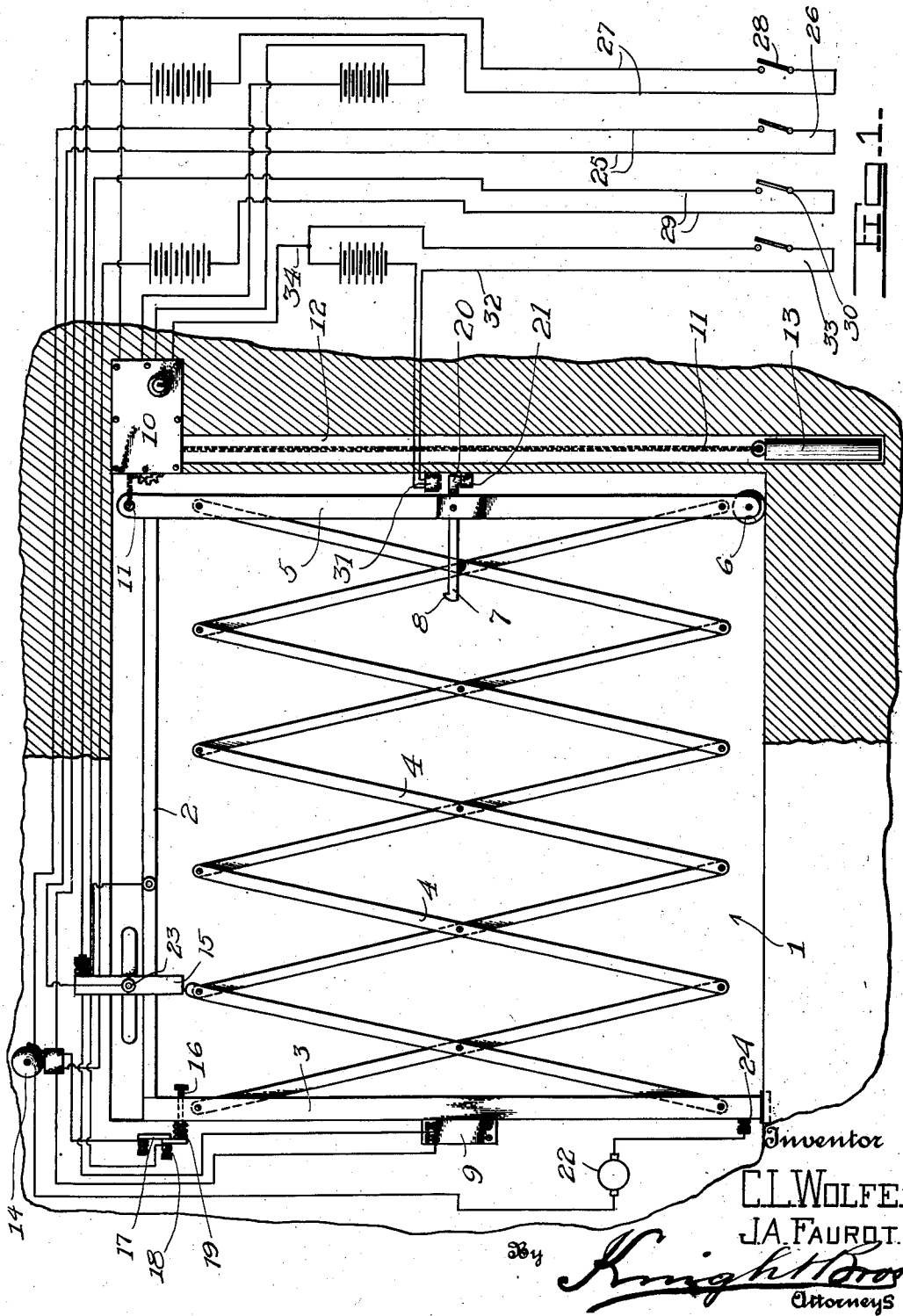


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APPLICATION FILED JULY 25, 1919.

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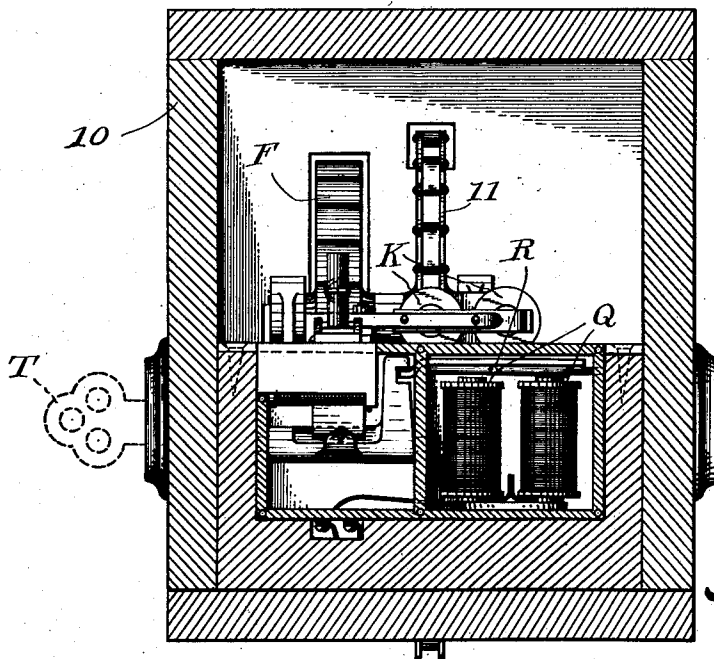
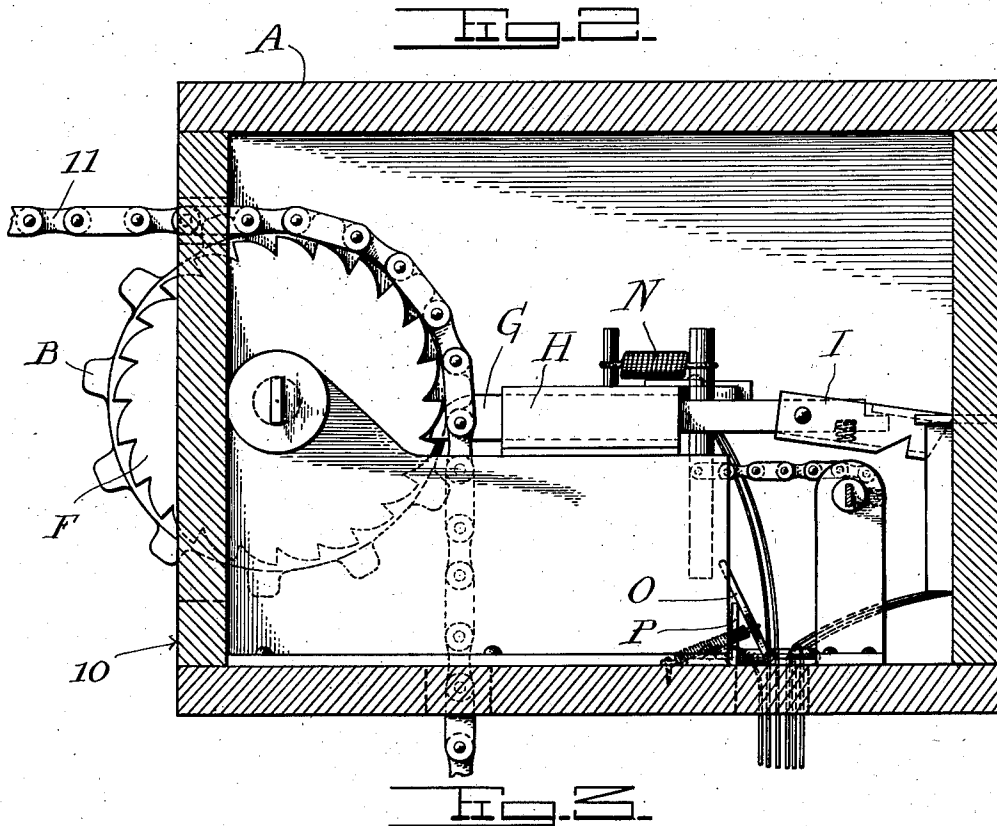
4 SHEETS—SHEET 1.



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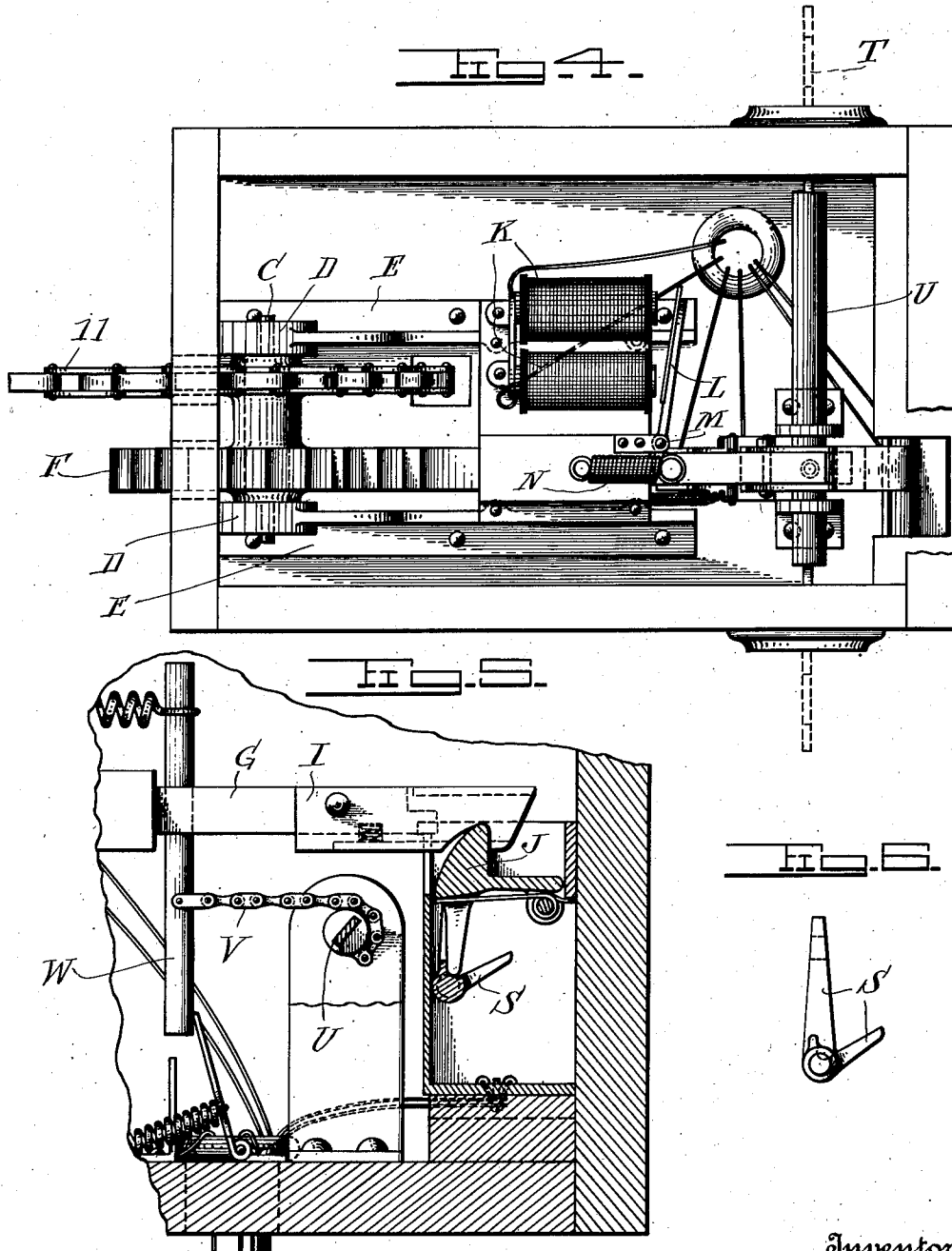
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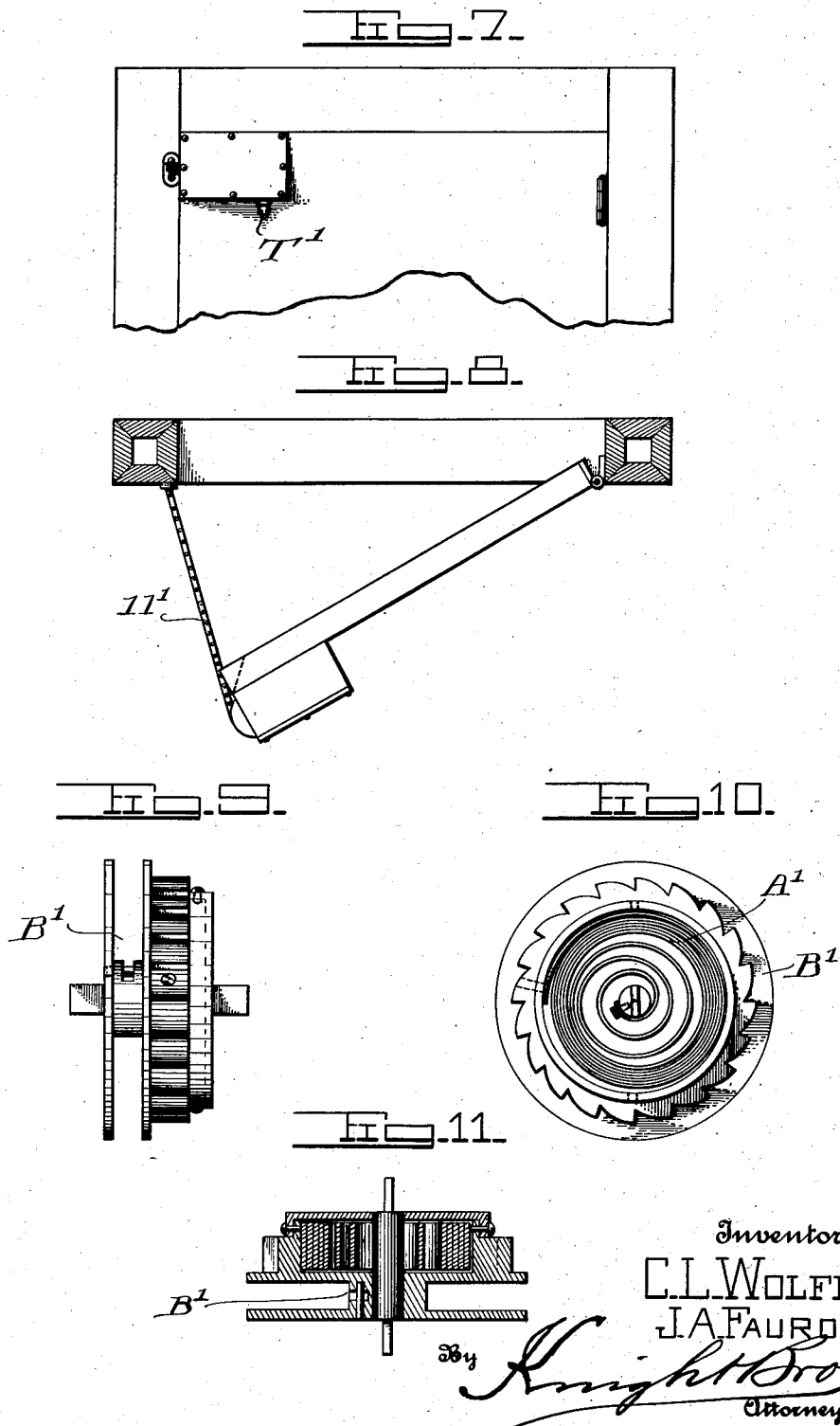


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# UNITED STATES PATENT OFFICE.

CLINTON L. WOLFE, OF BROOKLYN, AND JOSEPH A. FAUROT, OF NEW YORK, N. Y.

## DOOR AND GATE CONTROLLING DEVICE.

1,367,340.

Specification of Letters Patent.

Patented Feb. 1, 1921.

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*To all whom it may concern:*

Be it known that we, CLINTON L. WOLFE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, and JOSEPH A. FAUROT, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Door and Gate Controlling Devices, of which the following is a specification.

The present invention relates to door and gate controlling devices, and has for its primary object to provide means whereby the entrances of homes, stores, banking and other institutions may be closed, from a distant point, to either entrance or exit.

The invention is especially applicable to the doors of stores and banks, where it may become necessary, on account of a robbery or like disturbance, to automatically close the doors to the escape of one or more persons from the building. In its preferred embodiment, it is desirous of locating the controlling means, which is preferably electrical, at a point remote from the door; as, for instance, providing a series of push buttons or switches under the store counter, or within convenient reach of the clerk, whereby, in the event of a robbery or hold-up, the clerk may manipulate the controlling means and automatically close the door.

While the above general description sets forth the main features of the idea, there are further minor objects, such, for instance, as secondary controlling means, also located at a point distant from the door, for opening the same after the closing means has been actuated. It is also proposed to electrify or charge the door, thus rendering it impossible for any one to force an exit or entrance after the door has been closed. This particular means, however, while operable from a point adjacent the controlling means, should be independent of the controlling means, as in every case it may not be desirable to electrify the door, certainly not to the extent that the current could not be cut off when the door-opening means has been actuated to permit an entrance to be had. This door-opening means is preferably used to enable access to be had to the building by officers prepared to arrest the suspect or guilty party confined within the building.

There is still a further feature, which consists of an alarm device and which is located

either in the building or on the outside, in a police station, said device being operated either automatically by the closing of the door, or by a secondary circuit controlled by a switch under the store counter, near the other controlling means.

While the invention has been illustrated and will be further described as especially applicable to stores, Figures 7 to 11, inclusive, of the drawings illustrate an embodiment rendering the idea applicable to the swinging doors of houses and similar buildings. Further, it is to be noticed that the preferred embodiment is illustrated in connection with a sliding gate of the lazy tong type. This should be construed as merely illustrative, as a sliding door, or in fact, a swinging or any other kind of a door, may be actuated by the device without departing from the spirit of the invention.

In the accompanying drawings—

Fig. 1 is a schematic view of a gate-actuating device, illustrating the relative association of the parts and a diagrammatical plan of the wiring system;

Fig. 2 is a vertical section of the main parts of the actuating device;

Fig. 3 is a horizontal section of the same;

Fig. 4 is a top plan view of the same parts;

Fig. 5 is an enlarged detail view of the bolt or latch and its associated parts;

Fig. 6 is a detail view of a latch-operating pawl;

Fig. 7 is a side elevation of a portion of a swinging door, showing the application of the invention in its modified form;

Fig. 8 is a top plan view of Fig. 7; and

Figs. 9, 10 and 11 are detail views of the spring-actuated holding ratchet.

Referring to the drawings in detail, 1 represents a closure for the entrance of a building, which may be either a swinging or sliding door or gate. In the present embodiment, for the purpose of illustration, we have shown a sliding gate of the lazy tong type, preferably constructed of metal. While the gate is shown closed, under normal conditions it will be open and will assume a position in which the sections of the lazy tongs are folded to the left. The gate is of usual construction, having the necessary frame 2, with a stationary upright member 3, the lazy tong sections 4 and the front piece 5, which moves, together with the frame piece 2 and the lazy tong sections, to and from open and closed positions, the

roller 6 being employed to conveniently effect the opening and closing. The gate is provided with a latch 7, the rear end of which having a notched portion 8 which engages a dog (not shown) in the latch-housing 9 to retain the gate in open position. Secured to the door frame, preferably at the upper right-hand corner, is an actuating device 10, the details of which will be hereinafter described. Mounted at the top of the front piece 5 of the gate is a chain 11, which passes over a toothed gear (to be further described) mounted in the actuating device 10, thence downwardly through the door frame, preferably working in a recessed portion of the frame, such as 12, and on the end of which is carried a weight 13. With the gate in open position, the weight 13 will of course be suspended adjacent the actuating device 10, and will thus have a tendency to close the gate, but this will be overcome by means of the latch 7 fastened within the latch housing 9. While the alarm device, shown in the present instance as consisting of a bell 14, is shown active, it will be readily seen that when the gate is open the end of the first lazy tong section will bear against the push rod 16 of the automatic alarm operating means, and thus retain the contact pieces 17 and 18 apart. Now, with the gate open and the parts so far described assuming the same relative position as described, the entrance to the building will be unobstructed. Should a robbery or any other disturbance occur within the building which would make it desirable to close the exits, the latch 7 will be actuated to permit the weight 13 to close the gate, and also permit the spring 19 to close the contacts 17 and 18 and actuate the automatic alarm device 14. The gate will thus be closed and retained in this position by means of the opposite end 20 of the latch 7 engaging the eye 21, and the locking of the actuating device 10. With this accomplished, it will be necessary to electrify the gate to prevent it being broken open. Therefore, a suitable source of electricity, such as from the dynamo 22, is supplied to the gate through the posts 23 and 24, the circuit 25 for which being controlled by the switch 26, and the circuit for controlling the release of the gate to closed position being 27, controlled by the switch 28. This circuit is completed by the switch and the latch housing 9. Upon the closing of the gate the alarm will automatically sound, as above described. However, to sound the same in a police station, a separate circuit 29, controlled by the switch 30, is provided. When the alarm has been answered, the charging circuit is cut to the gate by opening switch 26 and the gate releasing means, consisting of the magnet 31, which, when energized, will release the end of the latch 7, the circuit 32 for which being controlled by

switch 33, said circuit also having a shunt to the actuating device 10 in order that the toothed gear may be released to enable the gate to be pushed back.

The particular construction of the preferred form of actuating device is best shown in Figs. 2 to 6, inclusive, and consists in a suitable housing A, which is preferably located in the upper right-hand corner of the door frame. In the housing is the toothed gear B, which is mounted on a suitable shaft C, journaled in the bearings D, which are in turn supported on the frame E. Mounted on shaft C coaxially with the gear B is a ratchet F, the teeth of which are adapted to be engaged by the bolt G. This bolt is adapted to slide in a guide H supported on the frame E, and is provided on its opposite end with a pivoted catch I, adapted to interlock with the pivoted spring-pressed dog J. Thus, when the pivoted end I of the bolt is interlocked with the dog J, as shown in Fig. 5, the bolt is disengaged from the ratchet F and the weight 13 on the chain 11 is released. Normally, the bolt is out of engagement with the ratchet; that is, when the gate is open or in normal position, the means for controlling the bolt and the release of the ratchet consists of a pair of parallel electro-magnets K, which are also supported on the frame E, in position to actuate the armature L, which is pivoted as at M, with its outer end acting as a lever or finger to engage a post on the bolt. The bolt is held in engagement with the ratchet under tension of a spring N. Now, when the switch controlling the circuit to the magnets K is on, the armature L will be actuated and draw the bolt away from the ratchet, overcoming the tendency of spring N; this functioning occurs when the controlling switch 28 and the circuit 27 are closed, or when this switch 28 is closed to release the latch 7 from the housing 9. When it becomes desirable to release the gate to open position, the switch 33 is closed, whereupon the end 20 of the latch 7 will be raised and disengaged from the eye 21; at the same time, the short circuit 34 will energize the coil K and the armature L will operate to draw the bolt G away from the ratchet. The automatic alarm contact is represented by the spring tension lever O and its contact P. The magnets Q, the armature R and the actuating means S, for the catch J, which means are actuated by the armature R, are employed to release the bolt from the catch. The bolt G is provided with means other than electrical, for throwing it into and out of engagement with the ratchet. This means comprises the key T, which is adapted to turn the spindle U, to which is attached a small chain V, the other end of which being secured to the post W.

The forms illustrated in Figs. 7 to 11 are practically the same as the form just de-

scribed, with the exception that in this modified form we have designed the device particularly for private homes, in which swinging doors are used. We also do away with the weight and in its place use a coil spring A' for the ratchet F. The chain 11' is fastened at one end to the door sill and at the other end on the drum B'. This modified form does not require the electrical wiring, as the bolt may be released by the key T, as in the first form.

#### Claims.

1. A door controlling mechanism, comprising an electrically operated catch adapted to retain the door normally open, said catch embodying in its construction means which, when energized, will release the catch, means for actuating the door to closed position when said retaining catch is released, comprising a weight, means for controlling the action of the weight comprising a toothed member and a detent for engaging the toothed member, said means being operable simultaneously with the releasing of the retaining catch, means for holding the door in closed position, comprising an electrically operated catch, and means for releasing said catch.

2. In a device of the character described, the combination with a door comprising metallic members, capable of being electrified, means tending to move said door to closed position comprising a flexible element and a rotative member over which said element passes, a detent for the rotative element for preventing retrograde movement thereof, electrical means for retracting said detent, a spring tending to move said detent into engagement with said rotative element and a key controlled means embodying a flexible chain for manually retracting said detent, as and for the purpose set forth.

3. In a device of the character described the combination with a door, of means normally tending to move said door to closed position comprising a flexible element and a rotative member over which said element passes, a detent for preventing retrograde movement of said element and electrical means for actuating said detent.

4. A device of the character described comprising a door, means tending to move said door to closed position comprising a flexible element and a rotative member over which said element passes, a toothed member movable with the rotative element, a longitudinally movable detent for engaging the toothed member and an electro-magnet comprising an armature having connection with said detent for actuating the same.

5. A door actuating means of the character described comprising a rotative shaft, a member mounted on said shaft, a flexible element passing over said member, a toothed element upon the shaft, a longitudinally movable bolt engaging said toothed element, a catch carried by the bolt, a dog with which said catch is adapted to engage, electrical means for actuating the bolt to retract the same and electrical means for actuating the dog to withdraw it from engagement with the catch.

6. The combination with a door of means tending to move said door to closed position comprising a flexible element, a rotative element over which the flexible element passes, a toothed member movable with the rotative element, a bolt engaging the toothed member to prevent retrograde movement of the same, electrical means for retracting said bolt to release the door from a distant point and key controlled means for retracting said bolt.

7. The combination with a door, of means normally tending to close the same comprising a flexible element, a rotative element over which the flexible element passes, a ratchet disk movable with the rotative element, a detent bolt engaging the ratchet disk, a spring tending to move the bolt toward the disk, an electro-magnet having an armature connected to the bolt for moving it away from the ratchet against the action of said spring.

8. A structure as recited in claim 7 in combination with key controlled means for retracting said bolt against the tension of its spring.

9. A device of the character described comprising in combination a door, means normally tending to close said door comprising a weighted flexible element, a rotative element over which the flexible element passes, a ratchet disk movable with the rotative element, a longitudinally movable bolt constituting a detent for the ratchet to prevent retrograde movement of the same, a spring tending to move said bolt toward the ratchet, an electro-magnet having an armature connected to the bolt for retracting the same against the tension of its spring, a catch carried by the bolt, a dog adapted to be engaged by said catch, and a magnet for actuating the dog.

10. A structure as recited in claim 9 comprising key controlled means for actuating said bolt.

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