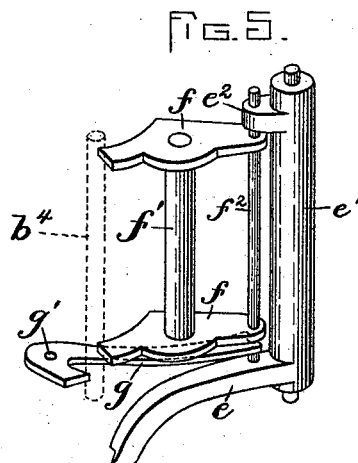
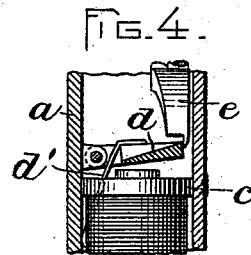
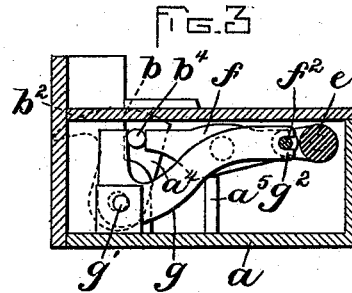
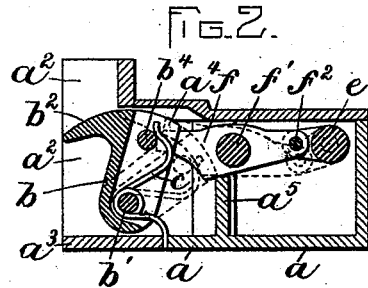
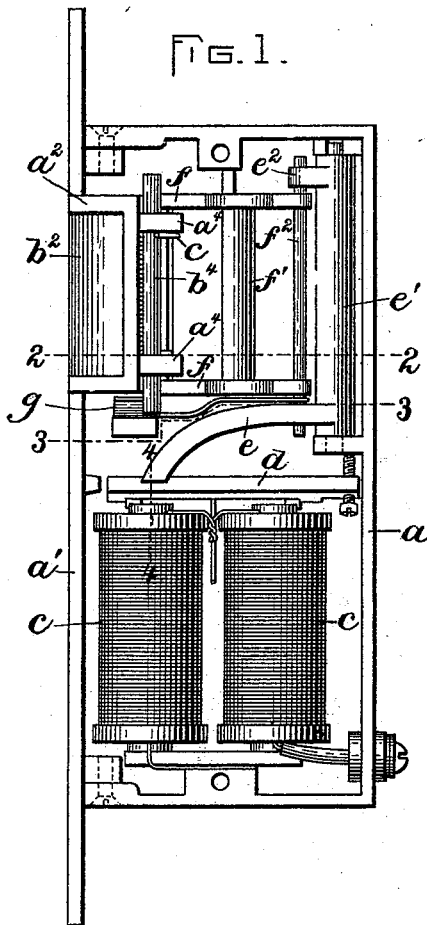


(No Model.)

T. P. PRATT.
ELECTRIC LOCK.

No. 526,909.

Patented Oct. 2, 1894.



WITNESSES:
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UNITED STATES PATENT OFFICE.

THEODORE P. PRATT, OF BOSTON, ASSIGNOR TO JAMES WILKINSON, OF
EVERETT, MASSACHUSETTS.

ELECTRIC LOCK.

SPECIFICATION forming part of Letters Patent No. 526,909, dated October 2, 1894.

Application filed May 7, 1894. Serial No. 510,286. (No model.)

To all whom it may concern:

Be it known that I, THEODORE P. PRATT, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Electric Locks, of which the following is a specification.

This invention relates to that class of electric locks commonly known as door openers, and comprising a lock casing affixed to the door frame and provided in its face-plate with a recess into which a pivoted keeper normally projects, said keeper forming one side of a bolt or latch-engaging cavity in the recess, and being locked in its operative position by locking devices controlled by an electro-magnet, the arrangement being such that when the circuit is broken the keeper is rigidly locked and retains a latch or bolt projecting from the door into said cavity, and when the circuit is closed the keeper is released, so that said latch or bolt can pass laterally out of the cavity.

The invention has for its object to provide a simple and effective locking mechanism of this class adapted to be set for action by the same spring that holds the keeper in its normal position.

To this end, the invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming part of this specification, Figure 1 represents a side view of my improved lock, one side of the casing being removed. Fig. 2 represents a section on line 2—2 of Fig. 1. Fig. 3 represents a section on line 3—3 of Fig. 1. Fig. 4 represents a section on line 4—4 of Fig. 1. Fig. 5 represents a perspective view of parts of the keeper-locking mechanism.

The same letters of reference indicate the same parts in all the figures.

In the drawings—*a* represents the lock casing, adapted to be inserted in a door frame and having a face-plate *a'* which has a recess *a²* adapted to receive a bolt or latch projecting from the door; one side of said recess being open so that a bolt projecting into it can move laterally out of the recess in one direction (when the keeper is unlocked), said recess having a permanent wall *a³* (Fig. 2) opposite its open side.

b represents a keeper, which is pivoted at *b'* to the casing and is provided at its outer end with a flange *b²* which, when the keeper is in its normal position, extends across the open side of the recess and constitutes a wall, which forms one side of a bolt-receiving cavity of which the wall *a³* forms the other side. The keeper is yieldingly held in its normal position by means of a spring *c*, which is coiled upon the pivot-rod *b'* and has one end engaged with the casing, the other end bearing on a rod *b⁴* which passes through ears *a⁴* *a⁴* projecting from the inner side of the keeper.

c c represent an electro-magnet located within the casing, and connected in an electric circuit which is adapted to be closed and broken at one or more points within the building. An armature *d* is pivoted to the casing, and is arranged to be attracted to the poles of said magnet, the armature being retracted from said poles by a spring *d'* when the circuit is broken.

The armature constitutes a part of a keeper-locking and releasing mechanism, the other parts of which are, first, an arm *e* formed on a rock-shaft *e'* which is mounted on bearings in the casing; secondly, a locking carriage composed of side pieces *f f* connected by a rod or bar *f'* and interposed between the rock-shaft and the keeper, the inner ends of said side pieces being connected by a pivot-pin *f²* with the arm *e* and with an arm *e²* on the rock-shaft, while their outer ends bear loosely on the projecting ends of the rod *b⁴* on the keeper; and thirdly, a bell-crank lever *g* pivoted at *g'* to the casing and having an arm which bears against the outer side of the rod *b⁴*, and another arm containing a slot *g²* (Fig. 3) which engages the pivot-pin *f²*. The side pieces *f f* rest on a fulcrum piece or flange *a⁵* formed on the casing *a*.

The arm *e* projects over the outer edge of the armature when the latter is retracted, and is locked or prevented from swinging inwardly by said armature (Fig. 4). When the arm *e* is so locked, it holds the locking carriage in contact with the rod *b⁴* on the keeper, so that the latter is prevented from swinging inwardly, and is therefore securely locked.

When the armature is attracted by the mag-

net, it swings out of engagement with the arm *e*, so that the latter is unsupported, and the keeper is free to swing into the casing and thus release a bolt or latch which had before been confined between the keeper-flange *b*² and the wall *a*³, the outer ends of the locking carriage being so formed that inward pressure of the keeper on said carriage will cause it to swing to the position shown in dotted lines on Fig. 2, the arm *e* swinging inwardly at the same time. When the pressure on the keeper is released, the spring *c* returns said keeper to its normal position, and in so doing causes the bell-crank lever *g* to restore the parts of the locking mechanism to their operative positions, so that the keeper is again locked.

It will be seen that the described mechanism is very simple and compact, and that one spring acts to restore or reset both the keeper and the locking mechanism.

I claim—

1. In an electric door-opener, the combination of a casing having a bolt-receiving recess in its face-plate, a spring-held pivotal keeper adapted to extend across said recess and confine a latch-bolt therein, an electro-magnet, a spring-held armature therefor constituting a detent, a pivoted arm arranged to be locked by said detent against movement in one direction, a pivotal bar engaged at one end with said arm and arranged to bear at its opposite end against a part of the keeper, and a resetting bell-crank lever, one arm of which extends in the path of a part of the keeper and the other arm of which co-acts with the pivotal locking bar and the detent-engaging arm, substantially as and for the purpose described.

2. In an electric lock or door opener, the combination of a casing having a recess in its face-plate, a pivoted keeper which normally extends across said recess and forms one side of a bolt-receiving cavity therein, said keeper being adapted to swing inwardly and thus release a latch-bolt projected into said recess, a spring which yieldingly holds said keeper in its normal position, an electro-magnet in the casing, and a keeper-locking and releasing mechanism controlled by said

magnet, said mechanism comprising an arm mounted to oscillate on fixed bearings in the casing, an armature adapted to be attracted by the electro-magnet and arranged to lock said arm when released by the magnet and to release the arm when attracted by the magnet, a locking carriage pivotally engaged with said arm and bearing on a projection on the keeper, said carriage being adapted to lock the keeper when the arm is locked by the armature and to be displaced with said arm by the keeper when the arm is released, and a bell-crank lever pivoted to the casing and having one arm engaged with the locking carriage and arm, and another arm engaged with the keeper, said bell-crank lever acting to restore the arm and the locking carriage to their operative positions when the keeper is being forced outwardly by its spring, as set forth.

3. In an electric lock or door opener, the combination of a casing having a recess in its face-plate, a pivoted keeper which normally forms a yieldingside of a bolt-receiving cavity in said recess and is provided with ears *a*¹ *a*⁴ projecting into the casing and with projections extending outwardly from said ears, a spring which yieldingly holds the keeper in its normal position, an electro-magnet in the casing, an armature adapted to be attracted by said magnet and normally retracted therefrom, a rock-shaft mounted in bearings in the casing and provided with an arm arranged to be locked by the armature when the latter is retracted, a locking carriage mounted to rock on a fixed fulcrum between the rock-shaft and the keeper, said carriage being pivotally engaged with the rock-shaft and arm and arranged to bear against projections on the keeper, and a bell-crank lever having one arm engaged with the keeper and the other with the arm, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 1st day of May, A. D. 1894.

T. P. PRATT.

Witnesses:

C. F. BROWN,
A. D. HARRISON.