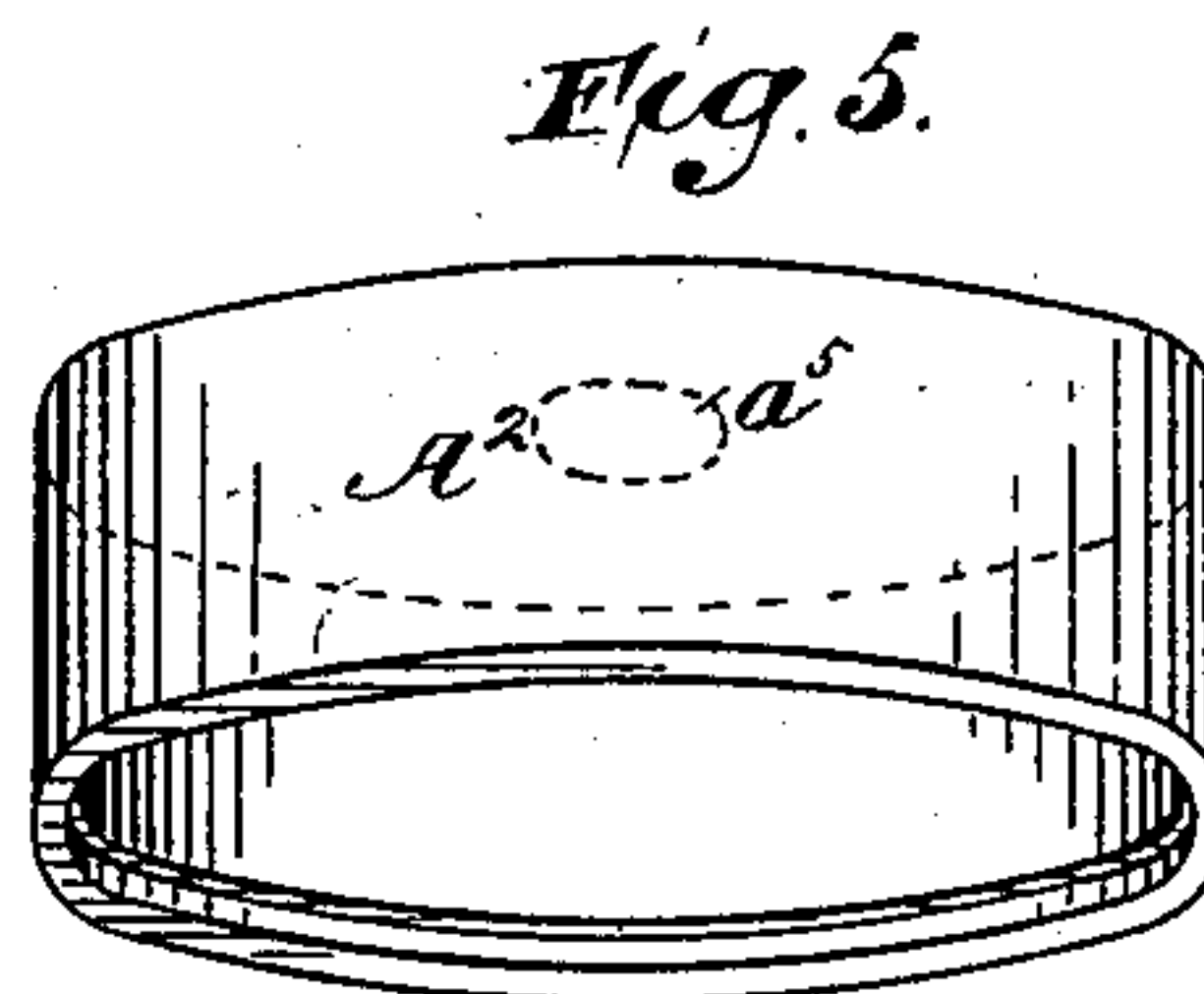


Fig. 5.

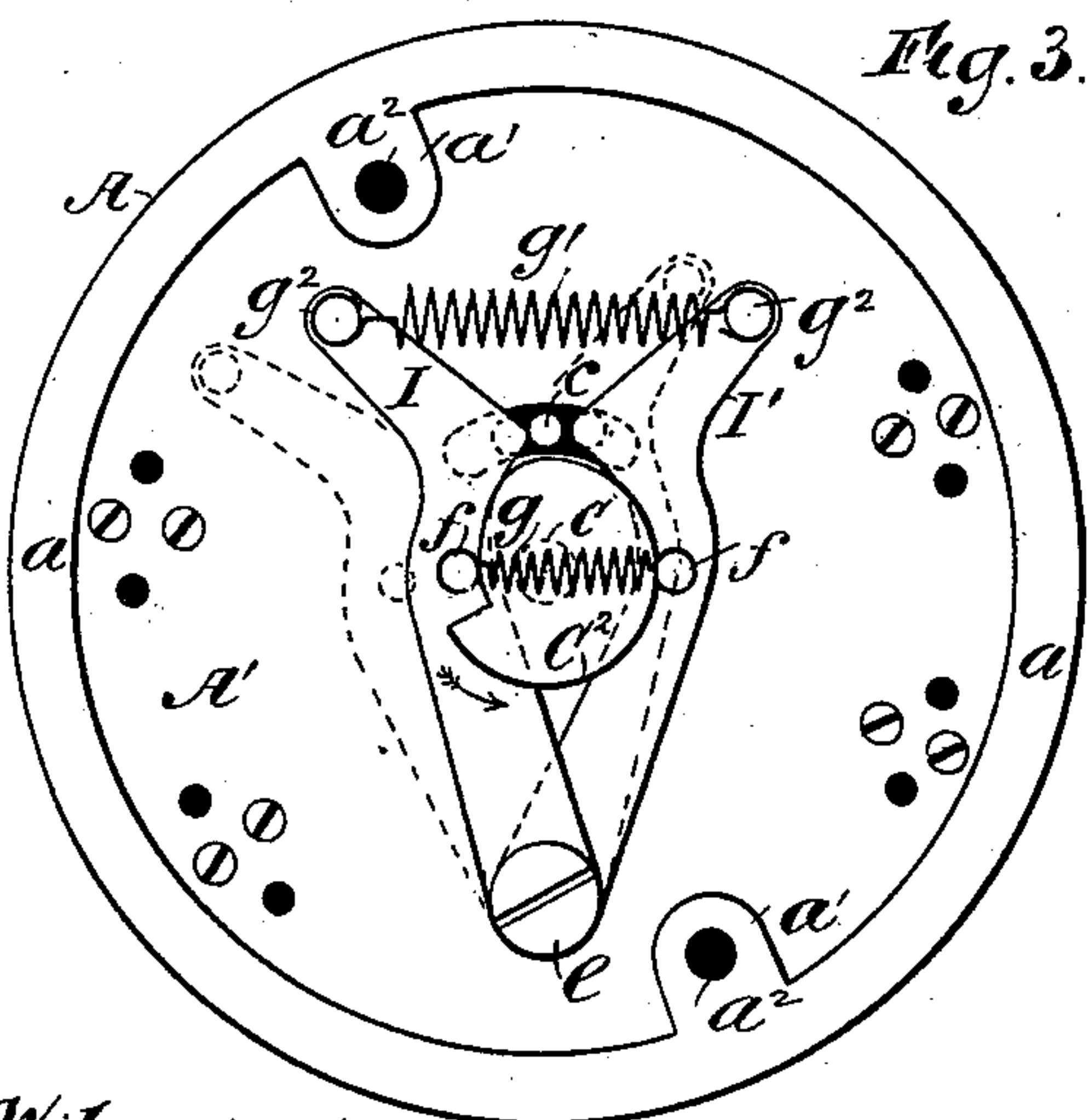


Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

SIGMUND BERGMANN, OF NEW YORK, N. Y., ASSIGNOR TO BERGMANN & COMPANY, OF NEW YORK.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 400,732, dated April 2, 1889.

Application filed February 2, 1888. Serial No. 262,772. (No model.)

To all whom it may concern:

Be it known that I, SIGMUND BERGMANN, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Electric Switches, of which the following is a specification.

My improvement relates more particularly to switches employed in electric-lamp circuits.

I will describe an electric switch embodying my improvement, and then point out the novel features in a claim.

In the accompanying drawings, Figure 1 is a side view of an electric switch embodying my improvement. Fig. 2 is a plan view of the same, a certain hand-piece being removed. Fig. 3 is a bottom view of the same. Fig. 4 is a perspective view of the same, showing a certain cover in place on the switch. Fig. 5 is a similar view of the cover detached.

Similar letters of reference designate corresponding parts in all the figures.

A designates the base, upon which the switch and its coacting parts are mounted. This base is made of earthenware, porcelain, or other vitreous material, and may be cast in a mold. It is provided upon its under side with a recess, A', whereby a circumferential flange or rim, a, is formed on the bottom. The recess A' is of such depth that certain parts of the switch arranged therein will not project beyond the rim or flange a. The edge of said rim or flange may therefore be set flatly against a support for the base. Of course this rim or flange need not be made continuous unless desired. Extending inward from the rim or flange a are lugs or projections a', through which extend apertures a². Through the apertures a² screws may be passed to secure the base to its support. The top or upper side of the base A is provided with a circumferential rabbet, a³, at its edge. A cover, A², for the switch is provided, having a downwardly-extending flange adapted to fit upon the rabbeted portion a³ of the base. Extending centrally through the cover A is an aperture, a⁵. This cover is made of porcelain or other vitreous material. The use of porcelain or other vitreous material for the base and cover for the switch is advantageous, because it is non-inflammable, and will not therefore catch fire from accidental sparking

at the switch. Furthermore, such material is a good non-conductor of electricity.

C designates a shaft. This shaft extends through a central aperture in the base A, and, when the cover is in place, through the aperture a⁵ therein. Above the base A a collar, b, is secured to the shaft C by means of a set-screw, b'. Above the collar b there is mounted upon the shaft C a cross-bar, C'. This cross-bar is provided about midway in its length with an aperture, through which the shaft extends. This aperture is of such diameter that the cross-bar may turn loosely about the shaft. Above the cross-bar C' a sleeve, b², surrounds the shaft, and is secured thereto by a set-screw, b³. The upper portion of the sleeve b² is reduced in diameter, and is screw-threaded to receive a hand-piece, D. The hand-piece D may be screwed down upon the screw-threaded portion of the sleeve b² and against the unscrew-threaded portion thereof. When screwed down to its farthest limit, the hand-piece may be turned to cause the rotation of the shaft C in one direction. When the cover is in place, the hand-piece is outside the cover.

The cross-bar C' is made of insulating material, such as india-rubber or wood. Secured to the cross-bar, as shown, near the shaft C is a pin or projection, c. This pin or projection extends downwardly through an arc-shaped aperture in the base A and between two levers, I I'. Both said levers are fulcrumed upon a screw, e, secured to the base A. The lower extremity of the shaft C also extends between the levers I I'. Upon the lower extremity of the shaft C is rigidly secured a cam, C². This cam is of the kind generally known as a "snail-cam." Upon the levers I I' are pins or projections f, which pins or projections are caused to bear against the periphery of the cam C² by a coil-spring, g, which is secured at its ends to said pins or projections. Extending between the outer or free ends of the levers I I' is another coil-spring, g', secured at its ends to pins or projections g² on the levers. The object of this spring is to draw the levers toward each other.

The parts being in the position shown in bold lines in Fig. 3 and the shaft C being rotated in the direction of the arrow 1 in said figure, the lever I will be moved by the cam

to the right, the lever I' being maintained by the cam in the position shown until the step upon the cam has reached the pin or projection f on the lever I' . When this point has been reached, the springs $g g'$ cause the lever I' to move quickly toward the lever I and the pin or projection f on the lever I' to spring into the step on the cam. The parts will then occupy the position shown in dotted lines in Fig. 3. A continued rotation of the shaft C in the same direction causes the lever I' to be moved toward the left and the lever I to be sprung toward the lever I' in a manner similar to that just described, when the parts will be returned to the position shown in bold lines. As the pin or projection c extends between the levers $I I'$, each time the levers $I I'$ are shifted the pin c is caused to move with them, producing a corresponding movement of the cross-bar C' . The object of this movement of the cross-bar C' is to bring contact-pieces $J J'$ into and out of contact with electrical conductors $h h'$. The contact-pieces $J J'$ are secured one upon each end of the cross-bar C' . They are made of metal—such, for instance, as copper. They each comprise a U-shaped central portion, j , part of which extends about the cross-bar C' and is secured to the latter, and U-shaped portions $j' j^2$ upon each side of the central portion, j . The spaces between the limbs of the portions $j' j^2$ are, as shown, narrower than the spaces between the limbs of the portion j , and the open ends of the portions $j' j^2$ in this example of my improvement are in an opposite direction to the open ends of the portions j . When the contact-pieces $J J'$ have been moved into contact with the conductors $h h'$, portions of the conductors h will extend between the limbs of the U-shaped portions j^2 of the contact-pieces and into electrical contact with said limbs, while portions of the conductors h' will extend between the limbs j' of the contact-pieces and

into electrical contact with said limbs, as shown more clearly in Fig. 1 and in bold outlines in Fig. 2. Circuits will then be closed. Circuits will be opened when the cross-bar is moved into the position shown in dotted outline in Fig. 2, because the contact-pieces $J J'$ will be moved out of contact with the conductors $h h'$. The contact-pieces are shown as split longitudinally of the U-shaped portions. By this means they are rendered more resilient. The conductors h are secured near one of their ends to binding-posts l , and the conductors h' are secured near one of their ends to binding-posts l' .

It will be observed that by the use of the contact-pieces described contact is made with the conductors $h h'$ upon both sides of the latter, and by making the limbs of the portions $j' j^2$ of the contact-pieces resilient a very close contact is effected.

The use of the cover A' is advantageous, because not only does it exclude dust and dirt from the switch, but danger from sparking to the person manipulating the switch is avoided.

What I claim as my invention, and desire to secure by Letters Patent, is—

In an electric switch, the combination, with a base, of a shaft, a cross-bar of insulating material mounted on the shaft, two fixed electrical conductors mounted on the base, two other fixed electrical conductors mounted on the base approximately opposite the conductors first named, and contact-pieces on each end of said cross-bar comprising each three U-shaped portions and each adapted to contact with both sides of its two adjacent conductors, substantially as specified.

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Witnesses:

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