

A. LUNGEN.
CIRCUIT CONTROLLER.

APPLICATION FILED NOV. 13, 1902.

NO MODEL.

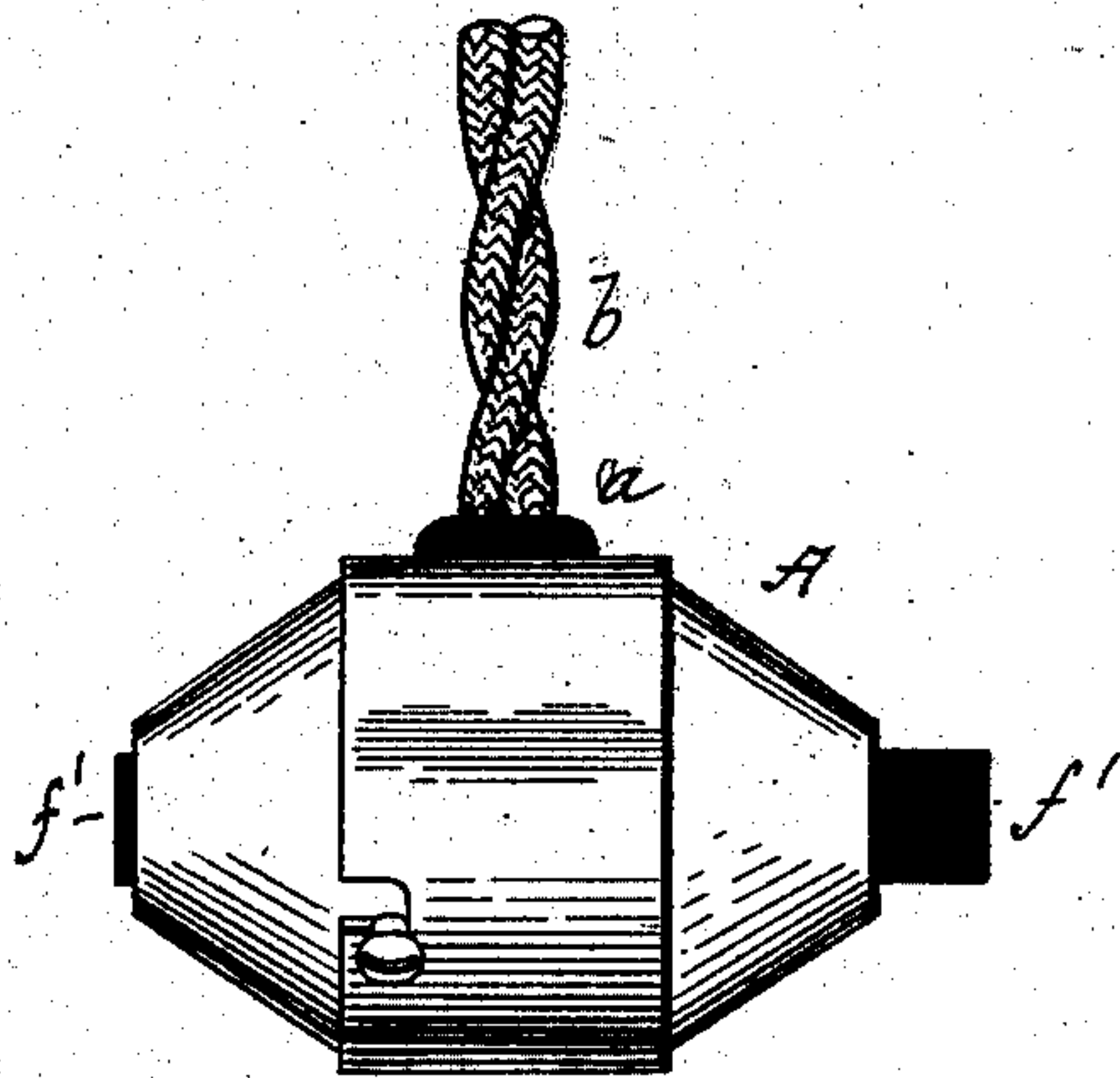


Fig. 1

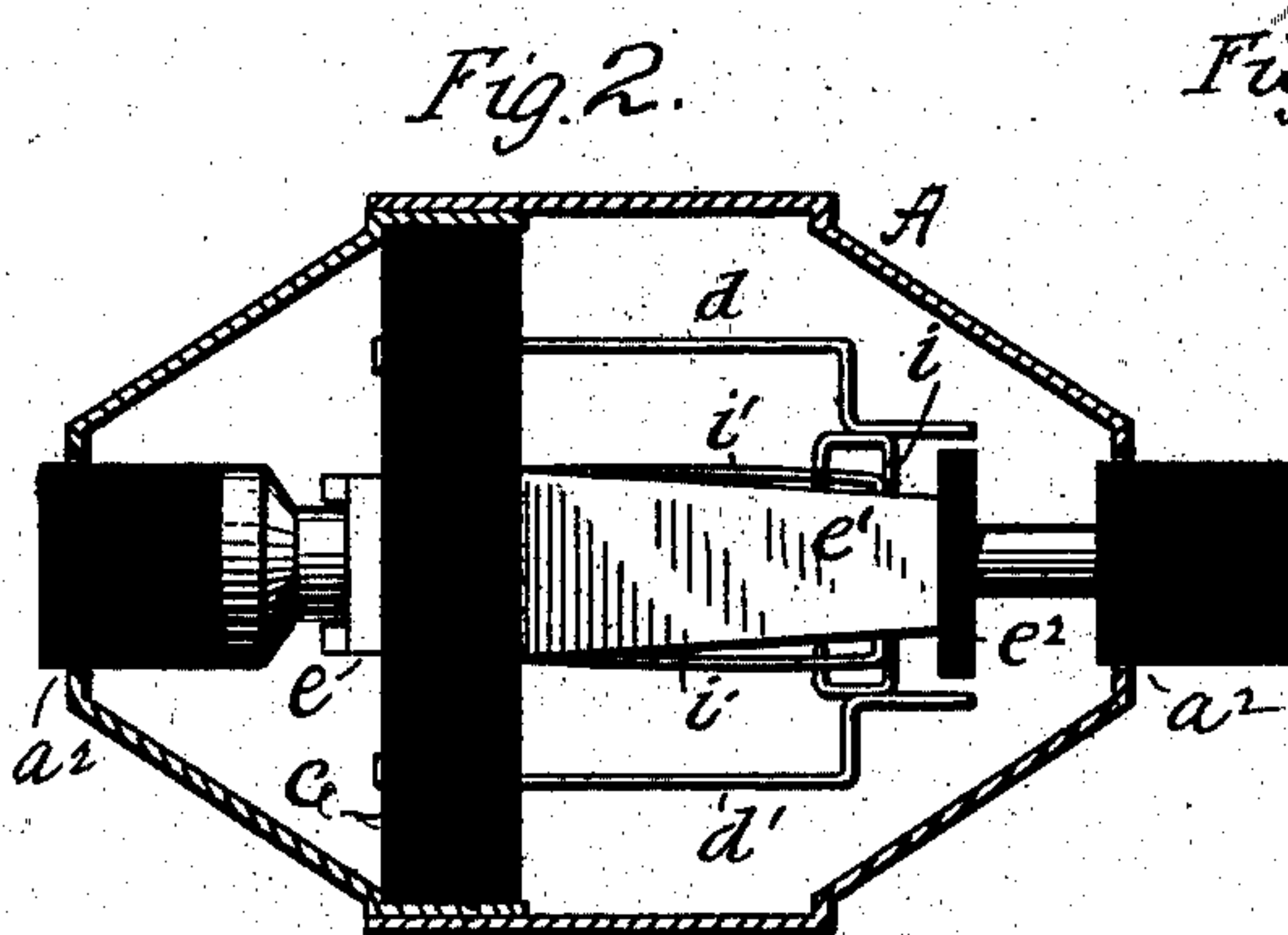


Fig. 2.

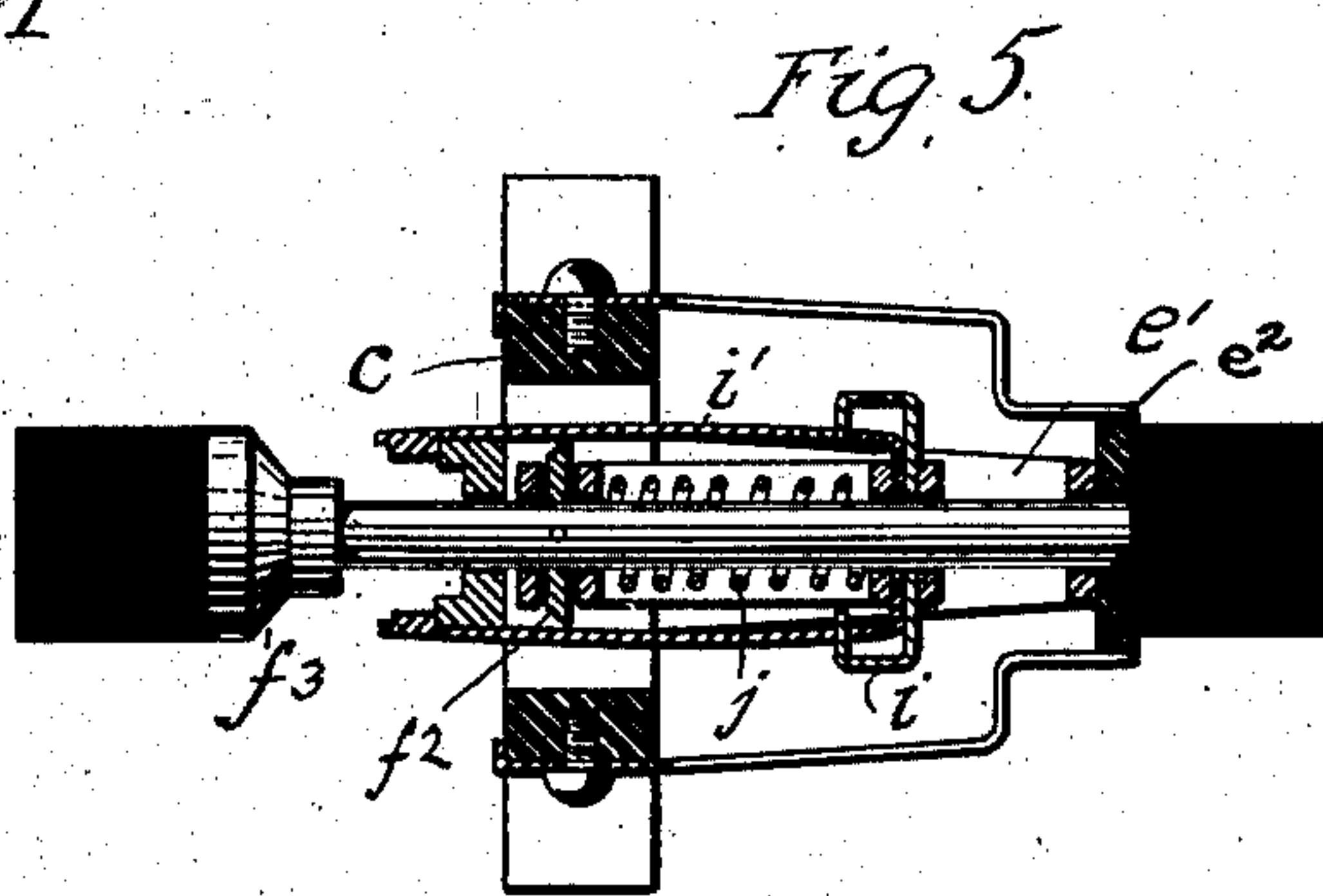


Fig. 5.

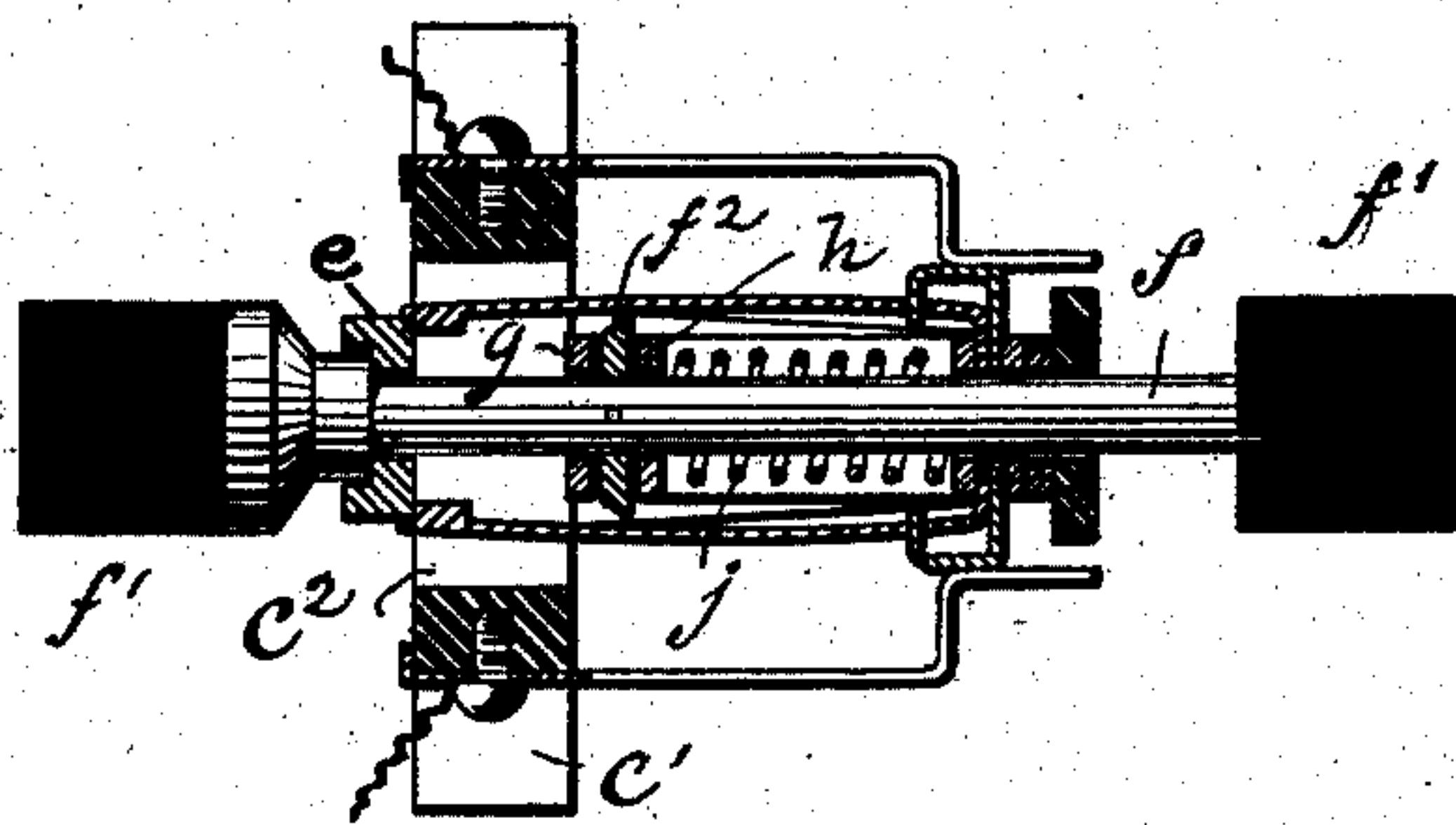


Fig. 3.

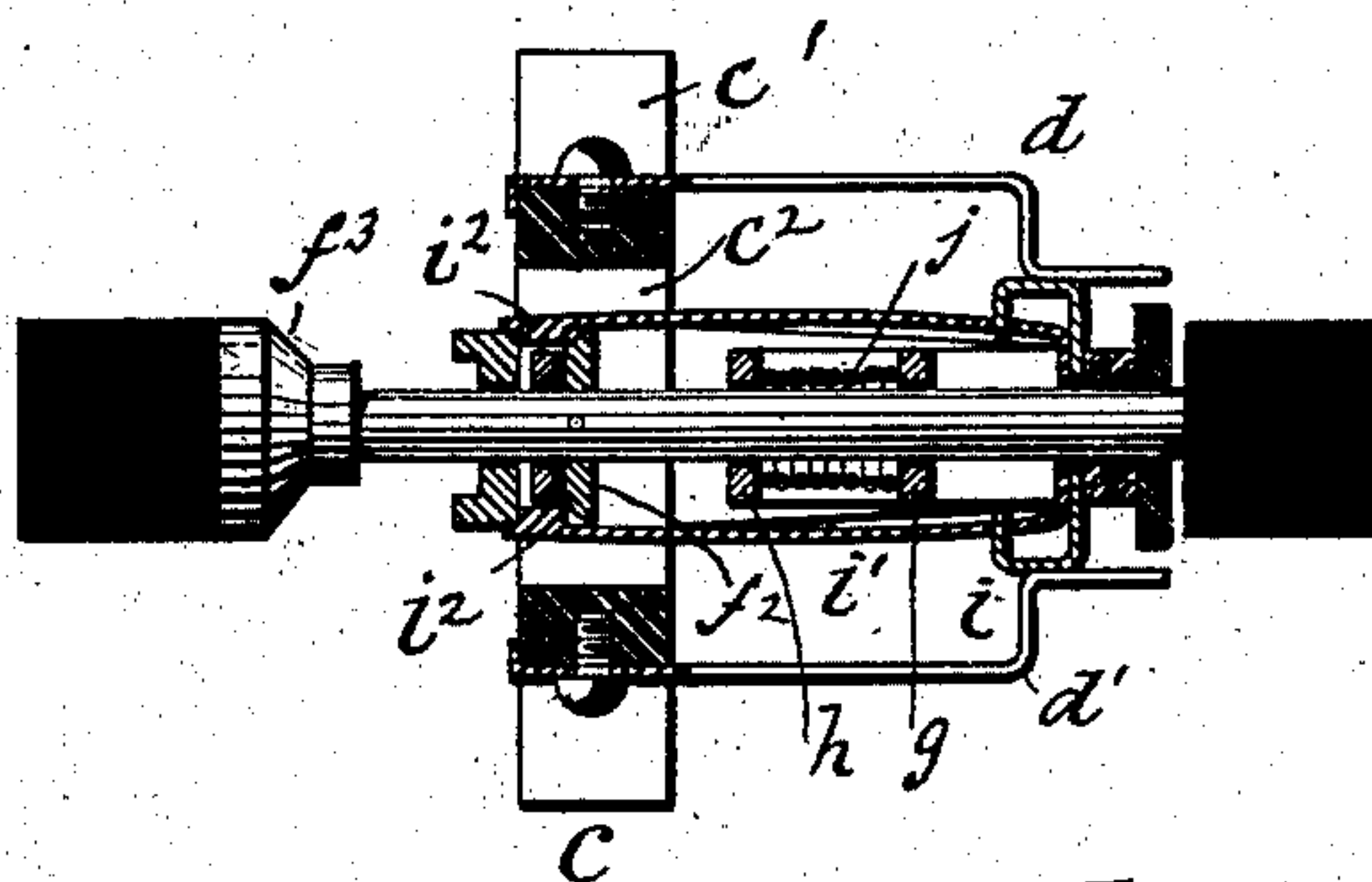


Fig. 4.

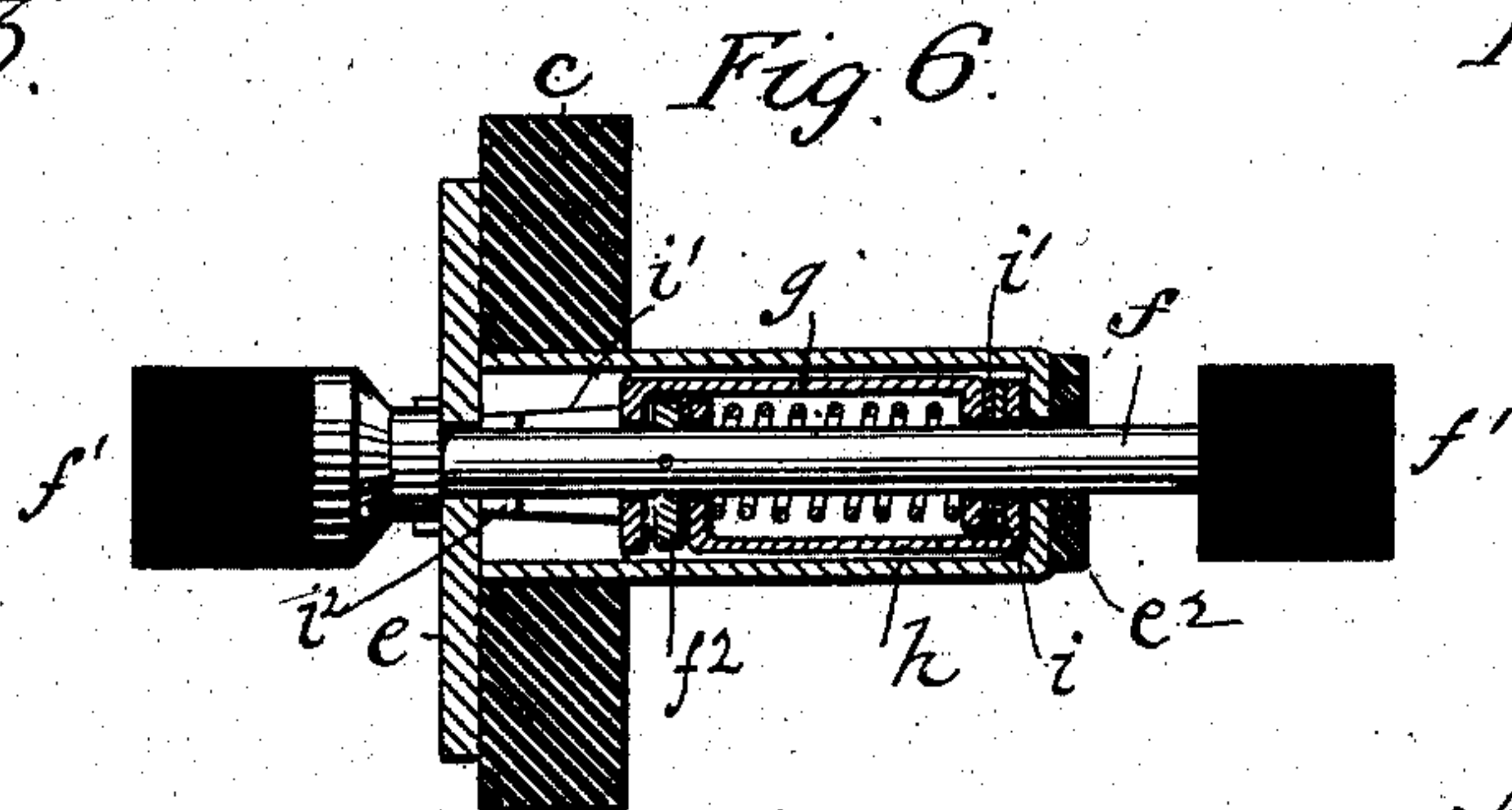


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

ADAM LUNGEN, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND ROBERT EDWARDS, OF NEW YORK, N. Y.

CIRCUIT-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 741,804, dated October 20, 1903.

Application filed November 13, 1902. Serial No. 131,086. (No model.)

To all whom it may concern:

Be it known that I, ADAM LUNGEN, a citizen of the United States, residing at the city of New York, borough of Bronx, and State of New York, have invented certain new and useful Improvements in Circuit-Controllers, of which the following is a full, clear, and exact description.

This invention relates to circuit-controllers adapted for manual operation to close and open electric-light and other circuits with a quick action and by means of a simple and economical construction of apparatus.

The invention has also been especially designed for use as a suspended switch intended to hang from a flexible conducting-cord at a convenient point to be grasped and manipulated.

The improved device consists of a suitable casing for the switch mechanism, the latter including, essentially, a longitudinally-movable rod having a button at each end, one of which projects while the other is withdrawn, depending upon the condition of the circuit, and a spring and certain latch mechanism co-operating with the rod, whereby the quick make and break of the circuit is accomplished.

My improved circuit-controller is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation thereof. Fig. 2 is a central section through the casing, showing the mechanism therein in elevation; and Figs. 3, 4, 5, and 6 are sectional views of the mechanism illustrating the construction and operation.

Referring to the drawings by letter, A represents the casing having the general shape of a cylinder with conical ends or heads and made, preferably, in two parts, as shown in Fig. 2. A bushed opening *a* is provided in the side of the casing for the entrance of a flexible cord *b* or other conductor, which leads to two binding-posts attached to the interior mechanism. Arranged across the diameter of the case is a disk *c*, of non-conducting material, having two diametrically-placed notches *c'* in its rim, in which are secured, respectively, two metallic terminal plates *d* and *d'*, the screws which hold said plates serving also as binding-screws for the two con-

ductors in the cord *b*, as shown in Fig. 3. The terminal plates *d* and *d'* extend substantially parallel to the axis of the casing and have inwardly-turned contact-faces at their free ends adapted to be connected together and disconnected by the mechanism hereinafter described to complete and open the circuit.

The disk *c* contains a large central opening *c²*, across the left side of which is fixed a plate *e*, to which is secured a U-shaped frame *e'*, extending through the opening in the disk and with its sides substantially parallel to the axis of the casing. At the extreme right end this frame has attached to it a plate *e²*, of non-conducting material, against the edges of which the free ends of the terminal plates *d* and *d'* rest when the circuit is open. Arranged along the axis of the casing is a push-rod *f*, having at each end buttons *f'* to be pushed with the thumb or finger, said buttons adapted to play in openings *a²* in the conical heads of the casing. Inside of the frame *e'* the push-rod carries a rectangular plate *f²*, rigidly attached to the rod and having two inclined edges, as seen in Fig. 3, for engagement with spring-latches, as will hereinafter appear. There is also placed inside of the frame *e'* two yoke-shaped frames *g* and *h*, respectively, the end pieces of which are pierced and traversed by the rod *f*. The end piece of one frame is arranged on one side of the plate *f²*, while the corresponding end piece of the other is arranged on the opposite side of said plate. The other two corresponding ends of the yoke-shaped frames are separated by two metallic plates *i* and *i'*, which are loosely traversed by the rod and one of which, *i*, extends laterally and is adapted to engage and disengage with the terminals *d* and *d'*, while the other leads to the left in the form of two plates substantially parallel to the axis of the case and which carry at their free ends pawls or shoulders *i²*, adapted to engage either with the inner or outer edges of the cross-plate *e*. The two plates *i* and *i'* are, in effect, spring-latches, which prevent the movement of the circuit-closing element until a certain tension has been stored in the spring, hereinafter referred to. Surrounding the rod and placed between end pieces of the two yokes *g* and *h* is a coil-spring *j*. On that

end of the rod f adjacent to the free ends of the latches i' is attached or formed an inclined surface f^3 .

The operation is as follows: With the parts in the position shown in Figs. 2 and 3 the circuit is closed, because the plate i is in contact with both terminals d and d' and the push-rod is in its extreme position to the right. To open the circuit, the button f' on the right-hand end of the rod must be pushed inward. This forces plate f^2 against one end of frame g , causing the other end of said frame to force spring j against frame h . Frame h , however, cannot move, because the cross-piece connecting the latches is in front of it, and the ends of the latches are in engagement with the inner edge of plate e , as shown in Fig. 3. When, however, the spring has been compressed to the full extent, as shown in Fig. 4, the plate f^2 has reached the lugs on the ends of the latches, and its inclined edges lift the latches out of engagement with the edges of plate e , and the frame h then being released shoots forward, carrying plate i and the latches i' with it to the position shown in Fig. 5, in which position the parts are locked by the engagement of the latches with the outer edges of plate e . Thus the circuit is quickly broken, and the terminal plates d d' fall against the non-conducting plate e^2 . The push-rod is now exposed at the left end of the case. To close the circuit, the push-rod is forced to the right, whereupon the cross-plate f^2 forces frame h against the spring, which in turn presses against frame g ; but frame g cannot yield, because the latches are holding it. When, however, the rod has been forced inward to the limit, the inclined surface f^3 acts against the latches and releases them from the plate e , whereupon frame g moves forward quickly under the action of the spring and carries the plate i between and across the terminals d and d' , the latches meanwhile assuming their position again against the inside of the plate e .

In another application filed by me on the same date, Serial No. 131,087, I have described a circuit-controller having some of the characteristics of the present device, the spring, for instance, being compressed by the action of a rod on two yoke-shaped frames; but in

the present case I use only one spring and move the rod in both directions manually, while in the other case a second spring is used and the rod is pushed in one direction manually, while the said second spring pushes it in the other direction.

Having described my invention, I claim—

1. In a circuit-controller, the combination of a rod adapted to reciprocate and having a push-button at each end for manual manipulation, a spring adapted to be compressed by each movement of the rod, a latch normally restraining the spring when under compression, two latch-releasing devices carried by the rod, one adapted to act when the rod moves in one direction and the other when it moves in the opposite direction, and a circuit-changing element moved by said spring, substantially as described.

2. In a circuit-controller, the combination of a pair of terminals, a circuit-closing plate adapted to be moved into and out of contact with said terminals, a latch movable with said circuit-closing plate and adapted to hold it in either of its positions, a push-rod adapted to be reciprocated, a spring adapted to be compressed by each movement of the rod but normally restrained by the latch and means carried by the rod for releasing the latch at each end of its movement, substantially as described.

3. In a circuit-controller, the combination of a push-rod having a to-and-fro movement, two yoke-shaped frames loosely traversed by said rod, said frames having their arms laterally disposed upon the rod, a spring inserted between the two frames and surrounding the rod, a cross-head attached to the rod and located between two corresponding arms of the frames, a circuit-closing element located between the other two corresponding arms of the frames, a latch normally restraining the spring and means carried by the rod for releasing the latch at the end of each of its movements, substantially as described.

In witness whereof I subscribe my signature in presence of two witnesses.

ADAM LUNGEN.

Witnesses:

FRANK S. OBER,
WALDO M. CHAPIN.