

No. 833,805.

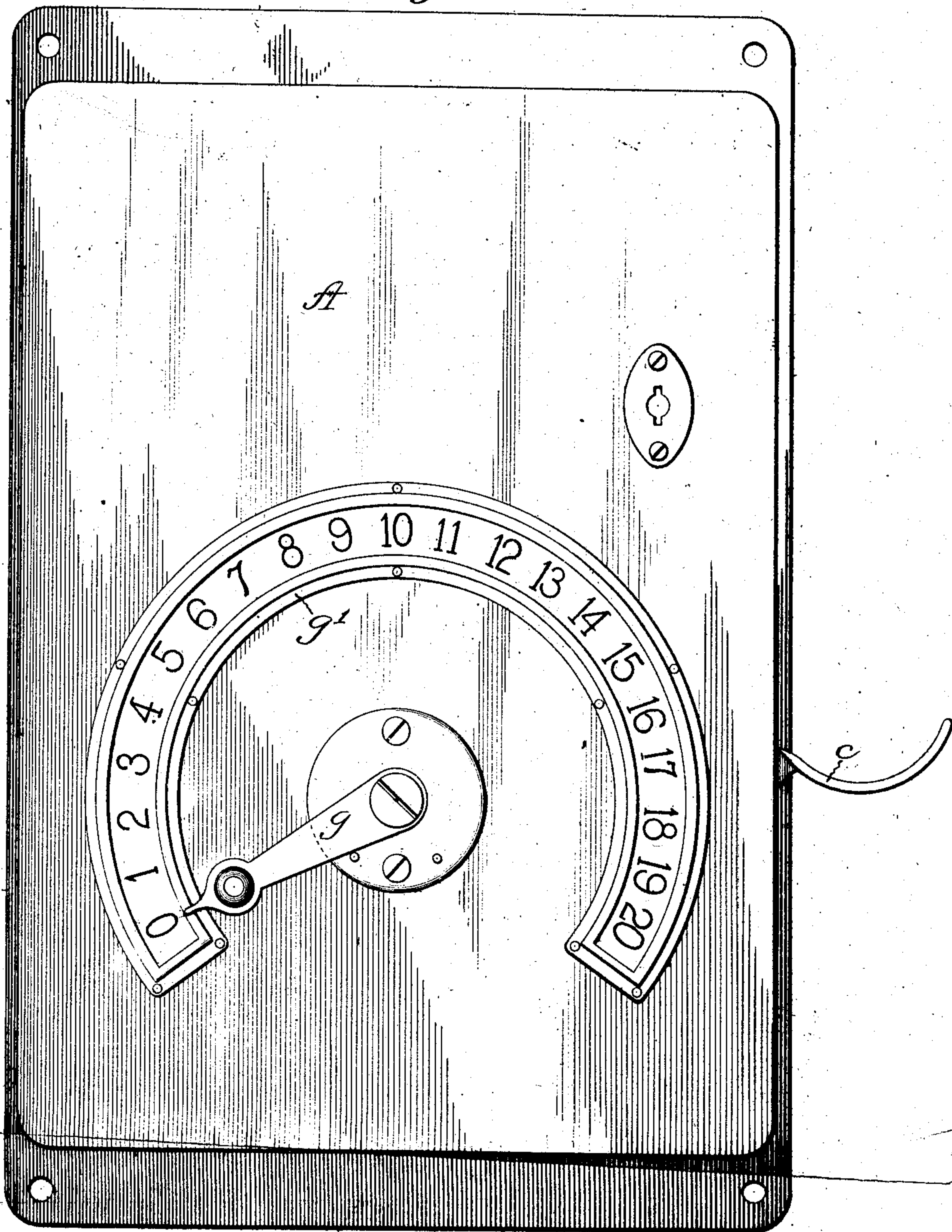
PATENTED OCT. 23, 1906.

C. E. SCRIBNER.
ELECTRICAL SELECTING APPLIANCE.

APPLICATION FILED DEC. 18, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

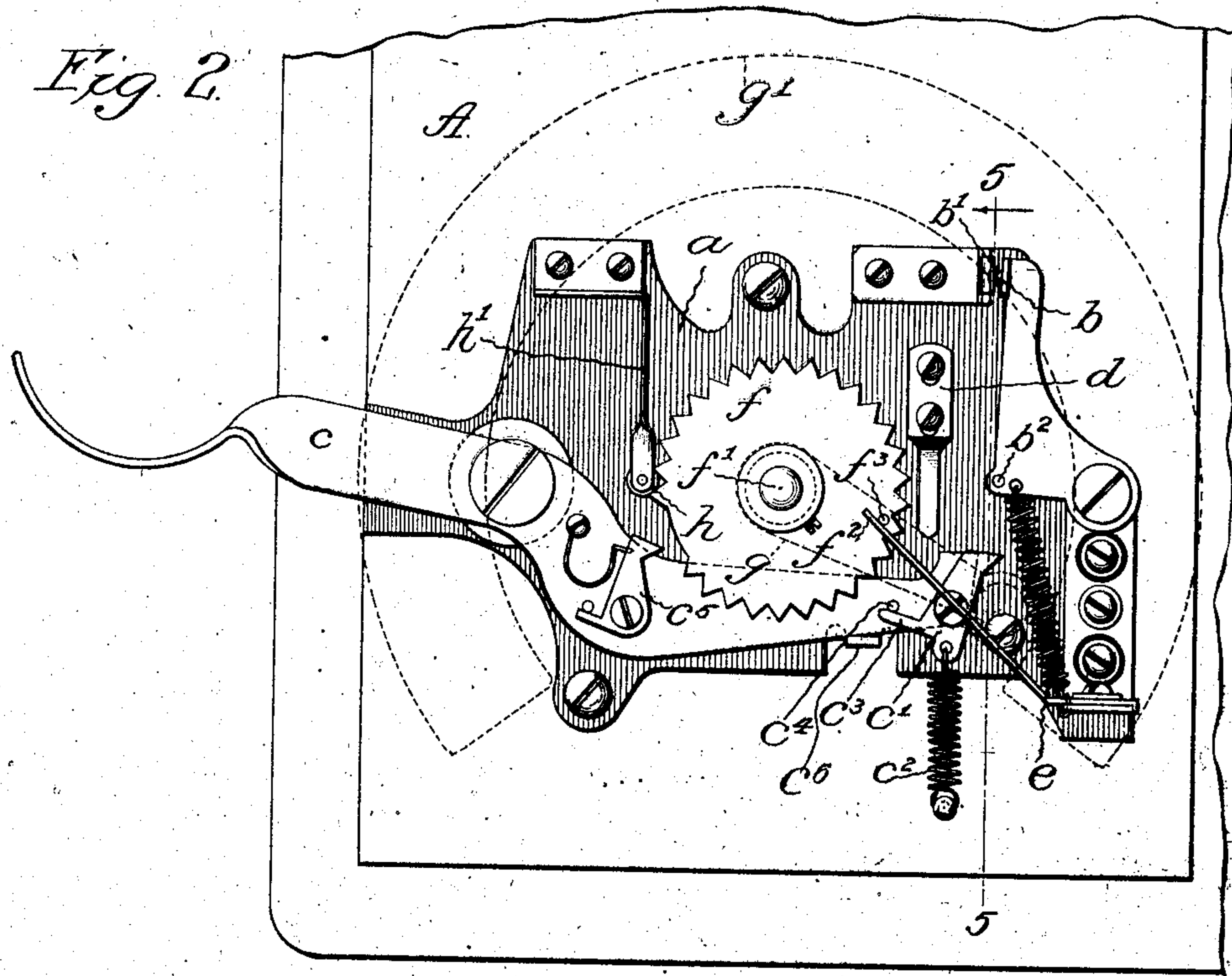
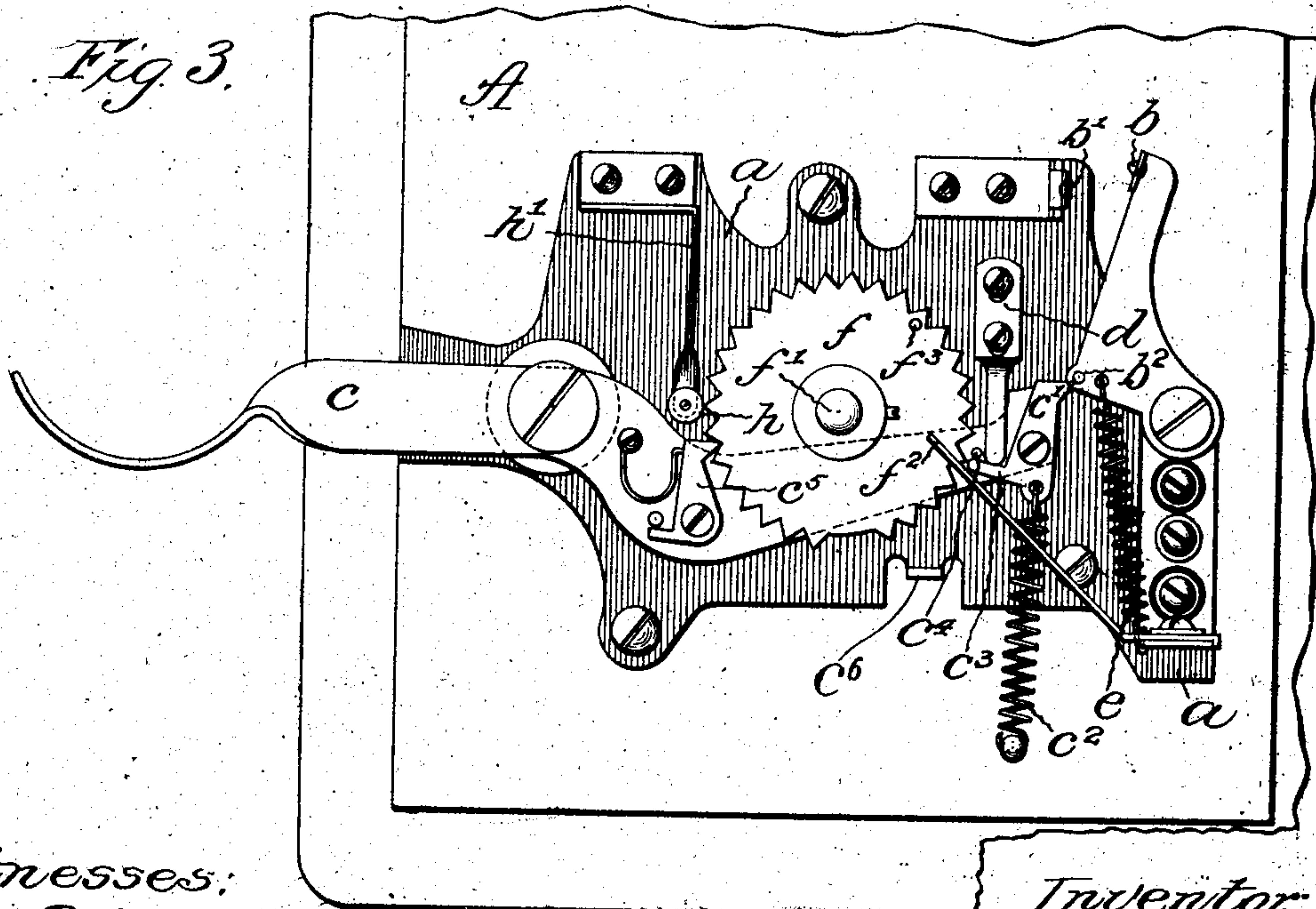


Fig. 3.



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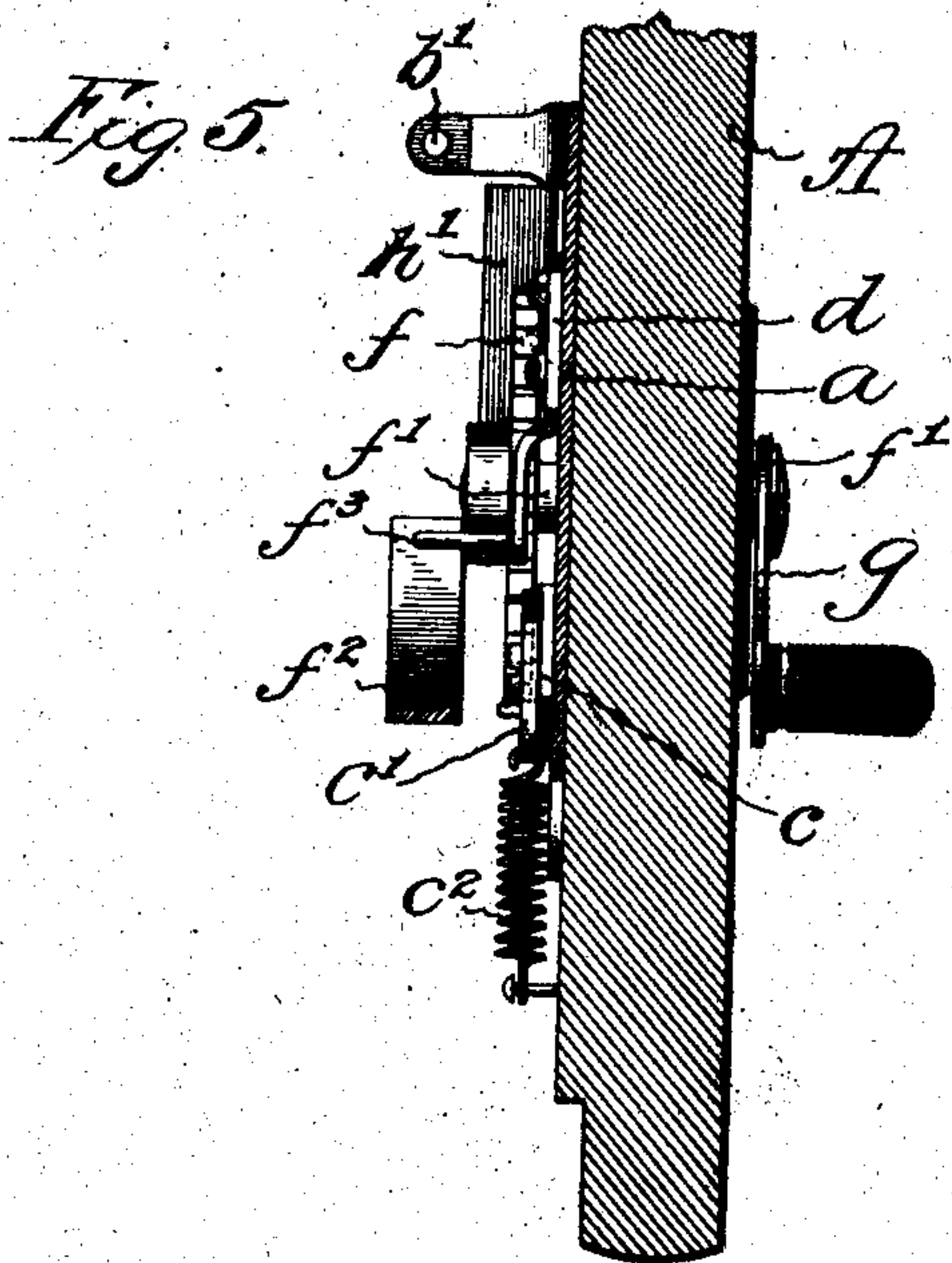
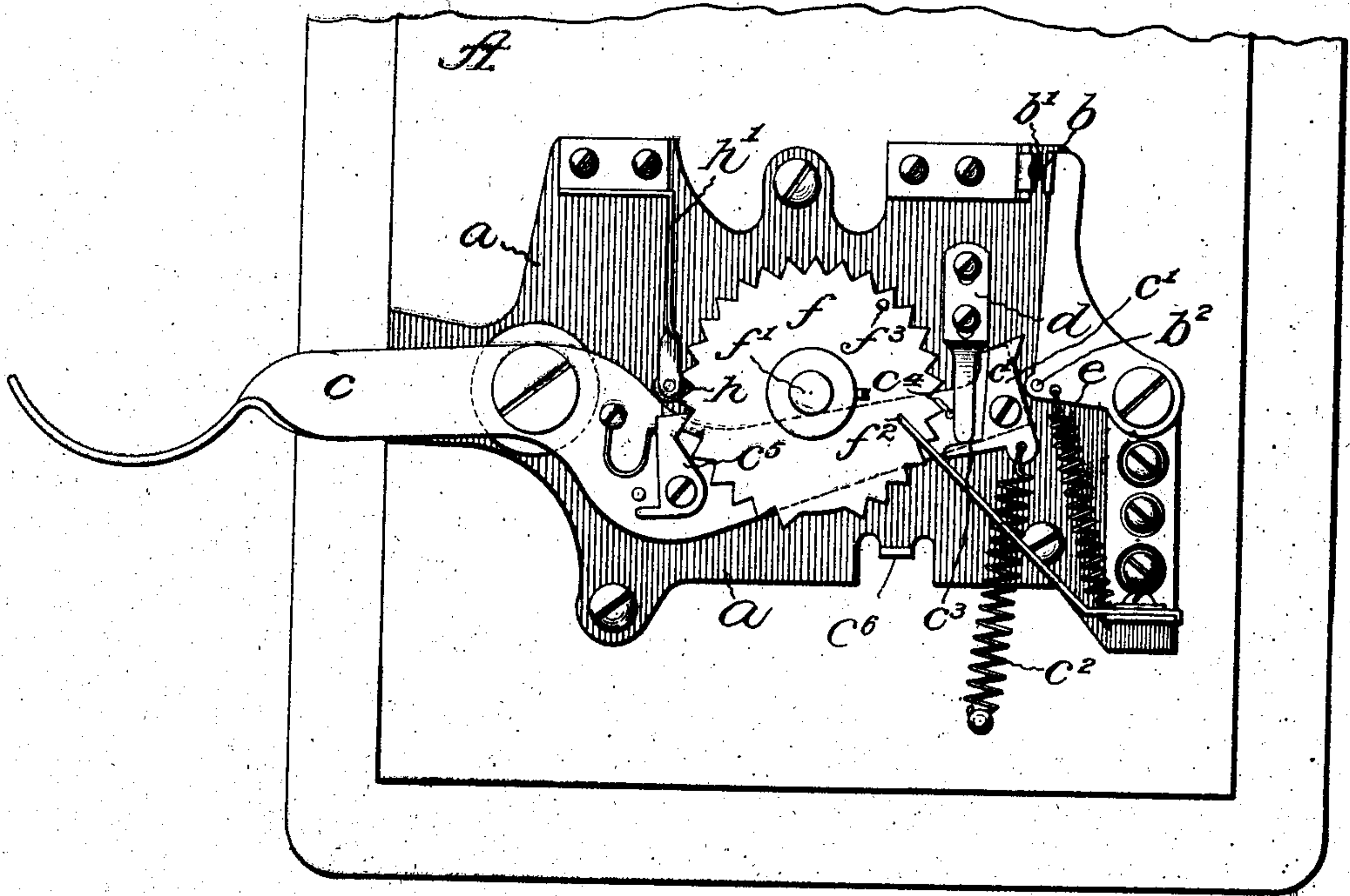
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3 SHEETS—SHEET 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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ELECTRICAL SELECTING APPLIANCE.

No. 833,805.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed December 18, 1905. Serial No. 292,170.

To all whom it may concern:

Be it known that I, CHARLES E. SCRIBNER, a citizen of the United States, residing at Jericho, in the county of Chittenden and State of Vermont, have invented a certain new and useful Improvement in Electrical Selecting Appliances, of which the following is a full, clear, concise, and exact description.

My invention relates to electrical selecting appliances; and its object is to provide an improved device for controlling the selective operation of apparatus in an electric circuit.

My invention consists in general of a device for producing any desired number of quick breaks or interruptions in an electric circuit to operate apparatus therein with mechanism adapted to be set to determine the number of breaks to be created or, in other words, which will render the device operative for breaking the circuit after its actuation the predetermined number of times.

I have found the device of my invention of special adaptability for use in connection with automatic telephone-exchanges to be located at the substation of a line and employed to operate a selector at the central office adapted to connect the line with another in the exchange, such selector requiring for its operation quick breaks in the circuit.

My invention contemplates a quick-break contact device comprising a movable contact member having a normal resting contact-anvil, with mechanism, such as a lever and a pawl carried thereby, for moving said member away from its anvil and simultaneously closing a shunt around the member and its anvil—that is, around the separated contacts. Means are provided for withdrawing said mechanism from the contact member at the proper time to release the member and open the said shunt. The member is arranged to be automatically returned when released to its normal position against its anvil. With this construction the break in the electrical connection between the member and its contact exists only during the interval in which the contact member is returning to its normal position, thereby making a very quick and short break.

Another feature of the invention consists in the provision of mechanism adapted to render the contact device inoperative to create a break in the circuit after its operation a

predetermined number of times dependent upon the position to which said mechanism is set or adjusted. To this end I preferably provide a selector-wheel with a pointer therefor, said wheel and pointer being adapted to be moved to set the pointer at any position on a scale or dial, which may be numbered or marked in any suitable way. A device such as the lever above mentioned is provided for stepping said wheel back to its normal position, the quick-break contact device being operated by the lever in each step of the wheel. The contact device is rendered inoperative to create a break upon the return of the wheel to its normal position, preferably by means of a shunt closed by the wheel about said contact device.

I will describe my invention more particularly by reference to the accompanying drawings, wherein—

Figure 1 is a front elevation of a signal-box equipped with the device of my invention, showing the dial and pointer therefor. Fig. 2 is a view of the inner face of the cover of the box, showing the mechanism mounted thereon. Figs. 3 and 4 are similar views with the mechanism in alternate positions. Fig. 5 is a vertical sectional view on line 5 5 of Fig. 2.

The same letters of reference are used to designate the same parts in each of the several figures of the drawings.

In the embodiment of my invention illustrated in the drawings the contact-breaking mechanism is mounted upon a frame-plate *a*, of conducting material, secured to the inner face of the cover of the signal-box *A*. A movable contact member, such as the pivoted contact-arm *b*, is mounted upon said plate but insulated therefrom, having a normally resting contact-anvil *b'* mounted directly upon the plate. Means are provided for moving said arm away from its anvil, consisting, preferably, of a manually-operated lever *c*, pivoted to said plate *a* and carrying a pawl *c'*, adapted in the initial movement of the lever to move said contact-arm *b*, said pawl preferably engaging a pin *b²* carried on the arm *b*. The said pawl *c'* while in engagement with said arm or pin completes a shunt around the contact member and its anvil—that is, around the separated ends thereof—through the frame-plate *a*. The pawl *c'* is preferably pivoted to the lever *c* and pre-

vided with a spring c^2 , adapted to maintain it in proper position to engage the pin b^2 . A spur c^3 upon the pawl is adapted to engage a stop c^4 upon the lever to assist in maintaining the pawl in position. After the lever has been moved to bring the pawl into engagement with said contact member, as shown in Fig. 3, and as the lever continues its movement the pawl is suddenly withdrawn from engagement with the contact-arm, releasing said arm and opening the shunt about the separated contacts. This may be accomplished by a stop-finger d , mounted upon the frame and adapted during the movement of the lever and its pawl to engage the spur c^3 and throw the pawl out of engagement with said pin b^2 . (See Fig. 4.) Any suitable means, such as a spring e , is provided for returning the arm into contact with its anvil, the break in the electrical connection between the contact members or a circuit with which they may be associated being simply the interval during which the arm is returning to its normal position. This stop d is arranged to be adjusted with relation to the pawl to determine the point at which the arm will be released—that is, the distance which the arm will be moved away from its contact, and so the length of the break. The nearer the finger is brought to the pawl the shorter will be the break. The spring c^2 serves to return the lever c to its normal position, where it rests against the stop c^4 . I also provide mechanism which may be set to allow the contact device to be operated to break its circuit any predetermined number of times, whereupon it will automatically render the same ineffective to further break the circuit. A selector-wheel f is rotatably mounted within the box and connected, by means of a shaft f' , passing through the cover of the box, with a pointer g , adapted to be set at any position on a dial g' , mounted upon the cover of the box. After the wheel and pointer have been moved sufficiently to set the pointer at the desired position or number on the dial the lever c is adapted to step the wheel back to its normal position. The lever preferably carries a spring-actuated pivoted pawl c^5 , adapted to engage the teeth of said wheel and operate the same in the movement of the lever. Each movement of the lever breaks electrical connection between the contacts b b' , or, in other words, the contact device is operated in each return step of the selector-wheel. As the wheel reaches its normal position it serves to render the contact device inoperative—that is, to prevent the electrical connection of the contacts b b' from being broken by said pawl c^5 . The wheel carries a pin f^2 , adapted as the wheel reaches zero position to engage a spring f^3 , secured to the insulated arm b to close a shunt around said contacts b b' . In addition, the wheel after it reaches normal position, with the pointer at zero on the dial,

is removed from the control of the lever. This is accomplished by providing a space between two teeth on said wheel, adapted when the wheel reaches its normal position to lie adjacent the end of the pawl c^5 , so preventing further operation of the wheel by said lever.

It will be apparent that any number of successive breaks or operations of the contact device may be obtained by simply setting the pointer to the proper position or number on the dial and then manipulating the lever c until such number of breaks has been obtained, whereupon the device is automatically rendered inoperative.

A roller h may be held against the teeth of the wheel to prevent the same from being advanced through a partial step and, in addition, to hold the selector-wheel in any position to which it may be moved against improper return thereof due to the weight of the pointer. A tension-spring h' serves to support the roller and maintain the same against the teeth of the wheel.

While I have shown a lever c as the means by which my selecting apparatus may be operated, I do not wish to limit myself to this mode of operation, as it is possible to employ a button having a wedge to operate the lever when the button is depressed or some other similar modification which will embody my invention.

I claim—

1. The combination with a movable contact member, of a contact-anvil therefor, mechanism for moving said contact member away from its anvil and simultaneously closing a shunt around said member and anvil, means for withdrawing said mechanism from the member and opening said shunt, and means for returning said contact member into engagement with its anvil; whereby the break in the connection between the member and its anvil exists only during the return movement of the member.

2. The combination with a movable contact member, of a normally resting contact-anvil therefor, a lever, a pawl pivoted thereto adapted in the movement of said lever to engage said member and move the same away from said contact, a shunt about said contact member and its anvil closed by said pawl while in engagement with said member, said pawl in the continued movement of the lever being withdrawn from engagement with said member to open said shunt and release the member, and means for moving the member into engagement with its normal contact; whereby the break in the connection between the member and its resting contact exists only during the return movement of the member.

3. The combination with a spring-actuated contact member, of a normally resting contact-anvil therefor, a manually-operated lever, a pawl pivoted thereto adapted in the

movement of said lever to engage said member and move the same away from its contact-anvil, a shunt about said member and anvil closed by said pawl while in engagement with said member, and a stop-finger adapted in the continued movement of the lever to engage said pawl and withdraw the same from engagement with said member, thereby opening said shunt and allowing said member to return through the agency of said spring into engagement with said anvil; whereby the break in the connection between the member and anvil exists only during the return movement of the contact member.

4. The combination with a spring-actuated contact member, of a normally resting contact-anvil therefor, a lever, a pawl pivoted thereto adapted in the movement of said lever to engage said member and move the same away from its anvil, a shunt around said member and anvil closed by said pawl while in engagement with said member, and a stop-finger adapted in the further movement of the lever to engage said pawl and withdraw the same from engagement with said member, thus opening said shunt and allowing the contact member to return through the agency of said spring into engagement with said anvil, said stop-finger being adjustable with relation to said pawl to determine the length of the break in the electrical connection between the contact members.

5. The combination with a contact-arm, of a normally resting contact-anvil therefor, a manually-operated lever, a pawl pivoted thereto adapted in the movement of said lever to engage said arm and move the same away from said contact-anvil, a shunt about said arm and contact-anvil closed by said pawl while in engagement with said arm, a spur carried by said pawl, a stud upon said lever, a spring normally maintaining said spur against said stud to hold the lever in position to operate said contact-arm, a stop-finger adapted in the continued movement of said lever to engage said spur and suddenly withdraw the pawl from engagement with said arm, opening said shunt and releasing said arm, and a spring for moving said arm into engagement with its anvil, substantially as described.

6. The combination with a frame-plate of conducting material, of a movable contact member mounted on said plate but insulated therefrom, a contact-anvil for said member mounted directly upon said plate, a lever pivoted to said plate, a pawl carried thereby adapted in the movement of the lever to engage said member and move the same away from its anvil, a shunt about said member and its anvil closed by said pawl through the lever and frame-plate while in engagement with said member, said pawl in the further movement of said lever being withdrawn from engagement with said member to re-

lease the same and open said shunt, and means for moving said member into engagement with its anvil, as and for the purpose described.

7. The combination with a selector-wheel, of a scale, a pointer secured to said wheel, said wheel and pointer being adapted to be moved to set the pointer at any position on said scale, a lever carrying a pawl adapted in each manipulation of the lever to move said wheel back one step, a pair of contacts separated by said lever in each manipulation thereof, and a shunt about said contacts established by said wheel as the same reaches its normal position to prevent further operation of said contacts by the lever, said wheel on reaching such position being removed from operation relative to said lever.

8. The combination with a selector-wheel, of a dial, a pointer secured to said wheel, said wheel and pointer being adapted to be moved to set the pointer in any position on said dial, a lever adapted in each manipulation thereof to move said wheel back one step, a quick-break contact device adapted to be operated by said lever in each manipulation thereof, and means actuated upon the return of said wheel to normal position and adapted to render said contact device inoperative; whereby the number of operations of said contact device is made dependent upon the position to which said pointer is adjusted.

9. The combination with a selector-wheel, of a dial, a pointer secured to said wheel, said pointer and wheel being adapted to be moved to set said pointer at any position on said dial, means for stepping said wheel back to its normal position, a contact device operated in each step of the wheel, and means actuated upon the return of said wheel to normal position adapted to render said contact device inoperative; whereby the number of operations of said contact device is dependent upon the position on the dial to which said pointer is set.

10. The combination with a signal-box, of a dial on the face thereof, a selector-wheel within the box, a shaft projecting through the box upon which said wheel is mounted, a pointer on the outside of the box secured to said shaft adapted to be set at any position on said dial, said pointer when so moved advancing said selector-wheel, a manually-operated lever projecting through the wall of the box and adapted in each manipulation to move said wheel back one step, a contact device operated in each backward step of said wheel, and a shunt about said contact device closed by the selector-wheel as it reaches normal position, to render said contact device inoperative.

11. The combination with a pivoted contact-arm and a normal resting contact-anvil therefor, of a lever, a pawl carried by said

lever adapted in each manipulation of the lever to engage said arm to move the same away from its anvil, a shunt around said arm and contact, closed by said pawl while in engagement with said arm, the pawl in the continued movement of the lever being suddenly withdrawn from said arm to open the shunt and release the arm, means for returning the arm into engagement with its anvil, a selector-wheel, a marked dial, a pointer secured to said wheel, said pointer and wheel being adapted to be moved to set said pointer at any mark on said dial, a second pawl carried by said lever adapted in each manipulation of the lever to return said wheel one step, a shunt around said arm and anvil closed by said wheel as it reaches its normal position, a space being provided between two teeth of the wheel adapted to lie adjacent to said second pawl while the wheel is in normal position; whereby the number of breaks between said arm and anvil is determined by the position to which said pointer is adjusted, and the said wheel and make-and-break contact device rendered inoperative while the wheel occupies its normal position.

12. In a switch for electric circuits, the combination with the switch member, of means for opening and closing the circuit at the switch-contacts and simultaneously closing a shunt about said contacts, said shunt being removed from said switch-contacts to interrupt said circuit, the removal of said shunt occurring simultaneously with

the beginning of the closing movement of the said contacts, whereby the circuit is interrupted with a quick break of constant duration.

13. In a switch for electric circuits, a switch member and automatic means for opening and closing the switch-contacts thereof to interrupt the circuit, in combination with a shunt member associated with said switch-contacts to permit the interruption of said circuit only during the closing movement of the switch-contacts, substantially as described.

14. The combination with a contact member, of a contact-anvil therefor, mechanism for giving said member two movements, away from and into engagement with its anvil, respectively, and a shunt about said member and anvil closed during one of the movements of said member.

15. The combination with a contact member, of a contact-anvil therefor, mechanism for giving said member a movement away from its anvil, means for moving said member into engagement with its anvil, and a shunt about said member and anvil closed by said mechanism during one of the movements of said member.

In witness whereof I hereunto subscribe my name this 1st day of April, A. D. 1905.

CHARLES E. SCRIBNER.

Witnesses:

R. T. ALLOWAY,
E. F. BEAUBIEN.