

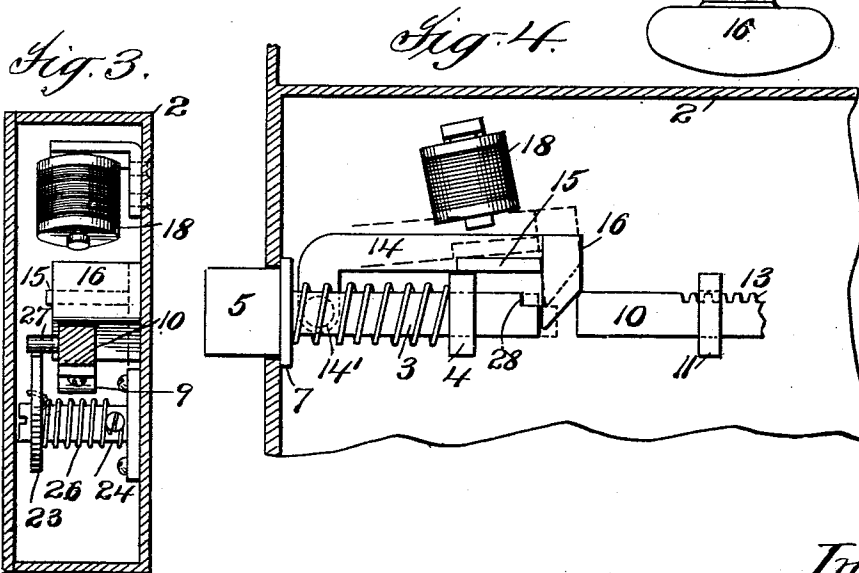
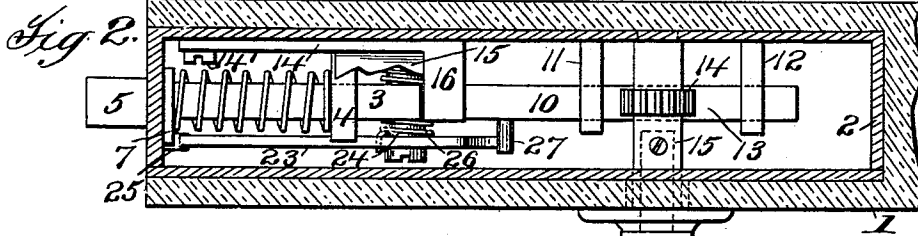
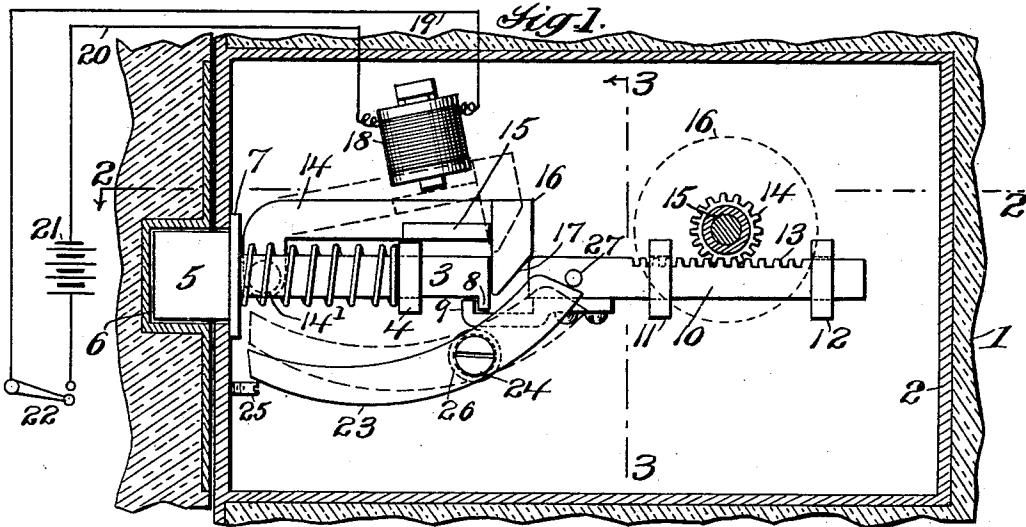
No. 655,476.

Patented Aug. 7, 1900.

H. G. CARLETON.
ELECTRIC LOCK.

(Application filed Nov. 28, 1899.)

(No Model.)



Attest:
J. A. Brown.
J. C. Van Cott.

Inventor
Henry Guy Carleton
By Philipp Phelps Sawyer
Atty

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. 655,476, dated August 7, 1900.

Application filed November 28, 1899. Serial No. 738,507. (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 city, 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.

10 This invention relates to certain improvements in electric locks.

The object of the invention is to produce a lock in which the movement of the movable engaging part, which may be either the lock 15 or the keeper, is prevented by means of a controlling device which is normally held in such a position as to prevent any movement of the part, but which is disengaged from this position mechanically and is thereafter held in 20 an inoperative position by electrical devices.

With this and other objects in view the invention consists in certain constructions, certain improvements, and combinations of parts, such as will be hereinafter described, and 25 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 30 parts, Figure 1 is a vertical sectional elevation of a lock embodying the improvements, the lock being shown in position in a door or similar structure. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1 looking in the direction of the arrow in said figure. Fig. 3 is a 35 vertical section on the line 3 of Fig. 2 looking in the direction of the arrow in said figure. Fig. 4 is a view illustrating a modified construction.

40 Referring to the drawings, which show one concrete embodiment of the invention, 1 indicates a door or other similar structure in which the lock-casing 2 is placed. The bolt of the lock 3, which may be of any suitable description, is movably supported in a guide 45 4 and passes through a perforation in the front plate of the casing, the enlarged head 5 forming a locking projection. The said projection engages with a keeper 6, set in the 50 jamb of the door. It is to be here remarked that while the bolt is the movable engaging

part in the construction shown the keeper may be made the movable part, if desired. Preferably, however, the construction described will be the one employed, as it is a simpler one. The bolt 3 is held forward, so that its enlarged head 5 engages the keeper 6 by means of a suitable spring, which bears against the guide 4 and against a shoulder 7, formed on the bolt. 60

Any suitable withdrawing device may be used in connection with the lock. In the construction shown the bolt 3 is provided with a shoulder 8, which is engaged by the upturned end of the bracket 9, the said bracket 65 being carried by a slide 10, which is mounted in guides 11 and 12, secured in any manner to the lock-casing. The slide 10 is preferably provided with a rack 13, the said rack being engaged by a pinion 14, mounted on a shaft 70 15. The shaft 15 is the knob-shaft and has secured thereto in any suitable manner the usual knob 16. The bracket 9 is so arranged as to permit the slide 10 to have a limited movement before the upturned end of the 75 bracket engages the shoulder 8.

The controlling device used to prevent the movement of the engaging part, which in this case, as has been said, is the bolt 3, may vary widely in construction. In the construction 80 shown an arm 14 is shown as pivoted to the side of the casing at 14', the said arm carrying on its end a controller-block 16, which preferably has a beveled edge 17. The arm 14 further carries an armature 15, which is 85 secured thereto. It is to be understood, however, that, if desired, this armature 15 may be omitted and the arm itself form the armature. Normally the arm 14 stands in the position shown in Fig. 1—namely, with its controller-block 16 engaging the rear end of the 90 bolt 3—that is to say, the block normally is positioned between the ends of the bolt 3 and the slide 10, the beveled edge 17 of the block being arranged so as to be struck by the slide 95 10 in its forward movement.

With the parts constructed as so far described it will be readily seen that if the slide 10 is moved by the rotation of the knob so as to move it to the left of the observer, Fig. 1, the end 100 of the slide 10 will strike the beveled edge of the block 17 and raise the controller-block and

its arm into the position shown in dotted lines in said figure—that is to say, it will move the block 17 out of engagement with the bolt 3. If now the controller be held in this position, it will be readily understood that by rotating the knob 16 in the opposite direction slide 10 will be moved to the right of the observer, the upturned end of the bracket 9 will strike the shoulder 8 of the bolt 3, and the bolt will be withdrawn. If, however, the controller-arm is not held in the dotted-line position, Fig. 1, as soon as the slide is moved to the right the controller will drop back into the space between the end of the slide 10 and the bolt 3 and will prevent any movement of the bolt.

A suitably-arranged magnet 18 is provided to hold the controller in the disengaged position referred to. When, therefore, the magnet is energized, as soon as the slide 10 has been moved to the left and has raised the controller if the circuit of the magnet be closed it will attract its armature and retain the controller in its raised position. Any suitable circuit may be used for energizing the magnet 18, and the circuit-controlling means, which may be of any suitable construction, may be located in any suitable place. Circuit-wires 19 and 20 are indicated on the drawings, the circuit formed by these wires including a battery 21 and being controlled by a movable switch 22 of any suitable form. It is to be understood, however, that any suitable circuit-controlling device may be substituted for the switch.

Although the construction so far described forms an efficient locking device, it might be possible, after the slide 10 has been moved to the left and the controller raised, to move the bolt back by means of an instrument inserted between the door and its jamb, until the rear end of the bolt is moved under the lower edge of the controller. With the controller in this position the lock might therefore be opened by rotating the knob and moving the slide, even though the magnet were not energized.

In order to prevent opening the lock in the manner referred to, supplemental locking means are preferably provided. These means may be widely varied in form and construction, and two forms of devices by which this result can be accomplished are illustrated. In Fig. 1 a curved locking-arm 23 is shown as pivoted on a stud 24, the outer end of said arm being normally held against the stop 25 by means of a torsion-spring 26, surrounding the pivot-stud 24 and secured to the arm. The inner end of the arm lies in the path of a stud 27, which is mounted on the slide 10. In this construction as the slide 10 is moved to the left the stud 27 forces the arm 23 to turn on its pivot, throwing its inner end down and its outer end up and behind the shoulder 7 on the bolt 3. In this position therefore the arm 23 will prevent any movement of the bolt until the slide 10 has been again moved to

the right and has permitted the torsion-spring to throw the arm 23 down against the stop 25. It is impossible, therefore, to move the bolt by means of an instrument inserted between the door and the jamb, because no movement of the bolt can take place until the slide 10 has been moved to the right, and as soon as this happens the controller-block 16, if the magnet be deenergized, will drop into its locking position behind the end of the bolt.

A simpler form of construction for preventing the opening of the lock when the magnet is deenergized is shown in Fig. 4. In this figure the bolt 3 is shown as provided on its upper side and at its rear end with a notch forming a shoulder 28. This shoulder 28 is in position to be engaged by the block 16 in case there is any attempt to move the bolt 3 when the magnet is deenergized. In this construction when the slide 10 is moved to the left and the controller-block raised should there be any attempt to move back the bolt 3 the slide 10 must of course move to the right. As soon as this happens the controller-block by reason of its beveled edge 17 will slide down into such a position as to cause its edge to engage the shoulder 28. A very slight movement of the bolt will be sufficient to cause this engagement, which will take place long before the enlarged head 5 of the bolt is disengaged from the keeper.

It is to be understood that the construction by which the invention is carried into effect may be widely varied. The invention is not therefore to be limited to the specific devices which have been herein shown and described.

What I claim is—

1. In a lock, the combination with one of the engaging parts, of a controller normally locking said part against movement, mechanical means operating in the first instance to move the controller from its locking position, electrical means for thereafter holding it out of locking position, and devices for actuating the part, substantially as described.

2. In a lock, the combination with one of the engaging parts, of a controller normally engaging said part to lock it against movement, mechanical means operating in the first instance to move the controller from its locking position, electrical means for thereafter holding it out of locking position, and devices for actuating the part, substantially as described.

3. In a lock, the combination with one of the engaging parts, of an actuating device therefor, a controller for normally holding said part against movement, means operated by the actuating device for moving the controller from its locking position, and means for electrically holding the controller out of locking position, substantially as described.

4. In a lock, the combination with one of the engaging parts, of a controller normally positioned to lock said part against movement, a slide, means for moving the slide to disengage the controller from its locking po-

sition, a magnet for holding the controller in its disengaged position and devices for operating the engaging part, substantially as described.

5 5. In a lock, the combination with a sliding bolt of a controller engaging the bolt, means for mechanically lifting the controller out of engagement with the bolt, a suitable magnet for holding the controller in its disengaged position, and devices for moving the bolt, substantially as described.

10 6. In a lock, the combination with a sliding bolt, of an arm, a stationary part to which said arm is pivoted, a controller-block carried by the arm, means for mechanically turning the arm on its pivot and disengaging the controller-block from the bolt, and a magnet for holding the block in its disengaged position, substantially as described.

15 7. In a lock, the combination with one of the engaging parts, of a slide for moving said part, said slide being normally arranged so that there will be an opening between its end and the end of the engaging part, a controller-block lying in said opening, means whereby a movement of the slide disengages the controller-block from the opening, and a suitable magnet for holding it in its disengaged position, substantially as described.

20 8. In a lock, the combination with a sliding bolt, of a slide, a loose connection between the slide and the bolt, the slide being normally arranged so that there is an opening between its end and the end of the bolt, a controller normally lying in the opening, and operating devices for the slide whereby a movement of the slide in one direction disengages the controller-block and a movement of the slide in the opposite direction draws the bolt, and a suitable magnet for holding the block in its disengaged position, substantially as described.

25 9. In a lock, the combination with one of the engaging parts, of a controller normally locking said part against movement, means for mechanically moving the controller from its locking position, a magnet for holding the controller out of locking position, and supplemental means for preventing a movement of the bolt unless the magnet is energized, substantially as described.

30 10. In a lock, the combination with a bolt, of a controller normally engaging said bolt, means for mechanically disengaging the controller, actuating devices for sliding the bolt,

a magnet for holding the controller in its disengaged position, and a shoulder which the controller engages if the bolt is moved by means other than the actuating devices when the magnet is deenergized, substantially as described.

35 11. In a lock, the combination with a bolt, of a slide for moving the bolt, a loose connection between the slide and the bolt, an opening being thus formed between the slide and the bolt, a controller normally engaging the opening and arranged to be moved out of the opening by a movement of the slide, a magnet for holding the controller in its disengaged position, a shoulder on the bolt, and means for operating the slide, substantially as described.

40 12. In a lock, the combination with a bolt, of a slide having a rack thereon, a pinion on the knob-shaft for operating the slide, a loose connection between the slide and the bolt, the slide being arranged so as to leave an opening between it and the bolt, a controller engaging the opening and arranged to be moved out of the opening by the movement of the slide in one direction, a magnet for holding the controller in its disengaged position, and a shoulder on the bolt with which the controller engages in case the bolt is moved when the magnet is deenergized by means other than the slide, substantially as described.

45 13. In a lock, the combination with a bolt, of a slide having a rack thereon, a pinion on the knob-shaft for operating the slide, a loose connection between the slide and the bolt, the slide being arranged so as to leave an opening between it and the bolt, a pivoted arm carrying a controller-block engaging the opening and arranged to be moved out of the opening by the movement of the slide in one direction, a magnet for holding the controller-block in its disengaged position, and a shoulder on the bolt with which the controller-block engages in case the bolt is moved when the magnet is deenergized by means other than the slide, substantially as described.

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

HENRY GUY CARLETON.

Witnesses:

T. F. KEHOE,
A. L. KENT.