

No. 707,761.

Patented Aug. 26, 1902.

A. B. CHANCE.
CIRCUIT CLOSING DEVICE.

(Application filed July 25, 1901.)

(No Model.)

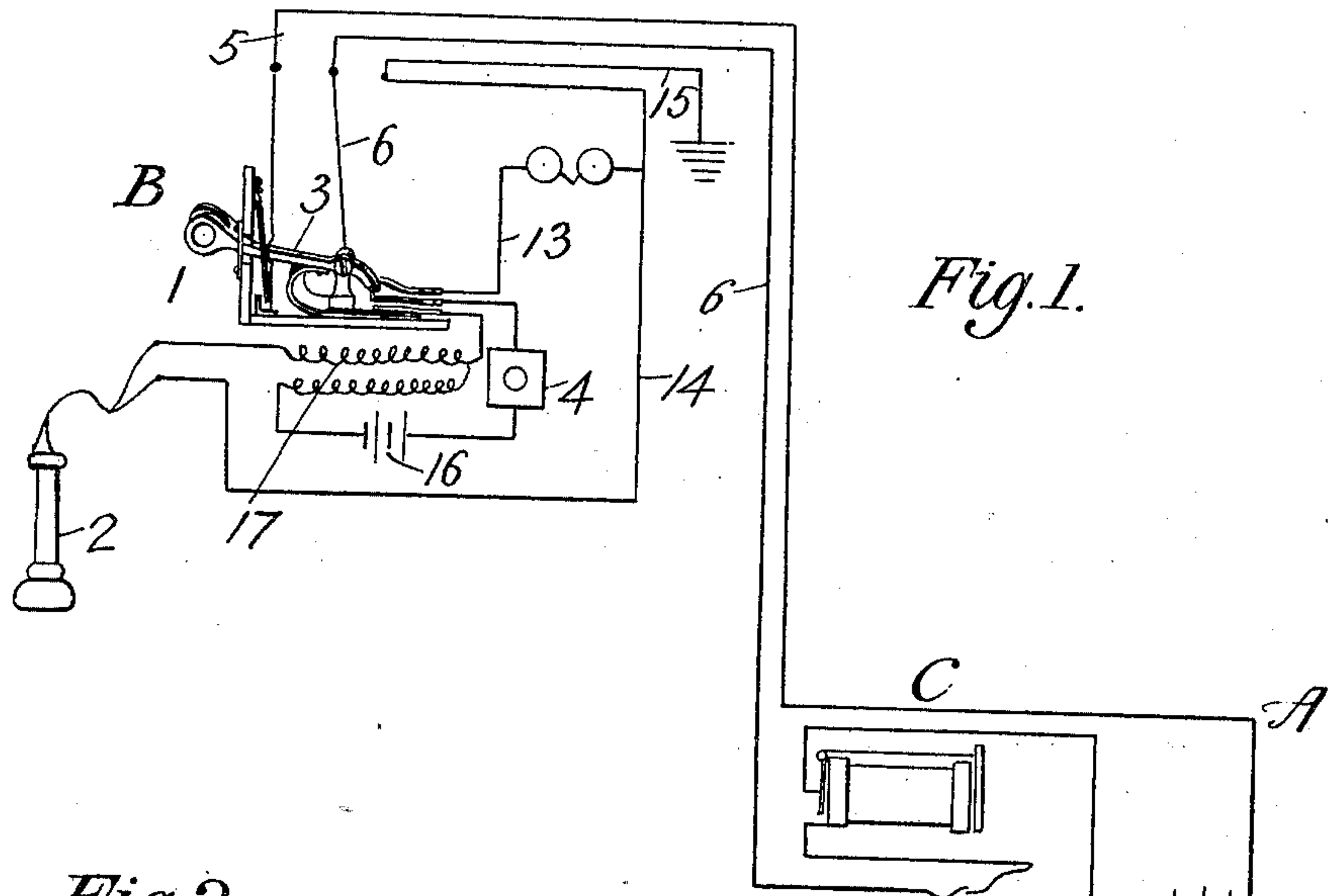


Fig. 1.

Fig. 2.

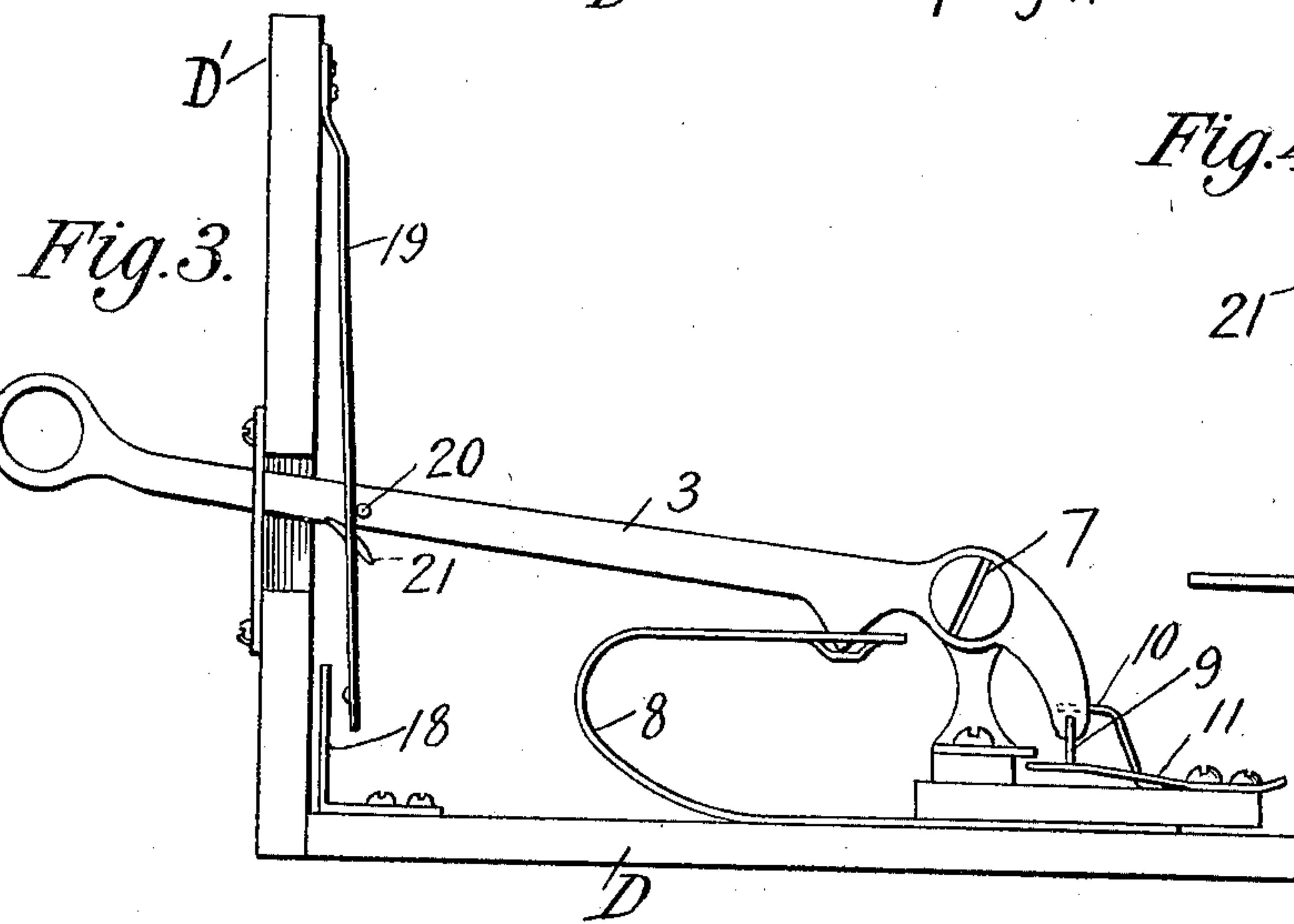
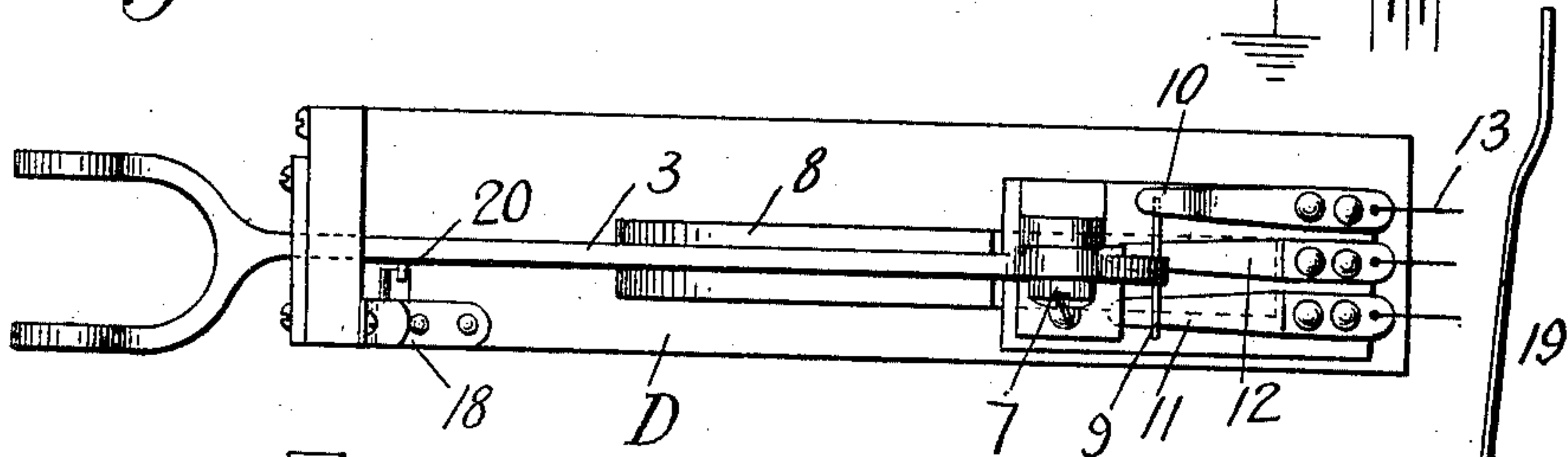
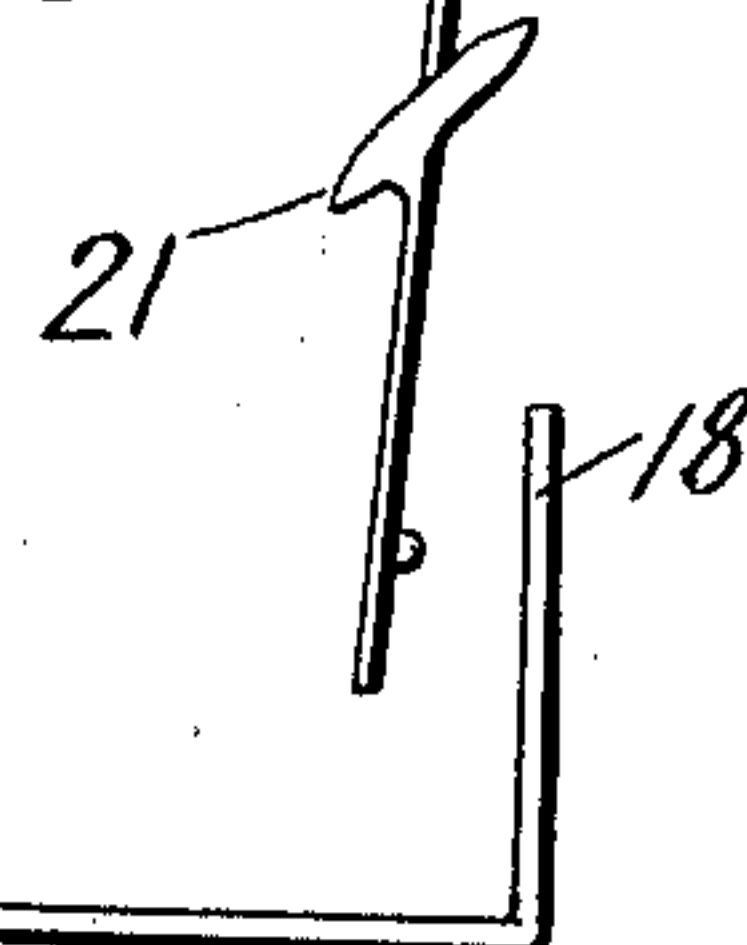


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

ALBERT BISHOP CHANCE, OF CENTRALIA, MISSOURI.

CIRCUIT-CLOSING DEVICE.

SPECIFICATION forming part of Letters Patent No. 707,761, dated August 26, 1902.

Application filed July 25, 1901. Serial No. 69,673. (No model.)

To all whom it may concern:

Be it known that I, ALBERT BISHOP CHANCE, a citizen of the United States, residing at Centralia, in the county of Boone and State of Missouri, have invented certain new and useful Improvements in Circuit-Closing Devices; and I do 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.

This invention relates to signaling apparatus for telephone systems.

The object of the invention is to dispense with the use of a generator at the subscribing-station for calling central and to provide means actuated by the receiver-hook for calling central and for automatically throwing the drop or annunciator at the central office to secure a positive "ring-off."

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a diagrammatic view showing the central office connected up with the subscriber's station and illustrating in detail the relation of the circuit parts at the subscriber's end. Fig. 2 is a top plan view of the receiver-hook and associated parts. Fig. 3 is a side elevation of the same; and Fig. 4 is an edge view, on an enlarged scale, of the ringing-spring and its contact.

Referring now more particularly to the drawings, the letter A represents the central office, and B the subscriber's station, the former being provided with the drop or annunciator C and the latter with the usual signaling device 1, receiver 2, receiver-hook or telephone-switch 3, and transmitter 4.

5 and 6 represent the line-wires.

The receiver-hook 3 is pivoted at 7 upon a suitable base D and is provided with a suitable actuating-spring 8, which moves it to a predetermined position when the receiver is removed therefrom. The rear or inner end of this hook carries a bridge-piece 9, which plays between an upper contact 10 and two lower contact-pieces 11 and 12. When the

receiver is on the hook, the bridge-piece 9 engages the contact 10, and when the receiver is off the hook the bridge-piece 9 engages the contacts 11 and 12.

The contact 10 is connected with the signaling device 1 by a conductor 13, which also connects said signaling device with a conductor 14, connected at one end with the receiver 2 and at the other end with a ground-conductor 15. The contacts 11 and 12 are connected, respectively, with the receiver 2 and a suitable source of electric supply, such as a battery 16, and have included therein the coils of an induction-coil 17. The line-wire 5 connects with a spring-metal contact-piece 18, located upon the base below the hook or lever 3, and the line-wire 6 connects with said hook or lever. A vertical spring-metal ringing-strip or contact-piece 19 is secured at its upper end to an upright part D' of the base and has its lower end normally out of engagement with said contact-piece 18, but adapted to be pressed toward and make contact therewith. This is effected by means of a pin 20 on the free end of the hook or lever 3, which is adapted when said lever is pressed down by the operator or weight of the receiver to engage an obliquely-disposed contact-piece 21 on the said ringing-strip 19. The contact-piece 21 projects beyond both sides of the strip 19, and its upper surface has curved or rounded faces forming beveled edges and is so disposed as to form inclines or cam-surfaces, whereby when the lever 3 is forced down the pin 20 thereon will ride upon the upper surface of said contact-piece in rear of the strip 19 and force the free end of the strip 19 into engagement with the contact-piece 18, and whereby when the lever 3 moves upwardly the pin 20 will engage the under face of said contact-piece 21 in front of the strip 19 and force the strip 19 away from the contact-piece 18, thus allowing the lever 3 and pin 20 to clear the contact-piece 21 and return to their normal positions. When the pin 20 engages the contact-piece 21 and forces the strip 19 into engagement with the contact-piece 18, the signal-circuit is closed and the signal 1 sounds and the annunciator or drop C at the central office is operated.

In order to get "central," the subscriber

removes the receiver from the hook, places it to his ear, and then presses the hook all the way down and releases it. The act of pressing the hook down causes the pin on the
 5 hook to engage with the rearwardly and downwardly inclined upper surface of the cam-contact on the ringing-spring, which presses said spring against the ringing-battery contact 18, which closes the battery at central
 10 through subscriber's line and drop, thus calling up the central office. When the hook is released and swings upwardly, the pin 20 rides on the upwardly and forwardly inclined lower surface of the contact-piece 21, thereby
 15 forcing said strip 19 rearwardly and allowing the pin to clear said contact-piece. When the receiver is replaced in the hook, the depression of the latter under the weight of the receiver causes a "ringing-off" signal to be
 20 automatically operated in a similar manner.

This invention can be used in connection with the ordinary magneto system on the same switchboard without any change of drops, &c., and on metallic, common return,
 25 or grounded circuits.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A circuit-closing device comprising a terminal, a vertically-disposed spring-metal
 30 contact-strip secured at one end and having

its free end arranged normally out of engagement with the terminal and adapted to be moved into contact therewith, a pivoted switch-lever having a long arm and a short
 35 arm, a spring acting on the long arm of the lever for normally forcing said arm upwardly, an obliquely-disposed contact-piece fixed to the strip and projecting beyond the front and rear sides of the strip, the upper and lower
 40 surfaces thereof forming reversely-inclined cams, and a contact member upon the long arm of the switch-lever adapted, when the long arm of the lever is depressed, to ride over the upper cam-surface to force the free
 45 end of the strip into engagement with the terminal, and, when said lever swings upwardly, to ride over the lower cam-surface to force the contact-piece out of the way, allowing said contact member to clear said con-
 50 tact-piece without impediment, the resiliency of the strip causing the free end thereof to spring out of engagement with the terminal upon the disengagement of said contact piece and member, substantially as specified.
 55

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

A. BISHOP CHANCE.

Witnesses:

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 A. L. COX.