

No. 608,496.

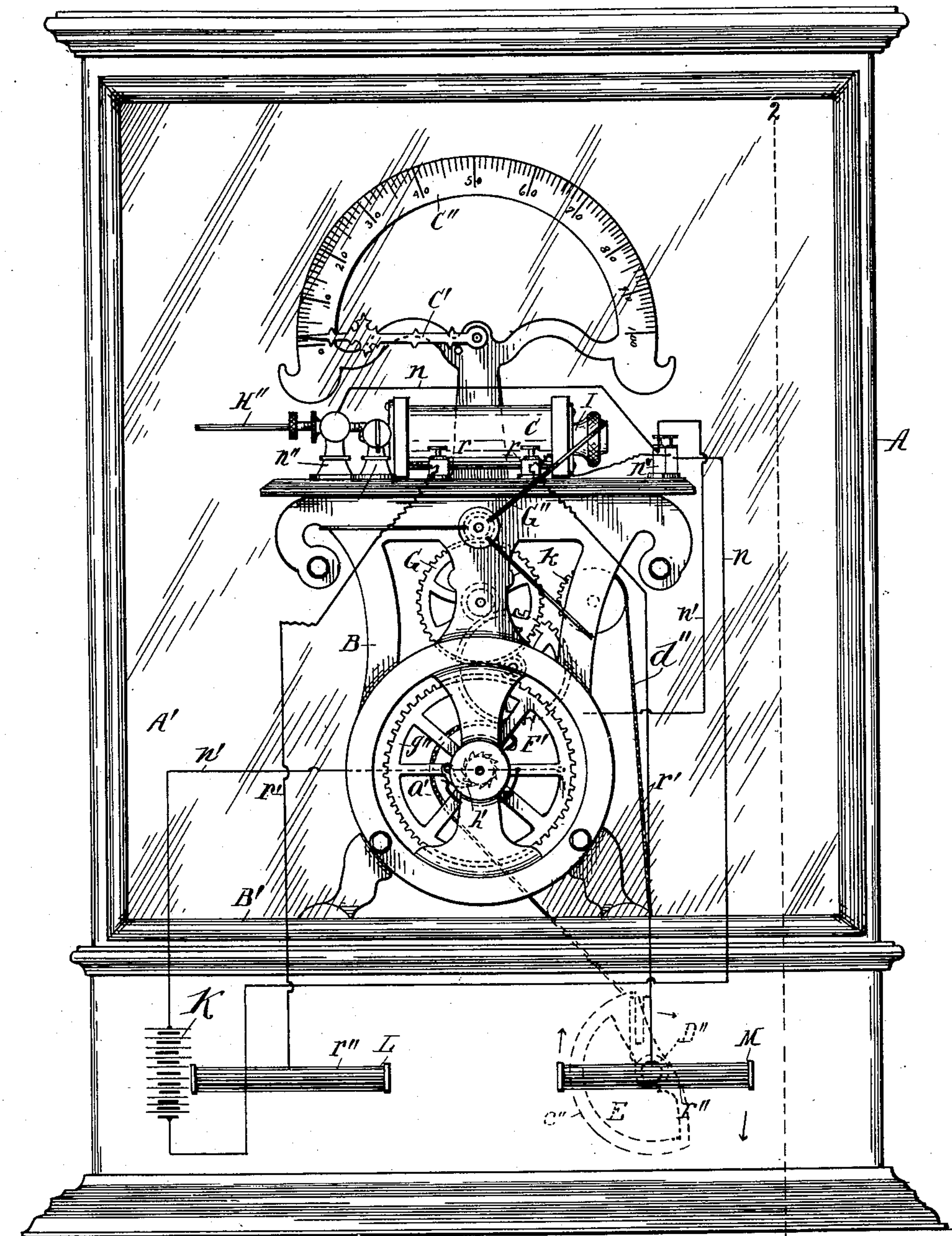
Patented Aug. 2, 1898.

N. M. WATSON.
COIN CONTROLLED MEDICAL BATTERY.

(Application filed Dec. 27, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

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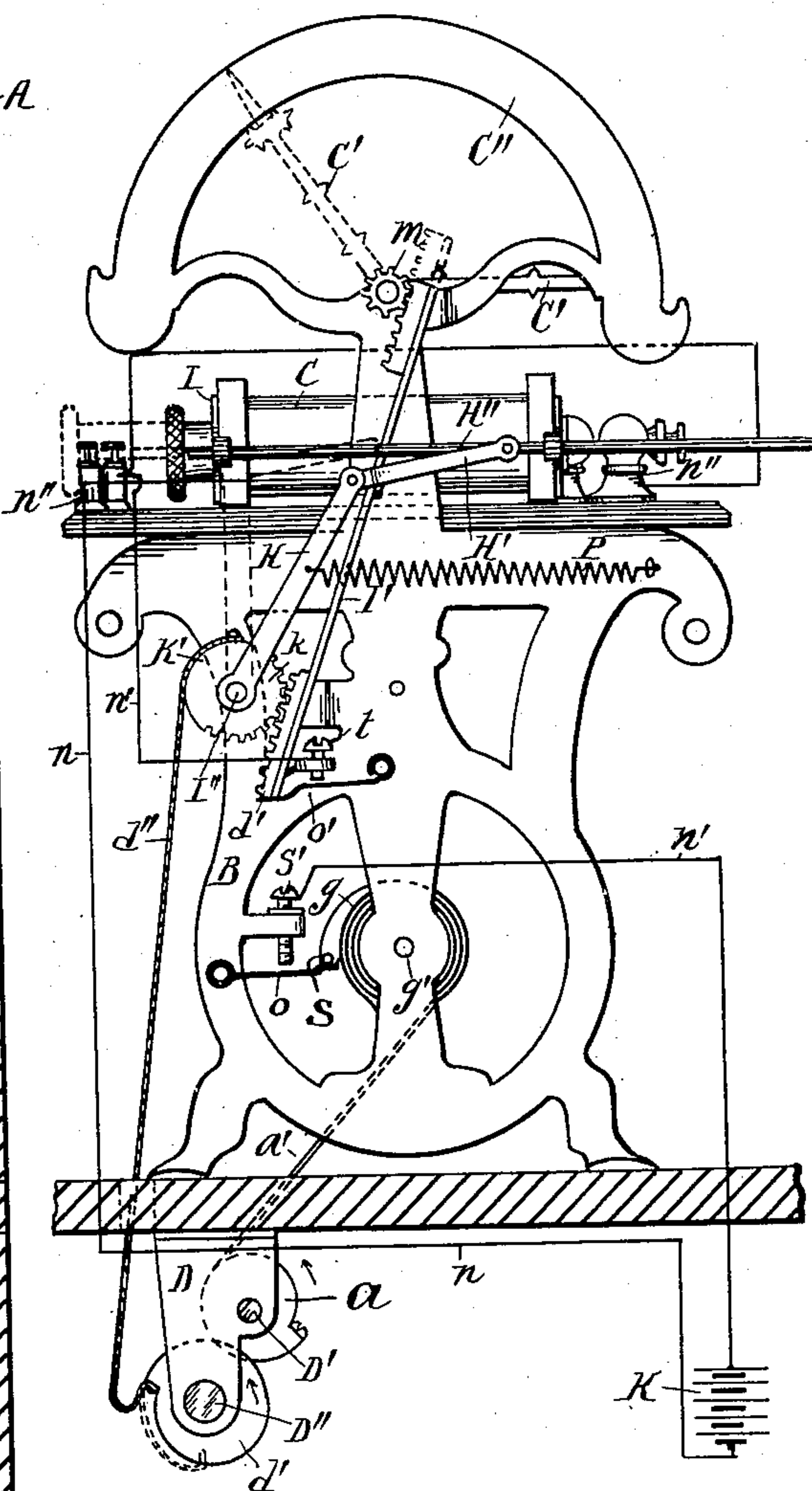
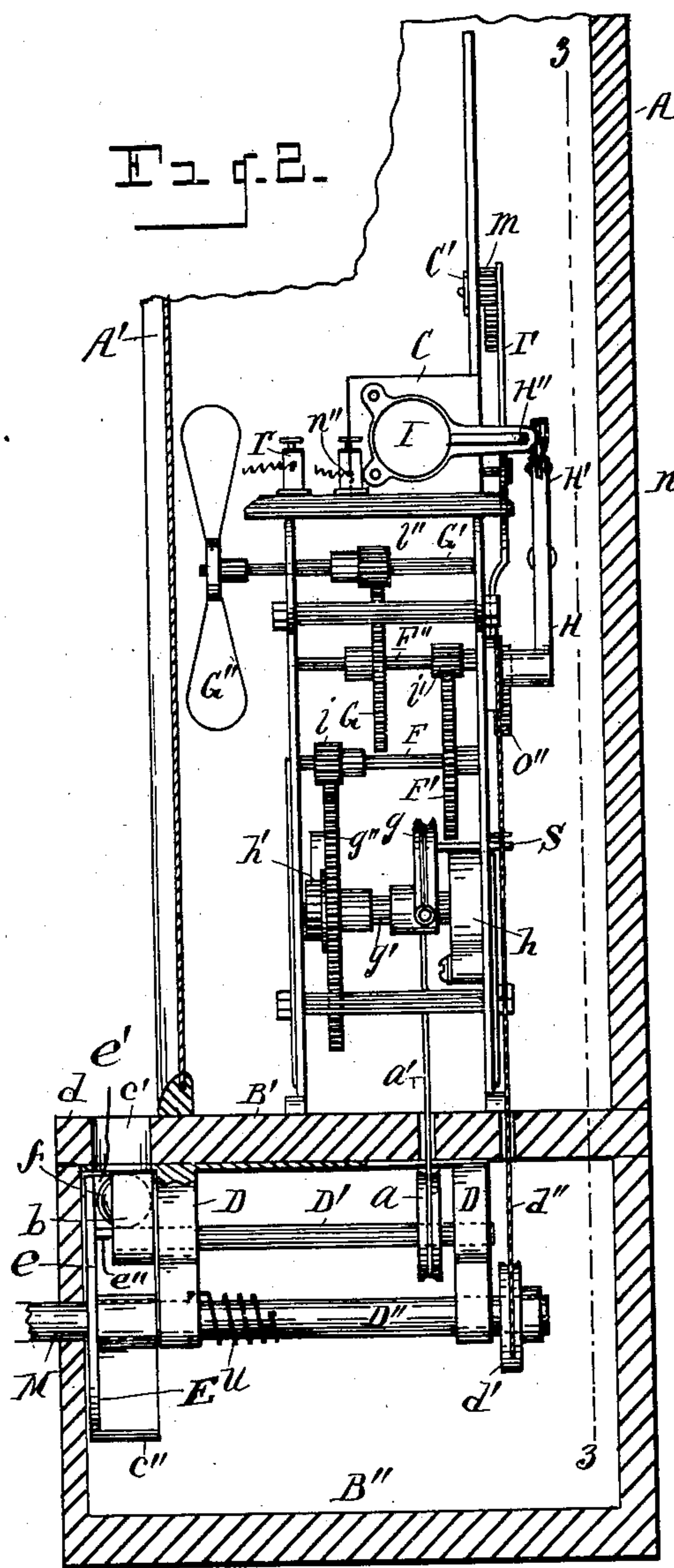
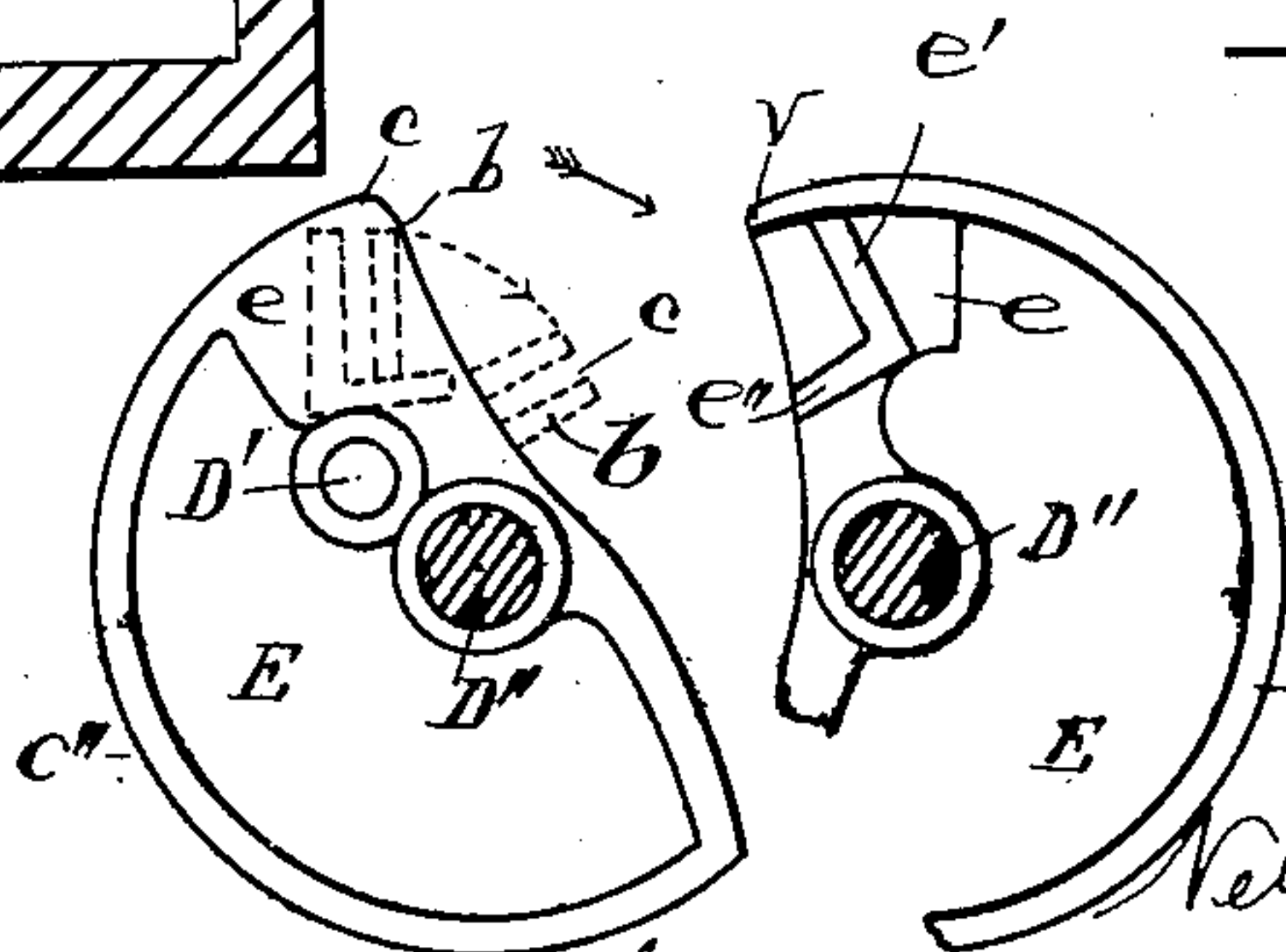


Fig. 4.

WITNESSES

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Fig. 5.

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UNITED STATES PATENT OFFICE.

NELSON M. WATSON, OF DETROIT, MICHIGAN.

COIN-CONTROLLED MEDICAL BATTERY.

SPECIFICATION forming part of Letters Patent No. 608,496, dated August 2, 1898.

Application filed December 27, 1897. Serial No. 663,533. (No model.)

To all whom it may concern:

Be it known that I, NELSON M. WATSON, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Coin-Controlled Medical Batteries; 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a coin-controlled medical battery; and it consists in the construction and arrangement of parts hereinafter more fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide certain mechanical means in connection with an electric battery in which the arrangement is such as to enable the driving mechanism by the insertion of a coin in the slot in the machine to be wound by the turning of one of the handles of the machine so as to place the machine in condition for operation and at the same time, by a further turning of said handle, to regulate the volume of current which passes to the operator, and by a further arrangement of parts to provide an indicator which shows the amount of current being used and an automatic stop which regulates the period during which the machine will run for each coin inserted. This object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of an apparatus involving my invention. Fig. 2 is a central vertical transverse section thereof. Fig. 3 is a vertical transverse section as on line 3 3 of Fig. 2. Fig. 4 is a detail view showing one side of a segmental wheel forming part of the coin-actuated mechanism. Fig. 5 is a like view showing the reverse side of said wheel.

Referring to the letters of reference, A designates a suitable case, within which the mechanism of the apparatus is located, said case having a glass front A', through which said mechanism may be viewed. The operative mechanism within said case is mounted

in a suitable metallic frame B, which stands upon the base B' and carries the magnet C and the indicating-hand C' and scale C".

Below the base B' in the case is a compartment B'', within which depends a supporting-hanger D, having journaled therein an upper horizontal shaft D' and a lower horizontal shaft D''. Secured upon the inner end of said upper shaft D' is a grooved wheel *a*, having one end of a strap or chain *a'* attached thereto. On the outer end of said shaft is a radial arm *b*, having a longitudinal slot *c* therein, opening through the outer end thereof. This slotted arm normally stands in a vertical position, so that the open slot in the end thereof will register with the coin-receiving slot *c'* through the projecting ledge *d* of the base of the machine, as clearly shown in Fig. 2.

Upon the inner end of the lower shaft D'' is a grooved wheel *d'*, having one end of a strap or chain *d''* attached thereto. Upon the opposite or forward end of the shaft D'' is a segmental wheel E, adapted to turn with said shaft and having a portion of its arc broken away, the remaining portion of the rim of said wheel describing the arc of a circle and having such width of face *c''* as to close the coin-receiving slot *c'* when said wheel is turned to carry said face across the lower end of said slot. The segmental wheel E is provided with a web *e* at one terminal of its arc, against the inner face of which is secured an angular piece *e'*, whose vertical face normally registers with one side of the slotted aperture *c* in the arm *b* and whose lower horizontal portion *e''* receives the coin *f*, forming a rest therefor and also serving to discharge the coin from the slotted arm, as hereinafter stated, said angle-piece serving as a sort of pocket which receives the coin and in which it is confined by the web *e* of said segmental wheel and the outer face of the hanger D, as shown in Fig. 2.

The strap or chain *a'*, leading from the grooved wheel *a* of the shaft D', is wound upon a grooved wheel or segment of a grooved wheel *g*, to which its upper end is secured. This segment of grooved wheel *g* is mounted upon a shaft *g'*, journaled in the frame, carrying a large gear-wheel *g''*, said shaft being adapted to be driven by the coiled spring *h*,

which spring is wound by a rotation of said shaft through the medium of the strap or chain a' and which serves to drive the gear-wheel g'' on said shaft when wound through the medium of the pawl and ratchet h' . (Shown in Fig. 1.) The gear-wheel g'' meshes with a pinion i on the shaft F, carrying a gear-wheel F', which in turn meshes with a pinion i' on the shaft F'', carrying a gear-wheel G, which meshes with a pinion i'' on the shaft G', upon one end of which is mounted the fan G''. The purpose of the fan is to prevent the train of gear-wheels driven by the spring h from running down too quickly after being wound.

Journalled upon the short shaft I'', projecting from the side of the frame, is a mutilated gear k , to the smooth face k' of which is attached the upper end of the strap or chain d'' , leading from the grooved wheel d' of the shaft D''. Also mounted upon the shaft F'' is an arm II, the upper end of which is pivotally connected by a link II' with the slide II'', attached to the movable hollow sleeve I, which embraces the core of the magnet C, which is a common construction and will need no further description here.

Engaging the teeth of the mutilated gear-wheel k is a rack-bar I', which extends obliquely upward and engages with the teeth at its upper end the pinion m on the shaft of the indicating-hand C', which sweeps the arc of the graduated scale C''.

The primary electric circuit leads from the battery K through the lines n and n' to the binding-posts n'' of the primary coil of the magnet. A portion of the line n' is formed through the frame B of the machine, which line is normally open at the contact-springs o o' . The secondary circuit leads from the secondary coil of the magnet to the binding-posts r and by means of the wires r' to the handles L and M, respectively, of the machine, which handles are provided with the usual electrodes r'' , adapted to be clasped by the hands of the operator.

In the operation of this device with the parts in their normal position, as shown in Figs. 2 and 3, a coin is placed in the slot c' , which, passing downward therethrough, enters the slotted arm b on the shaft D' in position to be engaged by the vertical face of the angle-piece c' , upon the lower horizontal part c'' of which said coin rests and is confined on one side by the web e of the segmental wheel carrying said angle-piece and upon the other side by the face of the hanger D, as clearly shown at f in Fig. 2, in which position of parts the segmental wheel E is locked to the slotted arm b through the medium of said coin, when a rotation of the shaft D'' through its handle M will turn the segmental wheel E, carried thereon, and cause the slotted arm b to swing downward, thereby rotating the shaft D' and turning the shaft g' through the connecting-chain a' , whereby the spring h , carried by said shaft, is wound. As the

grooved wheel g is turned through the drawing of the chain a' in the act of winding said spring h a lug s , (see Fig. 3,) projecting from the side thereof, is relieved from contact with the spring-terminal o , mounted on the frame B, permitting said spring to move upward against the contact-screw s' , mounted in said frame, but insulated therefrom and connected with one section of the line n' , thereby closing a portion of said circuit, so that the current flows into the frame of the machine and into the spring-terminal o' . As the shaft D'' is rotated in the operation of winding the spring h the coin f is gradually forced out of the slot in the arm b by the angle portion c'' of the piece c' , which is carried by the segmental wheel E, for the reason that the segmental wheel E, carrying the angle-piece, and the shaft D', carrying the slotted arm, do not swing upon the same center, so that as said wheel E is turned to the right the coin is moved outward in the slot of the arm b and discharged therefrom at the time when the spring h has been sufficiently wound, so that when the coin is dropped from the slotted arm b said arm becomes disengaged from the segmental wheel E, so that no further movement is imparted to the shaft D' through said slotted arm after the discharge of the coin.

It will be observed that the strap or chain d'' , which connects the grooved wheel d' of the shaft D'' with the mutilated gear k , is provided with sufficient slack (see Fig. 3) to permit of the rotation of the shaft D'' until the coin has been discharged and the winding of the spring h effected before said chain or strap is drawn upon to move the mutilated gear k . At the time of the discharge of the coin from the slotted arm b , however, said chain d'' is taut, so that a further rotation of the shaft D'' through its handle M will rotate said mutilated gear and raise the rack-bar I' in engagement therewith. Upon the first upward movement of said bar its lower end o'' is carried away from and releases the spring-terminal o' , so as to permit said terminal to spring upwardly into engagement with the contact-screw t , thereby completing the circuit from the battery through the line n' to the primary coil of the magnet and inducing a current in the secondary coil of said magnet, which flows through the lines r r' to the handles L and M of the machine, respectively, and to the operator who grasps said handles. The initial current which passes through the secondary circuit to the handles is light, owing to the presence of the sleeve I around the core of the magnet. The flow of current through the secondary circuit to the handles of the machine may be increased at the will of the operator by a further rotation to the right of the handle M, whereby the sleeve I, embracing the core of the magnet, is drawn outward through the medium of the lever H, the connecting-link II' and slide II'', as shown by dotted lines in Fig. 3, so as to expose more of the core of the magnet and

induce a proportional increase of the electric current in the secondary circuit. The amount of current being used is indicated by the hand C', which is actuated by the rack-bar I' and shows by the graduations on the scale C'' the amount of current being used as the sleeve I is drawn outward by the operator. This flow of current through the secondary circuit may be increased or decreased at pleasure, for by turning backward upon the handle M the coiled spring P, attached to the lever H, will return said lever and carry the sleeve I inward over the magnet's core in a manner well understood in the art.

To provide for limiting the time during which the apparatus will run and supply a current to the handles, arrangement is made for breaking the primary circuit n' by means of the lug s , projecting from the side of the grooved wheel g on the winding-shaft g' , which, as said shaft is turned backward by the unwinding of the spring h , engages the spring-terminal o (see Fig. 3) and carries it from contact with the screw s' , thereby breaking the primary circuit at that point and stopping the action of the magnet, at which time the connecting-chain a' , because of the movement imparted thereto by the backward turning of the wheel g , will have returned the shaft D', so as to carry the slotted arm b thereon again into alinement with the slot c' in the case where it is arrested by engagement with the hanger D. Upon releasing said handle M it is returned to its normal position by the spring u on the shaft D' thereof, so that the angle-piece e' on the segmental wheel E is again brought into alinement with the slotted arm b , in which position of parts the apparatus is ready for a succeeding operation.

It will be observed that the rim c'' of the segmental wheel E overhangs the vertical face of the angle-piece e' , as shown at v in Fig. 4, whereby the coin is prevented from starting from the slot in the arm b at the initial movement of said segmental wheel. It will also be observed that the rim c'' of said wheel as it starts to rotate closes the bottom of the slot c' in the case, thereby preventing the apparatus from being operated by the insertion of an instrument in said slot.

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

1. In an apparatus for the purpose specified, the combination with the power-driven mechanism, of an electromagnet, an electric circuit including said magnet and a source of electricity, two spring-contacts at independent points in said circuit, means operated by said mechanism for opening and closing the circuit at each of said contacts, two independently-movable parts one of which is connected with the driving power of said mechanism, said movable parts being adapted to be connected by the insertion of a coin so as to impart movement from one to the other, and

means for moving said part not connected with the driving power.

2. In an apparatus for the purpose specified, the combination with the power-driven mechanism, of an electromagnet, an electric circuit including said electromagnet and a source of electricity, said circuit also including two spring-contacts at independent points therein, means for independently opening and closing said circuit at said spring-contacts, a movable slotted arm connected with the power that drives the mechanism, a movable part standing adjacent to said slotted arm and adapted to be locked thereto by a coin in the slot thereof.

3. The combination of the spring-driven mechanism, the electromagnet, the electric circuit including said magnet and a source of electricity, two spring-contacts also included in said circuit at independent points therein, each of said contacts being adapted to be independently actuated by said mechanism to open and close the circuit thereat, a rotary shaft connected with the driving-spring of said mechanism, said shaft carrying a slotted arm adapted to receive a coin, a second shaft having means of rotation and carrying a segmental wheel standing adjacent to said slotted arm and carrying a projection adapted to be engaged by a coin inserted in said slot whereby by a rotation of said second shaft movement is imparted through the coin and slotted arm to the first-mentioned shaft to wind the spring of said mechanism.

4. In an apparatus for the purpose specified, the combination of the spring-driven mechanism, an electromagnet, an electric circuit including said magnet and a source of electricity, said circuit also including two spring-contacts located at independent points therein, each of said contacts being adapted to be actuated by said mechanism to open and close the circuit thereat, a secondary circuit leading from said magnet terminating in the electrodes of two handles adapted to be grasped by the operator, a rotary shaft mounted on one of said handles carrying a radial arm or wheel having a projecting part, a second shaft carrying a slotted arm adapted to receive a coin which projects into the path of the movable arm of said first-mentioned shaft, means connecting said second shaft with the driving-spring of said mechanism whereby said spring may be wound by the rotation of the handle of the first-mentioned shaft.

5. The combination with the electromagnet and spring-driven mechanism, a shaft connected with said driving-spring and carrying a slotted arm adapted to receive a coin, a second shaft carrying a segmental wheel which stands adjacent to said slotted arm and is provided on its web with an angle-piece whose vertical face stands in line with the side of the slot in said arm and whose horizontal portion crosses said slot and is adapted to support the coin which it engaged by the vertical

face of said angle-piece, the handle for turning said second shaft, said shafts turning upon separate centers whereby by a rotation of said second shaft said first shaft is turned
5 through the medium of the coin in its slotted arm and said coin is discharged from said slot.

6. In a device for the purpose set forth, the combination of the power-driven mechanism, the electromagnet, the graduated scale and
10 indicating-hand connected by the rack-bar and the interposed lever and link with the movable sleeve of said magnet, a coin receiving and discharging mechanism, the rotary

shaft carrying one of the handles of the apparatus and connected with the coin receiving and discharging mechanism, means connecting said shaft with the movable sleeve of the magnet, and the rack-bar also connected with said shaft and said indicating-hand. 15 20

In testimony whereof I affix my signature in presence of two witnesses.

NELSON M. WATSON.

Witnesses:

E. S. WHEELER,
M. A. MARTIN.