No. 657,211. Patented Sept. 4, 1900.

H. G. CARLETON.

ELECTRIC LOCK.

(Application filed Jan. 13, 1900.)

(No Model.)

Fig. 1.

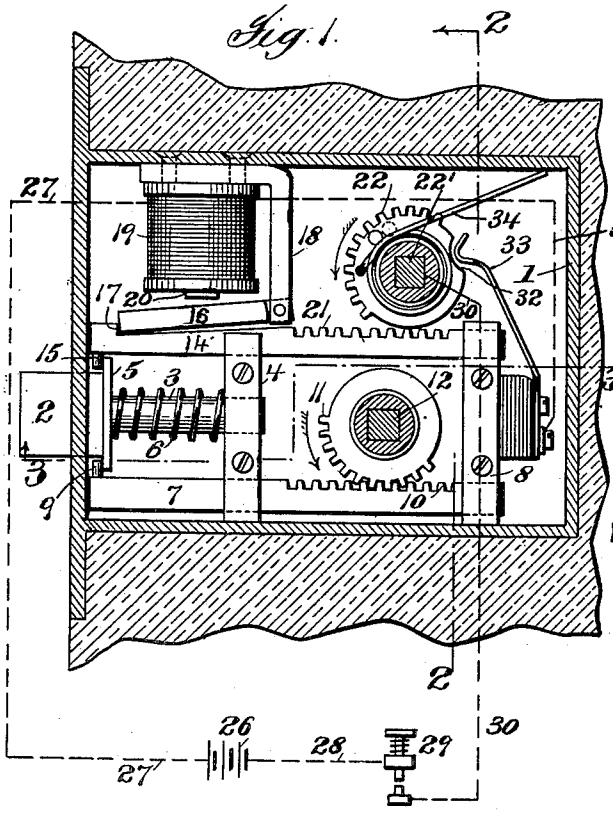


Fig. 2.

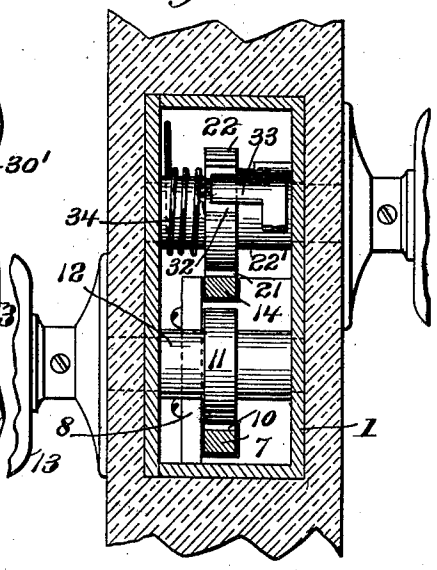
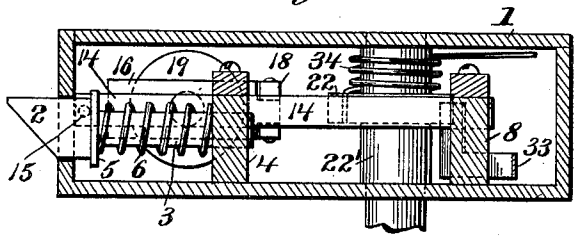


Fig. 3.



Attest:
John A. Treacy.
Geo. C. Bond

Inventor:
Henry Guy Carleton
By Philipp Phelps Sawyer
Atty's

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY GUY CARLETON, OF NEW YORK, N. Y., ASSIGNOR TO THE CARLETON ELECTRIC COMPANY, OF SAME PLACE.

ELECTRIC LOCK.

SPECIFICATION forming part of Letters Patent No. 657,211, dated September 4, 1900.

Application filed January 13, 1900. Serial No. 1,297. (No model.)

To all whom it may concern:

Be it known that I, HENRY GUY CARLETON, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Electric Locks, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in electric locks.

The object of the invention is to produce a simple, cheap, and efficient lock the mechanism of which is characterized by a controller which normally engages the operative connections of the lock, so as to prevent the same from operating the engaging part, the controller being operated to release the connections by the attractive force of a suitable magnet.

With this and other objects in view the invention consist in certain constructions and certain parts, improvements, and combinations, as will be hereinafter described, and more fully pointed out in the claims hereunto appended.

In the accompanying drawings, which form part of this specification, and in which like characters of reference indicate the same parts, Figure 1 is a side elevation of a lock-casing with one of the sides removed so as to show the operating parts. Fig. 2 is a sectional view on line 2 2 of Fig. 1. Fig. 3 is a section taken on line 3 3 of Fig. 1.

Referring to the drawings, which illustrate one embodiment of the invention, 1 indicates a casing in which the operating parts of the lock are inclosed. The movable engaging part of the lock consists of a sliding bolt 2, which is constructed to engage a keeper in the usual manner. It is obvious, however, that the keeper might be made the movable part, if desired. The sliding bolt is provided with a stem 3, which works through a perforation in a bracket 4, suitably mounted in the lock-casing. The bolt is provided with a rim or projection 5 and is held to its duty by a coiled spring 6, which is wound around the stem and lies between the projection 5 of the bolt and the bracket 4.

The lock is preferably provided with two sets of withdrawing mechanisms, the actuating devices for which are arranged on opposite sides of the casing, as is usual; but one of these mechanisms may be omitted, if desired. In the construction shown one of said withdrawing mechanisms includes a slide 7, which is supported in the bracket 4, before described, and in a similar bracket 8, suitably secured to the casing. Any suitable means may be provided to enable the slide 7 to withdraw the bolt; but in the construction shown the slide carries a pin or other projection 9, which normally engages a rim or projection 5, before referred to. Any suitable means may be provided for actuating the slide. In the construction shown the slide is provided with a rack 10, said rack being engaged by a rotating segment 11, which is mounted on a squared shaft 12, the said shaft being provided with an operating-knob 13, as is usual in such constructions. It is obvious that by rotating the knob 13 the bolt will be withdrawn. The other withdrawing mechanism for the bolt may be also widely varied in construction. In the construction shown a slide 14 is provided, the said slide being supported in brackets 4 and 8, before referred to. This slide may be also provided with any suitable means for engaging the movable engaging part or bolt, so as to withdraw the same. In the construction shown the slide carries a pin 15, which engages the rim or projection before referred to.

In the present construction the slide 14 is normally engaged and held from movement by a controller, which may be variously located and constructed. In the form shown the controller consists of a pivoted block 16, which engages a shoulder 17, formed on the slide. The block 16 is pivoted on a bracket 18, which is secured to the lock-casing in any suitable manner, as by screws. The block 16 will preferably be located over the slide, so as to fall into engagement therewith by gravity, although it might be differently arranged, if desired. The block 16 is so arranged that it will be moved out of engagement with the shoulder 17 on the slide 14 by the attractive force of a suitably-arranged magnet. While

the operating-magnet for the block may be variously located and arranged, it will be preferably arranged so that its attractive force is exercised directly upon the block, the block forming or carrying the armature of the magnet. To this end the bracket 18 supports a magnet the coils of which are marked 19 and the pole of which is marked 20. When the magnet is energized by a suitable circuit, to be hereinafter described, it is obvious that the block will be lifted out of engagement with the shoulder 17, and the withdrawing mechanism for the slide may be operated to cause it to move and to withdraw the bolt.

While any suitable form of withdrawing mechanism may be employed, in the construction shown the slide 14 is provided with a rack 21, which is engaged by a segment 22, mounted on a knob-shaft 22′, the segment being arranged, however, so as to have a slight lost movement before its teeth come into engagement with the rack 21 for a purpose to be hereinafter referred to.

Any suitable circuit or circuits may be employed for energizing the magnet before referred to. In the construction shown a battery 26 is provided, the said battery having a wire 27, by which it is connected directly with the magnet. From the other pole of the magnet is led a wire 28, which connects with any suitable form of circuit-closing devices—as, for instance, an ordinary push-button 29, which may be located at any suitable point. A wire 30 is led from the other side of the push-button, which wire might, if desired, connect directly with the magnet, so as to energize the same when the push-button is closed. Preferably, however, the circuit for the magnet will be open at two points and will be closed at one of the points by the movement of the withdrawing mechanism. While the construction by which this is effected may be variously arranged, the devices by which the withdrawing mechanism closes the circuit are preferably located within the lock-casing and may be of any suitable form. In the construction shown, however, the wire 30 connects with the segment 22, before described, the said segment being provided with a recess 32. A suitable terminal, preferably in the form of a spring 33, is mounted in the lock-casing, the end of the said terminal lying in the recess 32 and being out of contact with the segment. From the said terminal a wire 30′ is led to the magnet. With the construction as described it is obvious that when the circuit is closed by operating the push-button and the knob-shaft 22′ is rotated the circuit through the magnet will be closed by the contact of the segment 22 with the spring 33, whereupon the magnet will attract its controller-armature 16. This occurs, however, before the teeth of the segment 22 engage the teeth 21 on the slide 14. The further rotation of the shaft 22′, however, causes the teeth on the segment 22 to come into engagement with the teeth 21, and the slide 14 is moved and operates to withdraw the bolt. A circuit open at two points, as before described, is advantageous when open-circuit batteries, such as are ordinarily used with locks of this description, are employed. These batteries run down very quickly; but by causing the circuit to be finally closed at precisely the time when the lock is to be opened the circuit remains closed for a very short period, and a great conservation of battery energy is effected. It is to be understood, however, that the invention is not confined to use with open-circuit batteries, since other batteries may be employed therewith by slightly modifying the construction. The knob-shaft will be returned by the usual form of torsion-springs, one of which, 34, is shown in connection with the knob-shaft 22′.

It will be noted that the block 16, while it has in the construction shown a pivotal movement, is stationary with respect to the moving connections or slide by which the bolt is operated. The term "stationary" as employed in the claims of this application is to be construed, therefore, as meaning only that the controller is stationary with respect to the moving connections or slide.

The constructions by which the various features of the invention are carried into effect may be varied within wide limits. The invention therefore is not to be limited to the specific constructions herein described.

What is claimed is—

1. In a lock, the combination with one of the engaging parts, of a slide for withdrawing the same, a controller stationary with respect to the slide and normally engaging the same, and a magnet the attractive force of which operates the controller to release the slide when the lock is to be opened, substantially as described.

2. In a lock, the combination with one of the engaging parts, of a withdrawing mechanism including a withdrawing-slide, a magnet located near the slide, a controller stationary with respect to the slide and normally engaging it, said controller forming the armature of the magnet and operating when attracted by the magnet to release the slide when the lock is to be opened, substantially as described.

3. In a lock, the combination with one of the engaging parts, of two slides, means whereby each of the slides may be caused to move the engaging part, actuating devices for the slides operable from opposite sides of the lock, a magnet, a controller stationary with respect to the slides and engaging one of them, the parts being arranged so that the attractive force of the magnet operates the controller to release the slide, substantially as described.

4. In a lock, the combination with one of the engaging parts, of a withdrawing mechanism for operating the same including a slide, a controller stationary with respect to the slide and normally engaging it, a magnet

for operating the controller, a circuit for the magnet and circuit-closing devices lying within the lock-casing and operated by the withdrawing mechanism, substantially as described.

5. In a lock, the combination with one of the engaging parts, of a withdrawing mechanism for operating the same including a slide, a controller stationary with respect to the slide and normally engaging it, a magnet for operating the controller of which the controller forms the armature, a circuit for the magnet, and circuit-closing devices lying within the lock-casing and operated by the withdrawing mechanism, substantially as described.

6. In a lock, the combination with a movable bolt, of a slide for withdrawing the same, means for operating the slide, a controller located over the slide and normally engaging the same to prevent its movement, and a magnet of which the controller forms the armature, said magnet operating to cause the controller to release the slide when the lock is to be opened, substantially as described.

7. In a lock, the combination with a movable engaging part, of a withdrawing mechanism including a slide substantially parallel with the engaging part, a controller located over the slide, said controller being stationary with respect to the slide and normally caused to engage the same by gravity, a magnet for which the controller forms the armature, the attractive force of the magnet operating to lift the armature out of engagement with the slide, substantially as described.

8. In a lock, the combination with a movable engaging part, of a withdrawing mechanism including moving connections, a controller located over the connections, said controller being stationary with respect to the connections and normally caused to engage the same by gravity, a magnet the attractive force of which operates the controller to release the connections, a suitable circuit for the magnet, and circuit-closing devices operated by the withdrawing mechanism, substantially as described.

9. In a lock, the combination with a movable engaging part, of a withdrawing mechanism including moving connections, a controller located over the connections, said controller being stationary with respect to the connections and normally caused to engage the same by gravity a magnet of which the controller forms the armature, the attractive force of the magnet operating to lift the armature out of engagement with the connections, a suitable circuit for the magnet and circuit-closing devices operated by the withdrawing mechanism, substantially as described.

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

HENRY GUY CARLETON.

Witnesses:
A. A. BOURKE,
B. C. VAN COTT.