

(No Model.)

J. T. HAMBAY.

CIRCUIT CLOSER FOR RAILWAY SWITCHES.

No. 308,493.

Patented Nov. 25, 1884.

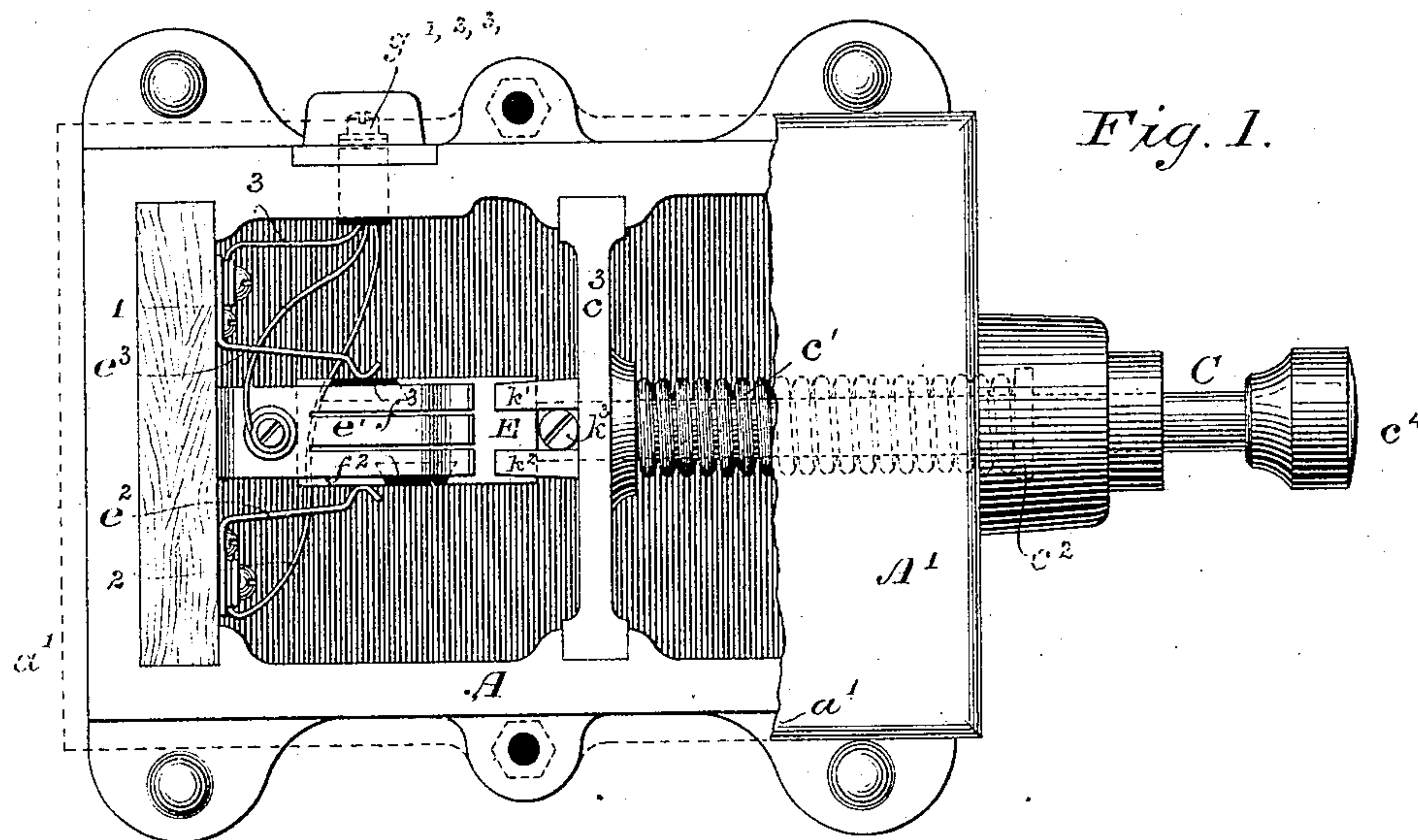


Fig. 1.

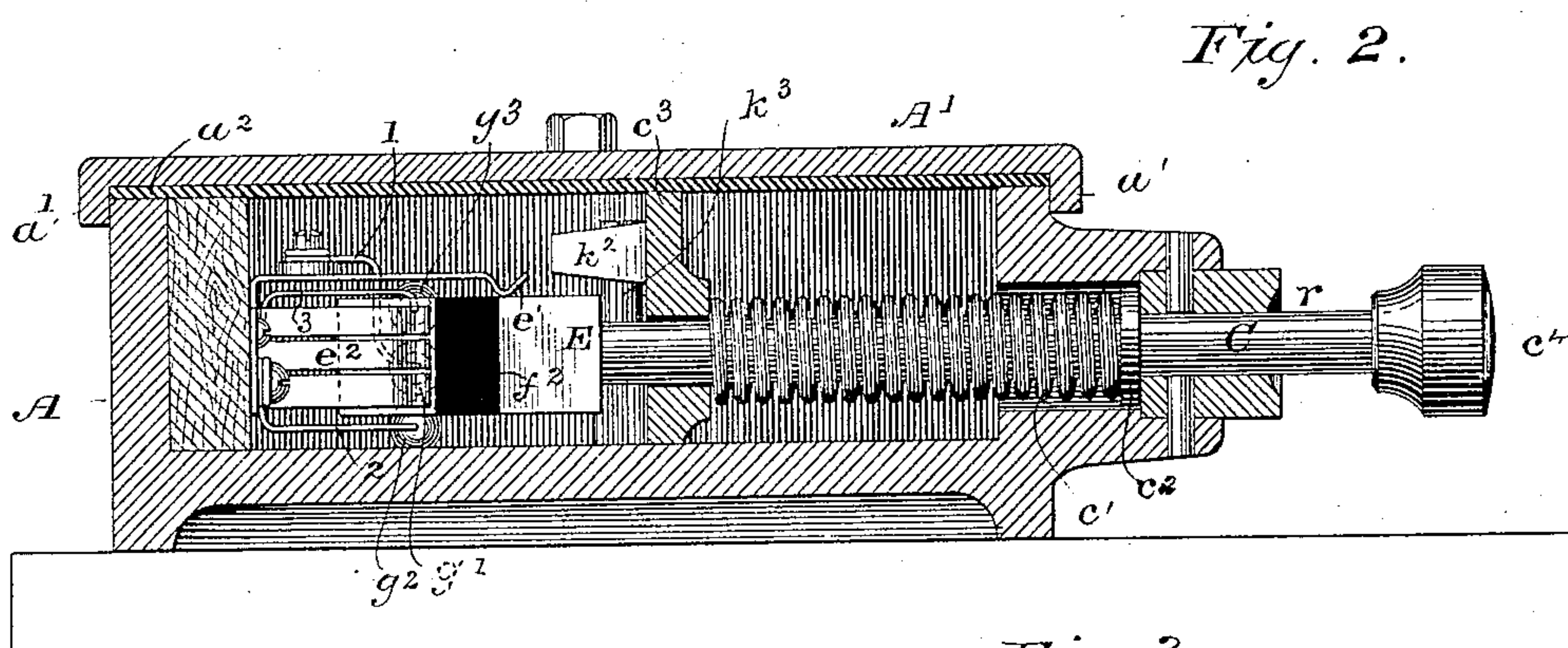


Fig. 2.

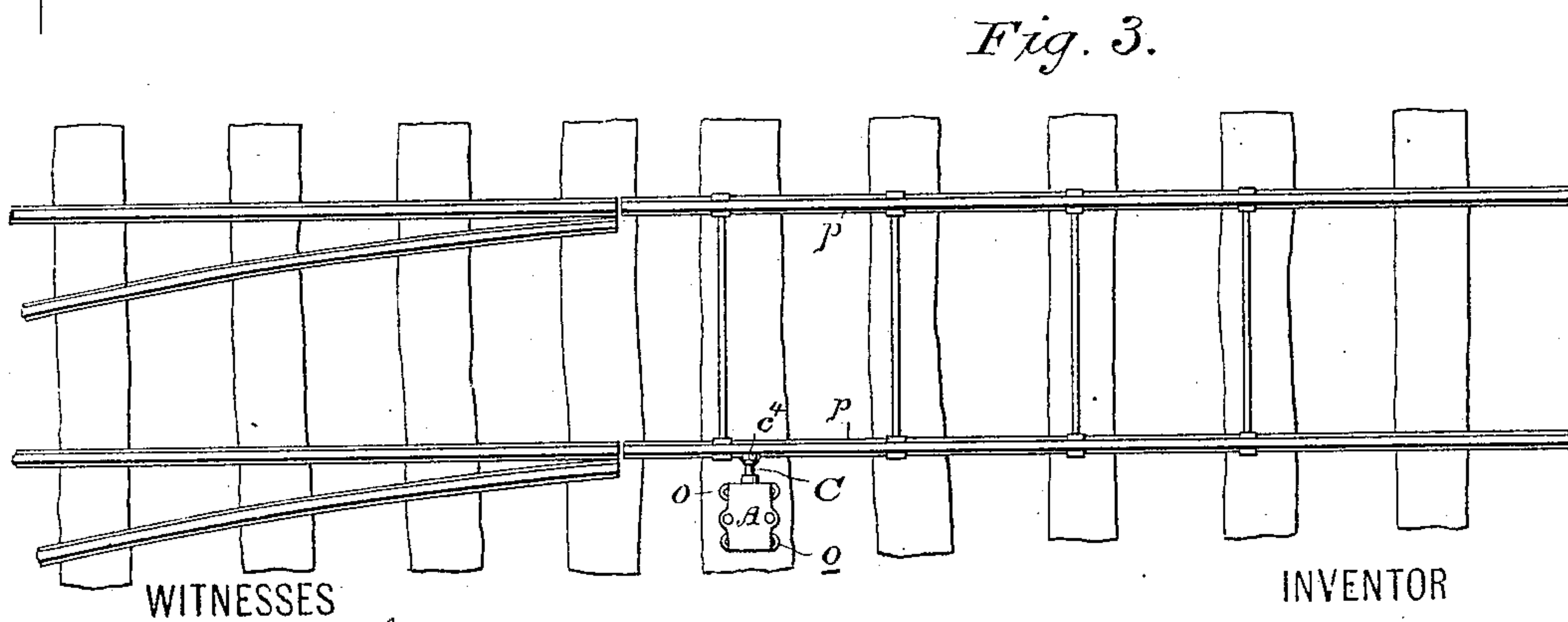


Fig. 3.

WITNESSES

Wm A. Skinkle
Jos. S. Latimer

INVENTOR

By his Attorneys

James T. Hambay
Pope, Edgcomb & Putney

UNITED STATES PATENT OFFICE.

JAMES T. HAMBAY, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE
UNION SWITCH AND SIGNAL COMPANY, OF SAME PLACE.

CIRCUIT-CLOSER FOR RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 308,493, dated November 25, 1884.

Application filed April 8, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. HAMBAY, a citizen of the United States, residing in Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Circuit-Closers for Railway-Switches, of which the following is a specification.

My invention relates especially to the class of apparatus employed for automatically completing, interrupting, or transferring the connections of one or more electric circuits through the action of a movable portion of a railway track or superstructure, or of a train passing along such track.

The object of the invention is to provide an inclosed water-tight circuit-controlling device which will insure a reliable action at all times, and which may be operated by the means of the movement of switch-rails, or in any other desired manner.

The invention consists, generally, in inclosing a movable circuit-controlling plate or block within a cast-metal case, which may be rendered water-tight in any convenient manner. A piston-rod attached to this block extends outside the case, and this rod is normally held in position by the tension of a spring. Against one side of the rod rests a contact plate or brush which at all times completes the connections of a main electric conductor leading from the exterior of the case with the rod or with the movable block attached thereto. Two insulated contact-surfaces are provided at other points upon this plate or block, and two circuit-changing contact-springs are provided for continuing the connections of the first-named contact-spring to one or the other of two electrical conductors. One of the last-named contact-springs is designed to rest against the corresponding insulated surface, while the remaining spring is in contact with the metal of the block, and vice versa. Thus, when the rod is forced outward by reason of the spring, the connection will be with one of the contact-springs, and when it is forced inward by force externally applied the connection will be with the other contact-spring. In this manner the connections will be completed from the main electric conductor and its contact-plate through the block and one of the

contact-springs to a conductor attached thereto when the rod is in its outward position, and through the other contact-spring to a corresponding conductor when the rod is forced inward.

In the accompanying drawings, Figure 1 is a plan view of a circuit-controlling device embodying the features of my invention, a portion of the inclosing-case being removed. Fig. 2 is a transverse section of the same, and Fig. 3 illustrates the application of the invention to a railway-switch.

Referring to the figures, A represents a cast-metal case for inclosing the device, and A' is a suitable cover for the same. The cover A' is provided with flanges a' , which fit over the edges of the case A, and there is preferably interposed between the joints thus formed a sheet of soft rubber or other packing, a'' , for the purposes of rendering the case water-tight.

Extending through a suitable water-tight opening, r , formed in the head R of the case is a movable rod, C. The rod C is surrounded by a spiral spring, c' , which has its bearing against a collar, c'' , applied to the rod C, and at the other end against a transverse plate, c''' , supported in the case A. The spring c' tends to normally force the rod C outward and hold it in the position shown in the drawings. At the outer end of the rod C is carried a head, c^4 , which, when the instrument is employed in connection with a railway superstructure, is designed to receive the pressure of the switch-rail or other movable portion thereof, whereby the rod may be forced inward. Upon the inner end of the rod C is fixed a rectangular block, E, which is made of conducting material. Against one side of the block E rests a contact spring or brush, e' , and this brush is designed at all times to be in contact with the movable block, and to thus complete an electric circuit therewith from a corresponding electric conductor, 1. Two other circuit-changing contact-springs, e^2 and e^3 , respectively press against the opposite sides of the block E, and they are designed, at the proper times, to complete electric connections with the block from conductors 2 and 3, respectively. The circuit-changing contact-springs are designed, however, to complete the circuit-connections through only

one of the brushes e^2 and e^3 at a time, accordingly as the rod is in its outward or inward position. For this purpose two non-conducting plates, f^2 and f^3 , are respectively placed in the surface of the block E. The spring e^2 rests against the conducting-surface of the block E when the rod C is in its forward position; but when the rod is forced inward the non-conducting plate f^2 is pushed beneath the spring e^2 , and likewise the spring e^3 is designed to rest against the non-conducting surface f^3 when the rod C is in its outward position, but against the conducting-surface adjacent thereto when the rod is forced inwardly. It will be evident, therefore, that when the device is in the position shown in the drawings the circuit-connections will be completed from the conductor 1 through the contact-brush e' , the block E, brush e^2 , and conductor 2. When, however, the rod C is forced inward, the connections will be from the conductor 1 and brush e' to the block E, and thence through the brush e^3 to the conductor 3. The conductors 1, 2, and 3 lead to suitable insulating binding-posts, g' , g^2 , g^3 , for the purpose of securing electrical connections therewith from the outside of the case.

For the purpose of preventing the rod and the block E from turning axially within the case, suitable lugs, k' and k^2 , are formed upon the plate e^3 , and between these lugs passes a screw-post, k^3 , which is secured to the rod C.

The method of applying the device which has been described to a railway-switch is illustrated in Fig. 3. The case A is secured to a railway-tie by means of bolts o in such a position that the head e^4 of the rod C rests against one of the movable rails p . When the switch is in the position shown in the drawings, the rod is in its outward position; but when the switch is moved in the direction indicated by the arrow, so as to be in line with the siding, then the rod will be forced inward, and whatever circuit-connections are formed through the block E will be reversed—that is to say, if the connection were from the conductor 1 to the conductor 2 when in the position shown in the drawings, then by moving the switch the connections will be changed so that the conductor 1 will be connected through the conductor 3.

The method of employing the different circuit connections thus formed for operating signal devices is well understood, and need not here be more fully described, as it forms no part of the present invention.

I claim as my invention—

1. The combination, substantially as here-

inbefore set forth, of a movable rod, a water-tight casing for the same, a spring for normally forcing said rod into a given position, means for causing said rod to assume a second position, means for completing an electric connection with said rod, and two contact-brushes, through one or the other of which said electric connection is continued from said rod, accordingly as said rod is in one or the other of its positions.

2. The combination, substantially as hereinbefore set forth, of a movable rod, a circuit-controlling block carried thereby, means, substantially such as described, for normally forcing said rod outward, but which permits the same to yield and move inward under the influence of sufficient force, means for completing an electric circuit with said block, and two contact-brushes, one or the other of which is in contact with said block, accordingly as said rod is in one or the other of its positions.

3. The combination, substantially as hereinbefore set forth, with a water-tight inclosing case, of a movable circuit-controlling block, a rod attached thereto, means, substantially such as described, for normally forcing said rod outward from said inclosing-case, but which permits the same to yield and to move inward under the influence of sufficient force, two insulating-surfaces, two contact-springs, one of which is in contact with said block, while the other rests against one of said insulating-surfaces, means, substantially as described, for reversing said contact-springs with reference to said insulating-surfaces, and means for connecting an electric conductor with said block.

4. The combination, substantially as hereinbefore set forth, of a movable rod, a circuit-controlling block carried thereby, means for normally forcing said block outward, but which permits the same to be moved inward under the influence of sufficient force, means for completing an electric circuit with said block, an insulating-surface upon said block, and a contact-spring which rests in contact with the conducting-surface of said block when the latter is in one of its positions, but which rests upon said insulating-surface when said block is in the other of its positions.

In testimony whereof I have hereunto subscribed my name this 5th day of April, A. D. 1884.

JAMES T. HAMBAY.

Witnesses:

HENRY SNYDER,
CALEB H. JACKSON.