

No. 642,021.

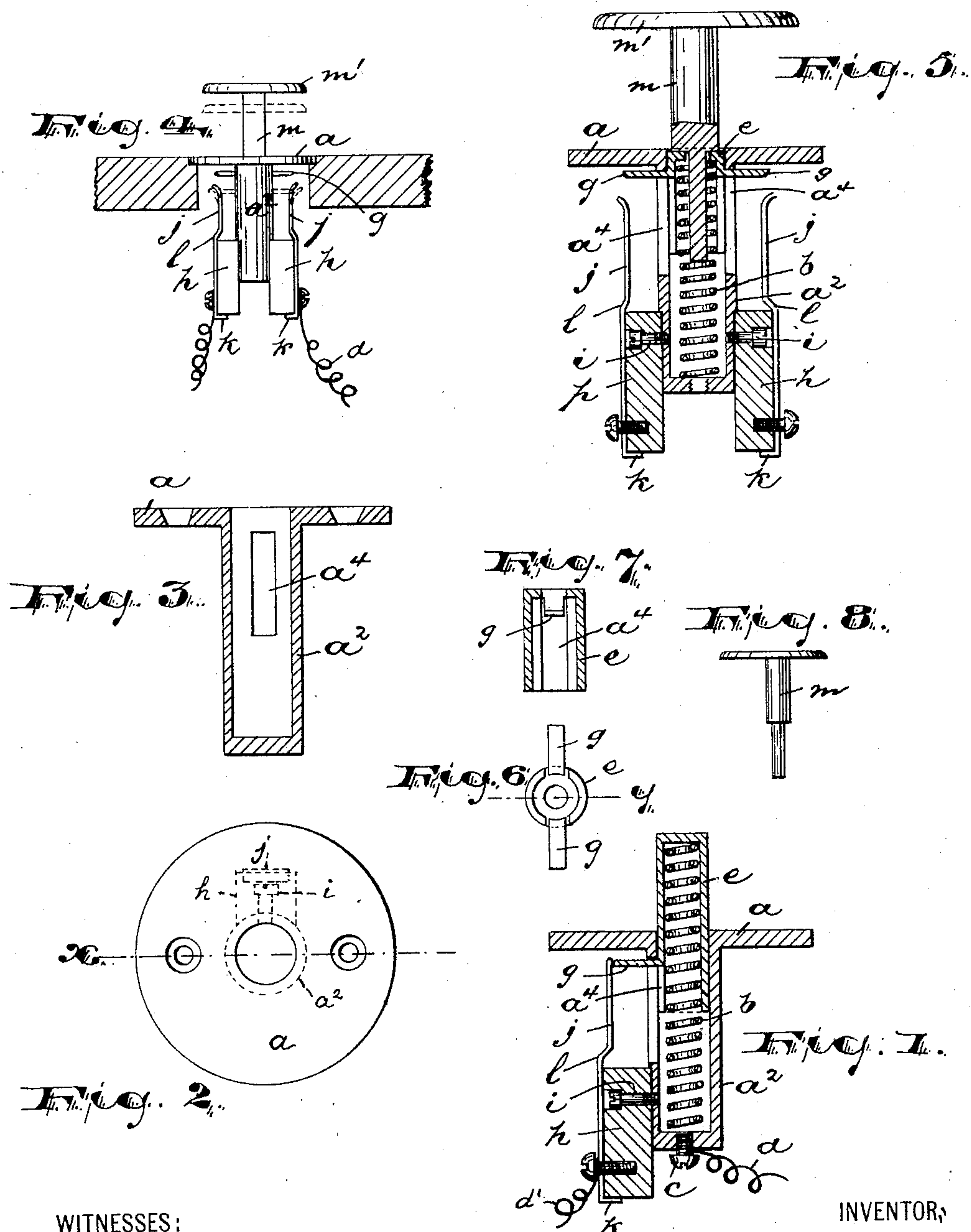
Patented Jan. 23, 1900.

A. A. VANDERPOOL.
CIRCUIT CHANGER.

(Application filed Mar. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

A. R. Krouse.

Russell M. Everett.

Albion Alexander Vanderpool,

INVENTOR,

BY

Boake & Co.
ATTORNEYS

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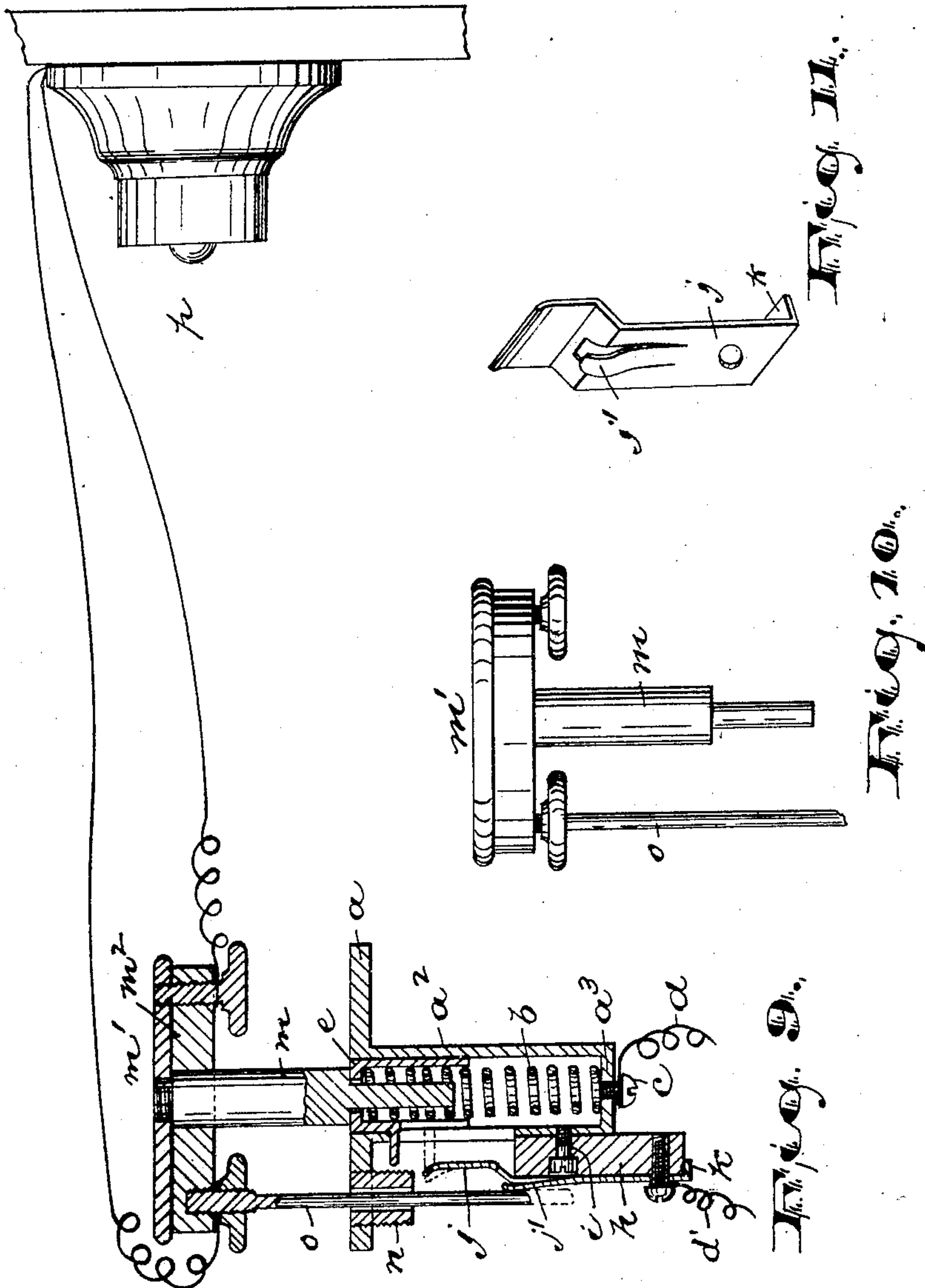
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Russell M. Everett.

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UNITED STATES PATENT OFFICE.

ALBION ALEXANDER VANDERPOOL, OF NEWARK, NEW JERSEY.

CIRCUIT-CHANGER.

SPECIFICATION forming part of Letters Patent No. 642,021, dated January 23, 1900.

Application filed March 25, 1899. Serial No. 710,423. (No model.)

To all whom it may concern:

Be it known that I, ALBION ALEXANDER VANDERPOOL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Circuit-Changers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to reduce the cost of construction, to facilitate the application of the device to the door-jamb or other position where it is to be applied, to secure a more neat arrangement of parts, to obtain a more perfect contact of the electrical terminals, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved circuit-changer for alarm and call purposes and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a vertical section of a circuit-changer embodying my improvements, showing a preferred construction. Fig. 2 is a plan of a bed-plate to which the operating parts are connected. Fig. 3 is a section of the same on line x . Fig. 4 is a side elevation of the device in modified form, and Fig. 5 is a vertical section thereof on a larger scale. Fig. 6 is a detail plan of a certain plunger employed in said modified construction, and Fig. 7 is a section of the same on line y . Fig. 8 is a detail side elevation of a foot extension of said plunger. Fig. 9 shows another modification of construction, sometimes preferred. Fig. 10 is a detail elevation of a foot extension of the plunger thereof, and Fig. 11 is a detail perspective view of the contact-spring.

In said drawings, a indicates a bed-plate which is preferably of discous form and provided at its rear with a tubular extension a^2 ,

an inch (more or less) in length, the said tubular extension being closed at its inward extremity to provide an interior bearing a^3 for a spring b and for a screw c , which serves as a terminal for an electric-wire connection d . The said discous plate a is suitably perforated to permit of its being fastened upon a door frame or jamb by screws or the like and projects beyond the rear extension to cover and conceal the hole therefor. Within said tubular extension a^2 is arranged a sliding plunger e , which fits the interior walls of said extension and at its forward end is closed and in the construction of Fig. 1 projects out from the front of the discous plate. The rear or inner end of said plunger e is open and permits the passage of the spiral spring b , the said spiral spring being arranged within the tubular extension and the plunger, bearing at one end upon the interior of the closed end of the plunger and at its opposite end upon the closed end of the tubular extension. The said tubular extension a^2 is slotted at one side, as at a^4 , and the tubular plunger e is cut out at one side or at both sides by means of a saw or other means, the cut-out portion or tongue remaining at its inner end integral with the tubular plunger. It is bent out laterally into or through the slot a^4 to form a contact-tongue g and as a retainer or detent for holding the tubular plunger within the tubular extension, all as will be clearly understood upon reference to Figs. 1, 5, and 9.

At the slotted side of the tubular extension, at the opposite end of the longitudinal slot a^4 from the discous plate a and preferably projecting a little beyond the extremity of the extension away from said plate a , is fastened a block h of insulation, preferably by means of a screw. The said block is concaved where it engages the outside of the tubular extension, as shown in Fig. 2, so as to fit firmly in place thereon without turning when fastened by means of a single screw i , as in Figs. 1, 5, and 9. The said insulated block h in turn acts as a bearing for a contact-spring j , which is held upon said block by a screw, the said screw also serving as a fastener for the terminal d' of an electrical circuit-wire. The said spring j is seated on said block h and extends therefrom toward the discous plate, where it is free to enter into contact with the laterally-projecting tongue g . By this ar-

rangement the spring *b* is at its highest tension when the contact-spring *j* is pressing with greatest power against the contact-tongue, and thus there is little or no danger of the plunger being held down because of friction due to the said contact-spring pressing upon said tongue, inasmuch as the interior spring is more powerful than the contact-spring when under its greatest tension, as will be understood. Said spring *j* is bent, as at *k*, around the end of said block, so that there can be no pivotal or unsteady movement of the spring upon the block. The free end of the said spring is bent to form a shoulder, as at *l*, just a little way—one-quarter of an inch, more or less—away from the end of the block, and from the bend or shoulder continues in a direction parallel with the axis of the tubular extension and engages the contact projection or tongue *g* of the tubular plunger. As the door at which the circuit-changer is applied is closed it presses against the extremity of the projecting plunger *e*, and the latter is pressed inward, forcing the projection thereof downward, causing the said contact projection or tongue *g* to scrape along the inner side of the spring-contact *j* to a point where it passes out of electrical connection at the shoulder *l*. This is accomplished when the plunger is brought to a point approximately flush with the face of the discous plate. Thus the circuit is opened. While the contacts *g j* are in this open relation the attendant manipulates the circuit connections within the house so that the circuit is closed, except at the changer *u* under consideration. Should the door be opened, the spring *b* will force the plunger *e* and its pin into contact with the spring *b* and close the circuit and cause an alarm by means of an electrical alarm-bell, buzzer, or other alarm instrument.

I have shown in Figs. 4 and 5 a modification of the device, in which I provide two contact-springs *j j* and terminal projections *g g*, this construction being particularly adapted for a floor-push and being provided when so used with a plunger extension *m*, movable from the plunger *e* and having a pressure-plate *m'* at the top; but it is evident that even in this construction a single spring will be operative.

Under certain conditions I prefer to employ the construction shown in Figs. 9, 10, and 11, where the device is used as a floor-push, having connections with a second alarm, call extension, floor-push, or other circuit-changer. In this case I form a second tongue *j'* in the spring *j*, as shown in Figs. 9 and 11, and provide the discous plate *a* with an insulated bearing *n*, in which is arranged a depending circuit extension-rod *o*, which is secured to the insulated under side of the head-piece *m'* of the plunger extension, the insulated plate *n*² of which is secured the under side of the plate *m'*. By this modification I am enabled to close the circuit either by means of pressure on the plate *m'* or by means at a distance therefrom, such as the second foot push-plate

or a finger-button *p*, Fig. 9. I thus extend the action or capacity of my improved attachment. When this improvement is employed, it is evident that the operation of the changer or extension *p* will not impair or interfere with the operation of the device actuated through the plunger *e* should the two happen to be operated simultaneously.

Having thus described the invention, what I claim as new is—

1. The combination with the plate *a*, and tubular extension having a longitudinal slot at one side, a closed inner end *a*³, providing a bearing for an interior spring *b*, and a terminal screw *c*, of a tubular plunger arranged in said extension, a spring arranged in said extension and plunger, the said plunger being provided with a tongue which extends from one side of said plunger out through said longitudinal slot to engage the contact-spring, said tongue serving as a detent for the plunger and an electric terminal and a contact-spring fastened upon the tubular extension at its extremity of extension from the plate *a* but electrically insulated therefrom and adapted to be engaged by said tongue to change a circuit, substantially as set forth.

2. In a circuit-changer, the combination with the plate and slotted tubular extension having a closed end providing a bearing for an interior spring *b*, a plunger arranged in said extension and having a retaining-tongue extending laterally out through the slot in said extension, a spring *b*, a block of insulation fastened at one side of said extension and a contact-spring fastened to said block and bent at *l*, and from the bend extending toward the contact and retaining tongue, substantially as set forth.

3. In a circuit-changer, the combination of the plate having a tubular extension, a tubular plunger, a spring arranged in said extension and plunger, a block of insulation seated upon the projecting extremity of the extension lying away from the plate, and a contact-spring seated on said block of insulation and extending therefrom toward the said plate where it is free and arranged to contact with the retaining-tongue, substantially as set forth.

4. In a circuit-changer, the combination of the plate having a tubular extension, a tubular plunger having a lateral retaining-tongue, a spring arranged in said extension and plunger, a block of insulation and a contact-spring having a tongue *j'*, a circuit extension-rod *o*, and plunger extension *m*, having a push-plate *m'*, and connections for circuit-wires, all arranged and adapted to operate, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of March, 1899.

ALBION ALEXANDER VANDERPOOL.

Witnesses:

CHARLES H. PELL,
 C. B. PITNEY.