No. 672,665. Patented Apr. 23, 1901.

W. S. BOSLEY.

COIN CONTROLLED ELECTROTHERAPEUTIC MACHINE.

(Application filed July 2, 1900.)

(No Model.) 3 Sheets—Sheet 1.

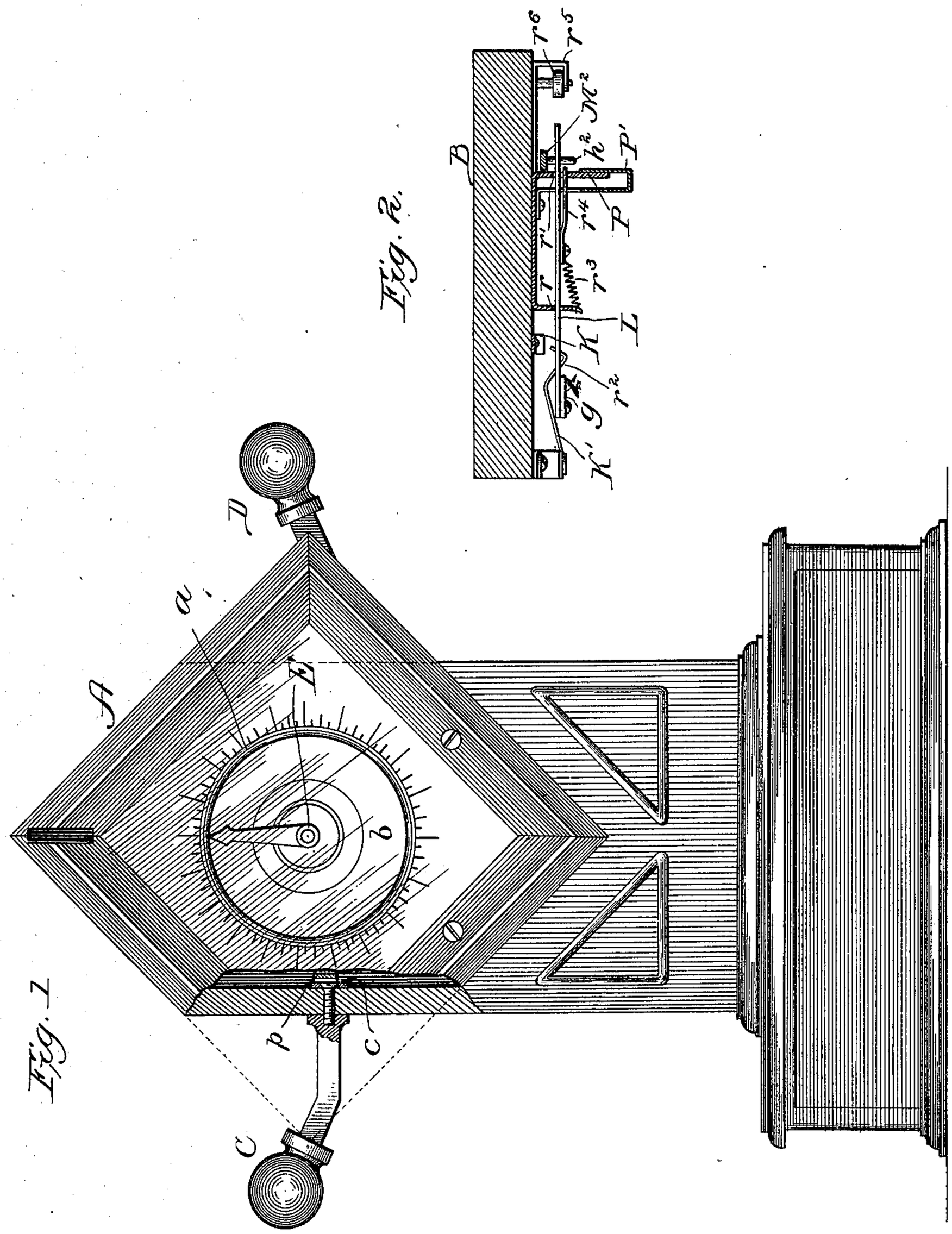

Fig. 1.

Fig. 2.

Witnesses:
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John Enders Jr.

Inventor:
Winfield S. Bosley,
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(No Model.) 3 Sheets—Sheet 2.

Fig. 3.

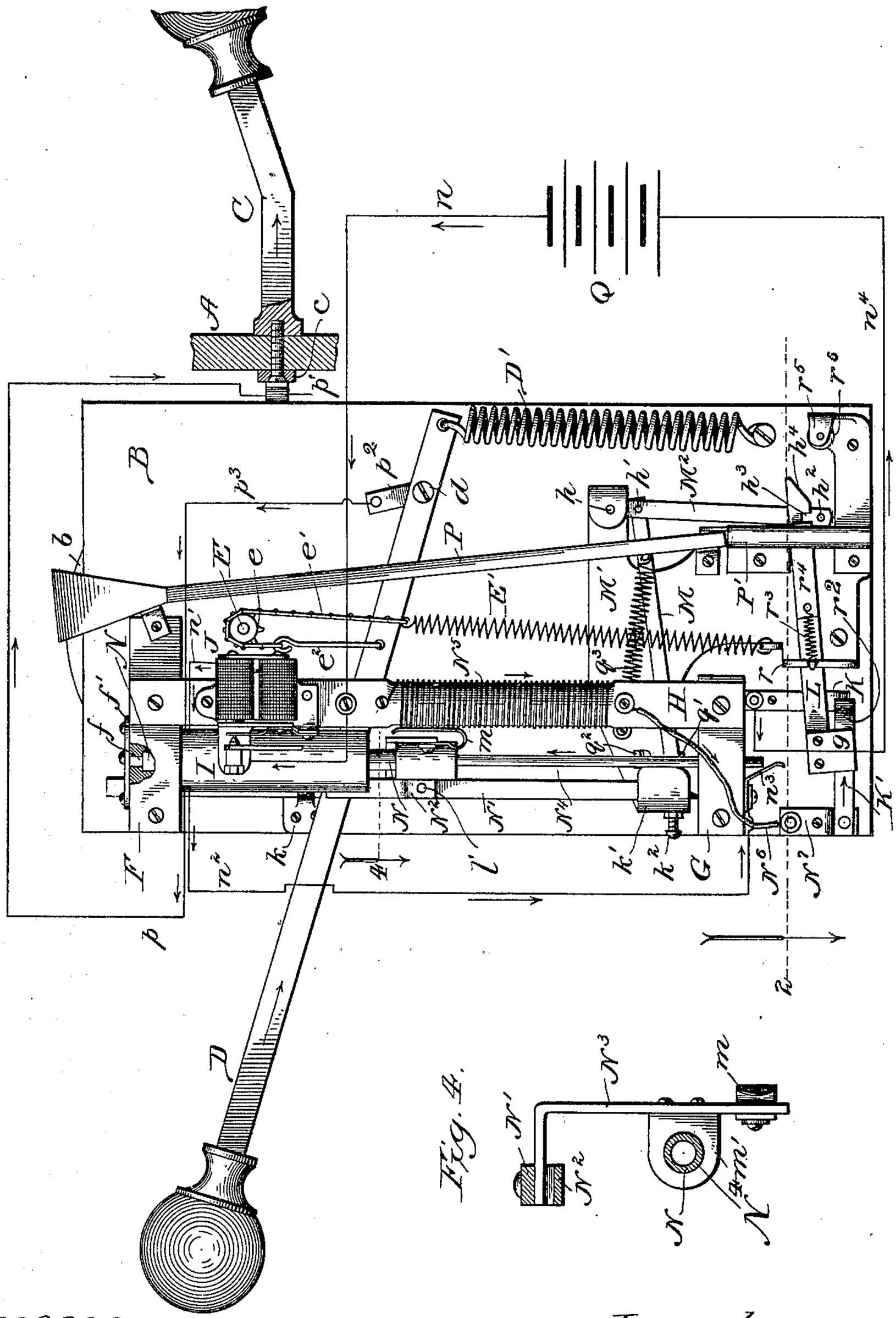

Fig. 4.

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Fig. 6.

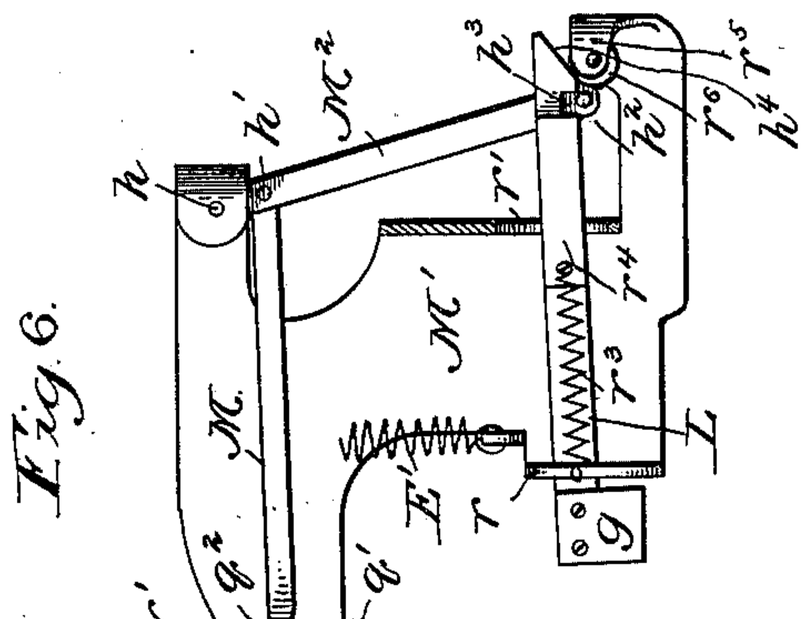
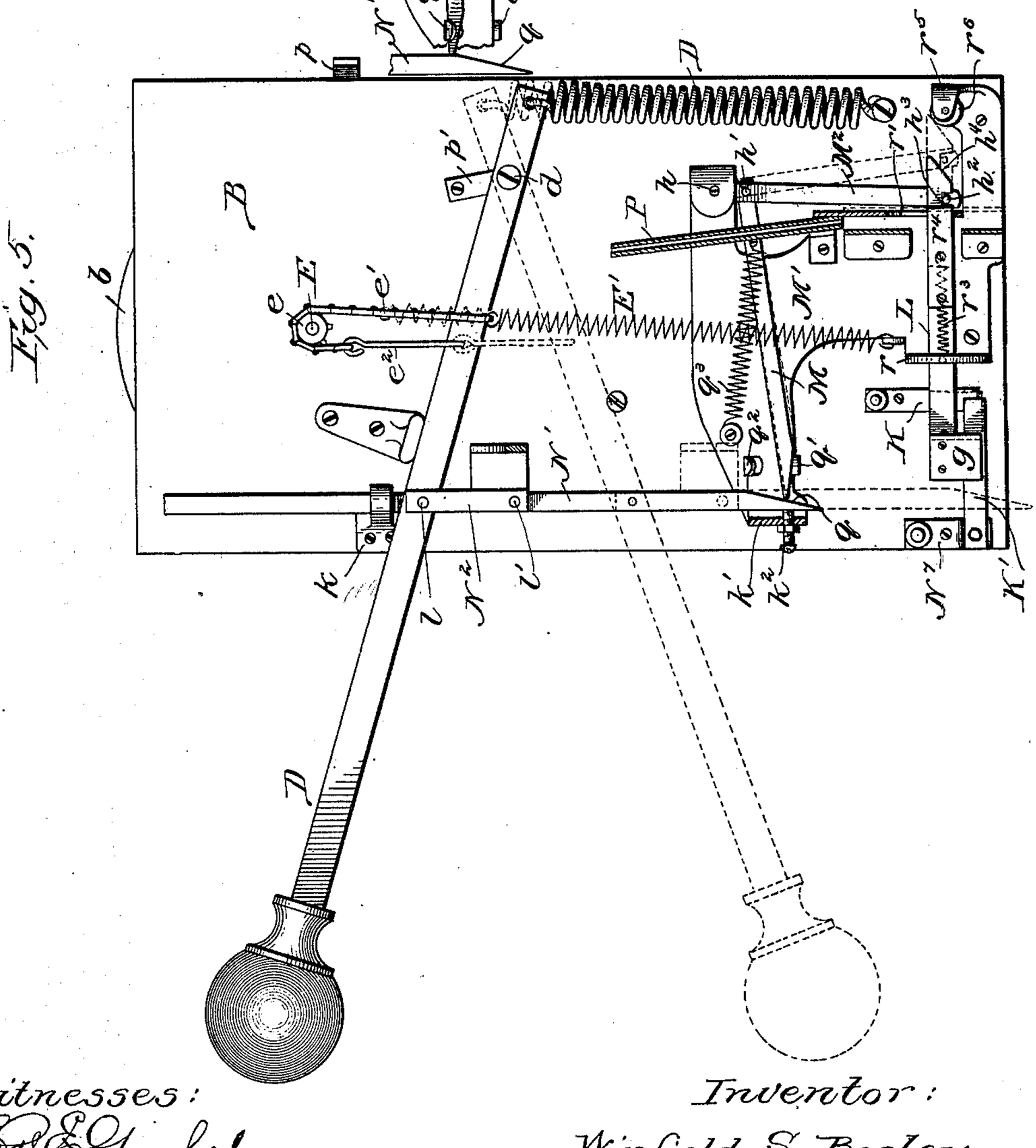


Fig. 5.



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Inventor:
Winfield S. Bosley,
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UNITED STATES PATENT OFFICE.

WINFIELD S. BOSLEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO MILLS NOVELTY COMPANY, OF SAME PLACE.

COIN-CONTROLLED ELECTROTHERAPEUTIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 672,665, dated April 23, 1901.

Application filed July 2, 1900. Serial No. 22,319. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD S. BOSLEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Controlled Electrotherapeutic Machines, of which the following is a specification.

My invention relates particularly to coin-controlled electrotherapeutic machines.

My primary object is to provide improved mechanism for closing the battery-circuit when a current is desired; and a further object is to provide improved means for causing an increase in current and to cheapen and simplify the construction of machines of this class.

In the preferred construction there is employed a removable mechanism board or standard which may be inserted in or removed from the casing at will.

In the accompanying drawings, Figure 1 is a view in front elevation of a machine embodying my improvements, a portion of the casing being broken away to disclose a spring contact-maker; Fig. 2, a transverse section through the mechanism-board, taken as indicated at line 2 of Fig. 3; Fig. 3, a view of the rear side of the mechanism-board and showing the connected mechanism and wires, a fragment of the casing also being shown; Fig. 4, a transverse section taken at the corresponding line of Fig. 3 and showing the connection between the operating-lever and the magnetic shield for the solenoid-core; Fig. 5, a view of the rear side of the mechanism-board with certain parts of the mechanism removed and certain parts shown in section, and Fig. 6 a view showing the parts of the mechanism at the lower portion of the mechanism-board occupying a different relative position from their position in Fig. 5.

A represents the casing, which may be of any suitable form and adapted to receive on the inner side of its front the removable mechanism-board employed, said casing preferably being supplied at its front with a dial-opening *a* for receiving that portion of the dial which is removable with the mechanism-board; B, a mechanism-board provided on its front surface with a dial part *b* and having secured to its rear surface the principal working parts; C, a fixed metallic handle secured to the casing A and in electrical connection with a contact-point *c* on the inner surface of the casing; D, a hand-lever pivotally connected to the board B by a screw *d'*; D', a spring serving to hold the outer end of the hand-lever normally elevated; E, a dial-pointer post provided with a sprocket-wheel *e*; E', a spring, one end of which is connected with a sprocket-chain *e'*, which passes about the wheel *e*, and is connected at its free end through the medium of the link e^2 with the hand-lever D; F and G, blocks fixedly secured to the board B; H, a vertical standard or post supported by said blocks; I, a solenoid supported from the block F, said solenoid being provided with a soft-iron core *f*, which projects downwardly from a metallic plate *f'*, secured to the upper surface of the block F; J, a circuit-interrupter for the primary circuit; K, a fixed contact or switch point for the primary circuit; K', a movable contact-point for said circuit; L, a movable bar provided with a projection *g*, of insulating material, which serves to move the contact-maker K'; M, a frictionally-operated thrust-bar; M', a support for certain of the movable parts, the same being preferably stamped from sheet metal and fixedly secured to the board B; M^2, a lever pivotally connected by a pin *h* to the support M' and by a pin *h'* to the thrust-bar M and provided at its free end with a pin h^2 for engaging the recess h^3 adjacent to the inclined surface h^4 on the bar L; N, a tubular magnetic shield inclosing the soft-iron core of the solenoid; N', a vertically-movable plunger-bar secured in guides *k k'*, the latter of which is provided with an adjusting-screw k^2; N^2, a link pivotally connected at a point *l* with the lever D and at a point *l'* to the bar N'; N^3, an angle connecting-bar firmly secured at one end to the bar N' and carrying at its opposite end a spring contact-point *m* and secured firmly intermediate of its ends by a collar *m'* to the shield N; N^4, a metallic rod forming a downward projection from the shield N, with which it moves; N^5, a wire wound upon the post H and with which the spring-point *m* is in sliding contact during the movement of the lever D; N^6, a wire connecting the wire N^5 with a metallic piece

N^7, to which the contact-point K is connected, and P a coin-chute, transversely through the lower end of which extends the bar L, said coin-chute being provided with an offset P', into which the coin passes after striking the bar L.

The primary circuit is from the battery Q through a wire n to the interrupter J, from the interrupter J through the wire n' to the solenoid, from the solenoid through a wire n^2 to a spring contact-point n^3, from the contact-point n^3 through the rod N^4 to the sliding contact-point m, from the contact-point m to the wire N^5, thence through the wire N^6 and metallic piece N^7 to the movable contact-point K', and from thence when the circuit is closed through the contact-point K and wire n^4 to the battery.

The induced current is from the solenoid through a wire p to a spring contact-point p', secured to one edge of the board B, thence to the contact-point c on the inside of the casing, thence through the handle C to the body of the patient, thence back through the hand-lever D to a spring contact-point p^2, which is secured to the board B and provided with a perforation to receive the pivot d, and thence through a wire p^3 to the solenoid.

As shown in Fig. 5, the lower end of the bar N' is provided with an inclined surface q, and the adjacent end of the bar M is movable between lugs q' q^2. A spring q^3 serves normally to hold the bar M in contact with the bar N'. As shown in Fig. 2, the bar L is movable in slots r r' in projections on the support M'. The contact-point K' is provided with an inclined surface r^2, which is engaged by the lug g on the bar L when the latter is moved, thereby forcing the point K' into contact with the point K. A spring r^3 serves to hold the bar L normally retracted, and a spring r^4, contacting with one wall of the slot r', tends to hold the recessed end of the bar L in any position in which it is placed. The support M' is provided with a bracket r^5, in which is journaled a roller r^6, located in the path of the inclined surface h^4 of the bar F.

Assuming the mechanism-board to be properly located in its casing and the parts properly connected the free end of the bar L may be depressed by dropping a coin into the tube P. After striking the free end of said bar and depressing it the coin rolls from the bar into offset P' at the base of the coin-chute. The movement just mentioned causes the recess h^3 to engage the pin h^2. If the hand-lever D be now depressed, the free end of the thrust-bar M will be engaged by the inclined surface of the friction-bar N', and the thrust-bar will be moved longitudinally a certain distance, after which the free end of said thrust-bar will be slidingly engaged by the adjacent vertical edge of the friction-bar. This movement brings the inclined surface h^4 of the bar L adjacent to the roller r^6 and causes the contact-point K' to be pressed into engagement with the contact-point K. During the movement last mentioned the contact-point m slides along the coiled wire N^5 and cuts the coils thereof in succession from the primary circuit. When the hand-lever D is released, it returns to its original position under the force of the springs connected with it, and in the return movement the end of the bar M adjacent to the bar N' is frictionally engaged and lifted by said bar N'. This movement serves to impart a further longitudinal movement to the thrust-bar, thereby giving to the lever M^2 an additional movement sufficient to carry the inclined surface of the bar L up onto the roller r^6, whereby the free end of said bar L is lifted and disengaged from the pin h^2. As soon as the bar N' has risen to such a height that the adjacent end of the thrust-bar again passes onto the inclined surface q the lower or free end of the thrust-bar again drops upon the lug q'.

In Fig. 3 the recessed end of the bar L is shown in position to be depressed by a coin. It is held in this position by the spring r^4 engaging a wall of the slot in which said bar moves. In Fig. 5 the recessed end of the bar L is shown interlocked with a pin h^2, and it is frictionally held in this position by the spring r^4 until released in the manner shown in Fig. 6. The full lines show the position of the bar L when the hand-lever D is in its elevated position, and the dotted lines show the position of said bar when the hand-lever is in its lowermost position. Fig. 6 shows the position of said bar just prior to the instant when the friction end of the thrust-bar passes from the vertical edge of the friction-bar to the inclined surface q during the upward movement of the lever D.

The use of the tubular magnetic shield for the solenoid-core is well understood, and it will also be readily understood that the interrupter J is located in the position shown instead of at the upper end of the solenoid merely for convenience. Through the medium of the sprocket-wheel and sprocket-chain shown the pointer is moved over the dial in a manner now understood in the art.

Changes in details of construction within the spirit of my invention may be made.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character described, the combination of a battery, a solenoid in the circuit thereof, two contact-points in said circuit and normally out of engagement with each other, circuit-closing means engaging one of said contact-points and projecting into the path of a coin, operating mechanism for moving said circuit-closing means, means for interlockingly connecting said circuit-closing means to said operating mechanism when the circuit-closing means is moved by a coin, and handles in the induction-circuit of said solenoid, substantially as and for the purpose set forth.

2. In a machine of the character described, the combination of a battery, an interrupter

and solenoid in the circuit thereof, a fixed handle in the induction-circuit of said solenoid, a hand-lever in said induction-circuit and pivotally connected to a stationary support, a friction-bar connected with said hand-lever, a thrust-bar engaging said friction-bar, two contact-points in said primary circuit and normally out of contact with each other, a coin-moved circuit-closing bar provided with means for forcing one of said contact-points into engagement with the other of said points, a lever pivoted to a stationary support and pivotally joined to said thrust-bar, interlocking connection between said coin-moved bar and said last-named lever, and means for restoring the movable parts to their normal position, substantially as and for the purpose set forth.

3. The combination of a battery, an interrupter and solenoid in the circuit thereof, a hand-lever connected with the induction-coil of said solenoid, a friction-bar connected to said hand-lever, means movable with said hand-lever for varying the induced current, a rod N^4 movable with said hand-lever, a contact-point n^3, a sliding contact-point m, a conductor over which said contact-point m moves, two contact-points normally out of engagement with each other, one of said contact-points being connected with said conductor, a frictionally-operated thrust-bar M, a coin-moved bar L provided with means for closing the primary circuit, a lever M^2 connected with said thrust-bar, and interlocking means on the bar L and lever M^2, substantially as and for the purpose set forth.

4. The combination with a battery, an interrupter and an induction-coil, of a manually-operated friction-bar, a thrust-bar in engagement therewith, a lever connected with said thrust-bar, two contact-points in the circuit of said battery and normally out of engagement with each other, a coin-moved bar provided with means for interlocking with said lever and provided with circuit-closing means, and a roller for disengaging the coin-moved bar from said lever after the coin-moved bar has been moved through the medium of said lever, substantially as and for the purpose set forth.

5. The combination with a battery and a solenoid, of a hand-lever, means connected with said hand-lever for varying the strength of the induced current, a friction-bar connected with said hand-lever and provided with a vertical and an inclined surface, a thrust-bar having one end in position to be engaged by said surfaces, a lever connected with said thrust-bar, two contact-points in the circuit of said battery and normally out of engagement with each other, a coin-moved bar provided with means for interlocking with said lever and with means for forcing one of said contact-points into engagement with the other, and means for disengaging said coin-moved bar from the adjacent lever after said bar has been moved through the medium of the lever to close the circuit, substantially as and for the purpose set forth.

6. The combination of a battery, an interrupter and solenoid in the circuit thereof, handles connected with the induction-coil of said solenoid, two contact-points in said primary circuit and normally out of contact with each other, a circuit-closing device which is preparatorily moved by a coin, and manually-operated mechanism provided with means for interlocking with said circuit-closing device, through the medium of which a closure of the circuit is effected after said preparatory movement, substantially as and for the purpose set forth.

7. The combination of a battery, an interrupter and solenoid in the circuit thereof, a contact-point n^3 in said battery-circuit, a hand-lever D, means connected with said hand-lever for varying the induced current, a rod N^4 movable with said hand-lever and contacting with the point n^3, a conductor N^5, a contact-point n movable with the rod N^4 and engaging the conductor N^5, two contact-points in said primary circuit and normally out of engagement with each other, one of said contact-points being in engagement with said conductor N^5, a circuit-closing device which is preparatorily moved by a coin, and manually-operated mechanism provided with means for interlocking with said circuit-closing device and serving after the preparatory movement to actuate said closing device and close the circuit, substantially as and for the purpose set forth.

8. The combination of a battery, an interrupter and solenoid in the circuit thereof, a hand-lever connected with the induction-coil of said solenoid, means connected with said hand-lever for varying the induced current, a friction-bar connected with said hand-lever, a rod N^4 depending from said hand-lever, a contact-point n^3 in said primary circuit and in contact with said rod, a thrust-bar M, a conductor N^5, contact-points K and K′, one of which is connected with said conductor N^5, a lever M^2 connected with said thrust-bar, a circuit-closing device which is preparatorily moved by a coin, means on the lever M^2 for interlocking with said circuit-closing device whereby the circuit-closing device may be actuated after being thus preparatorily moved, means for disconnecting the circuit-closing device from its actuating-lever, and means for restoring the parts to their normal position, substantially as and for the purpose set forth.

9. The combination of a battery, an interrupter and solenoid in the circuit thereof, contact-points in the circuit of said battery and normally out of contact with each other, a circuit-closing bar L, one end of which is movable in a slot r', a coin-chute for conducting a coin to the upper edge of said bar, a spring tending to hold said bar in any position in

which it is placed, a roller r^6 for engaging said bar L, manually-operated mechanism for actuating said bar L and provided with means for engaging the latter when it is preparatorily moved by a coin, and springs for restoring the parts to their normal position after the circuit-closing bar has been actuated by said manually-operated mechanism, substantially as and for the purpose set forth.

WINFIELD S. BOSLEY.

In presence of—
D. W. LEE,
A. D. BACCI.