

APPLICATION FILED FEB. 23, 1911.

2 SHEETS—SHEET 1.

FIG. 1.

Lock

Unlock

FIG. 4.

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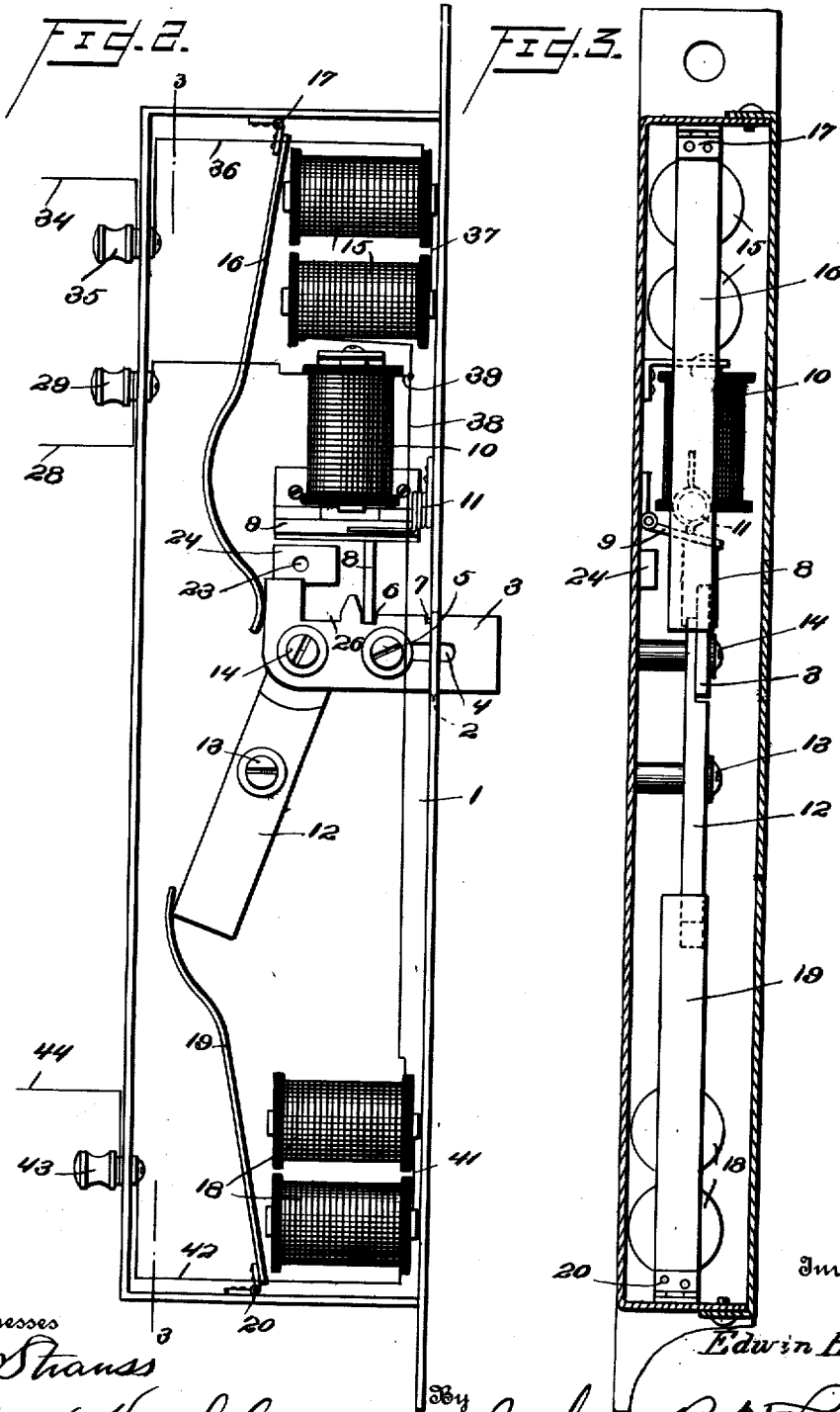
E. H. HILD.
ELECTRIC LOCK.

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1,011,956.

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2 SHEETS-SHEET 2.



Witnesses

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EDWIN H. HILD, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRIC LOCK.

1,011,956.

Specification of Letters Patent.

Patented Dec. 19, 1911.

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To all whom it may concern:

Be it known that I, EDWIN H. HILD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric Locks, of which the following is a specification.

My invention relates to improvements in electric locks, the object of the invention being to provide an improved lock of this character which may be operated from a distance to move the locking bolt to locked or unlocked position.

A further object is to provide a lock of this character which may be operated by the manual manipulation of a key.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1, is a view in elevation of my improved lock with the casing plate removed, and illustrating diagrammatically the electric circuits controlling the lock, said lock being shown in unlocked position. Fig. 2, is a view showing the lock in locked position. Fig. 3, is a view in section on the line 3—3 of Fig. 2, and Fig. 4, is a view of the key.

1, represents a lock casing adapted to be mortised into a door, and provided centrally in its outer edge with an opening 2, through which my improved locking bolt 3 moves. This locking bolt 3 is made with a longitudinal slot 4 through which a screw 5 projects, and is screwed into the casing, said screw and slot limiting the longitudinal movement of the locking bolt.

Bolt 3 is provided in one side edge with two notches 6 and 7 adapted to receive a locking finger 8 secured to a hinge plate 9, the latter secured to the casing. This hinge plate 9 and the locking finger 8, are moved in one direction by means of an electro-magnet 10, but are normally held in locking position by means of a spring 11. The notches 6 and 7 are so located that when the finger 8, is in notch 7, bolt 3 will be held in unlocked position, and when finger 8 is in notch 6, bolt 3 will be held in locked position.

12, represents a lever which is pivotally

supported between its ends on a screw 13, and is pivotally connected at one end by means of a screw 14 with bolt 3. In one end of the casing 1, a pair of electro-magnets 15 are mounted, and are adapted to move an arm 16 pivotally connected at one end as shown at 17, and at its other end engaging the inner end of bolt 3. In the opposite end of casing 1, a second pair of electro-magnets 18 are located, and control the movement of an arm 19, pivotally connected at one end as shown at 20, and at its other end engaging lever 12.

To manually operate the lock, a key 21 as shown in Fig. 4, is provided. This key has a sharpened end 22 to engage in a socket 23 in a block 24 in casing 1. The key is also provided with oppositely projecting fingers 25, one of which is adapted to engage plate 9 to move finger 8 out of its notch 6 or 7, and the other finger of the key is adapted to engage one of the walls of a recess 26 in bolt 3. The movement therefore, of the key serves first to lift the locking finger 8 and then force the bolt longitudinally, either to locked or unlocked position.

To electrically operate the lock, a battery 27 is provided and is connected at one side by a wire 28, with a binding post 29 on the lock casing. The other side of the battery is connected by a wire 30 with a wire 31, and this wire 31 connects two circuit breaking push buttons 32 and 33 respectively, the former operating to close the circuit to move bolt 3 to lock, and the latter to move the bolt to unlock. Button 32 is connected by a wire 34, with a binding post 35, and the latter is connected by a wire 36, with one of the magnets 15. A wire 37 connects these magnets 15 and a wire 38 connects magnets 15 with magnets 18, while a branch wire 39 connects wire 38 with magnet 10, and a wire 40 connects magnet 10 with binding post 29. Magnets 18 are connected by a wire 41, and a wire 42 connects said magnets 18 with a binding post 43. This binding post 43 is connected by a wire 44 with the button 33.

The operation electrically is as follows: Assuming the lock to be in the position shown in Fig. 1, when button 32 is depressed, the electric circuit will be closed through wire 34, binding post 35, wire 36, electro-magnets 15, electro-magnet 10, wire 40, binding post 29, wire 28, battery 27, and wire 30. The closed electric circuit will therefore

energize the magnets 15 and 10. Magnet 10 will draw finger 8 out of the notch 7, and magnets 15 will move arm 16 so as to force the locking bolt 3 to locked position as shown in Fig. 2. When the circuit is open, spring 11 will move the finger 8 into notch 6, and hold the bolt in locked position. To unlock, button 33 is pushed inwardly to close the electric circuit through wire 30, battery 27, wire 28, binding post 29, wire 40, electro-magnet 10, wire 38, electro-magnets 18, wire 42, binding post 43, and wire 44. This closed circuit will energize magnets 10 and 18. Magnet 10 will draw the finger 8 out of notch 6, and magnets 18 will move arm 19 so as to throw the lever 12 and pull the bolt 3 to unlocked position, finger 8 falling into notch 7 when the electric circuit is open.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a lock, the combination with a casing, a sliding bolt mounted in the casing, a lever fulcrumed between its ends and connected at one end to said bolt, pivoted arms engaging said lever and said bolt respectively, and electro-magnets for moving said arms, substantially as described.

2. In a lock, the combination with a casing, a sliding bolt mounted in the casing, a lever fulcrumed between its ends and connected at one end to said bolt, pivoted arms engaging said lever and said bolt respectively, and electro-magnets for moving said arms, said bolt having two notches therein, a pivoted locking finger adapted to move into the notches in the bolt, and an electro-magnet controlling the movement of said locking finger, and included in the electric circuits of both of said first-mentioned electro-magnets, substantially as described.

3. In a lock, the combination with a casing, a sliding bolt mounted in the casing, a lever fulcrumed between its ends, and pivotally connected at one end to said sliding bolt, a pivoted arm engaging the opposite end of said lever, electro-magnets for moving said last-mentioned arm, a second pivoted arm engaging the inner end of said bolt, and electro-magnets independent of the first-mentioned magnets controlling the movement of the last-mentioned arm, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWIN H. HILD.

Witnesses:

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