N. FIENBERG AND W. L. WAKEHAM.

ELECTRIC LOCK STRIKE.

APPLICATION FILED SEPT. 21, 1920.

1,383,269.

Patented June 28, 1921.

2 SHEETS—SHEET 1.

Fig. 1

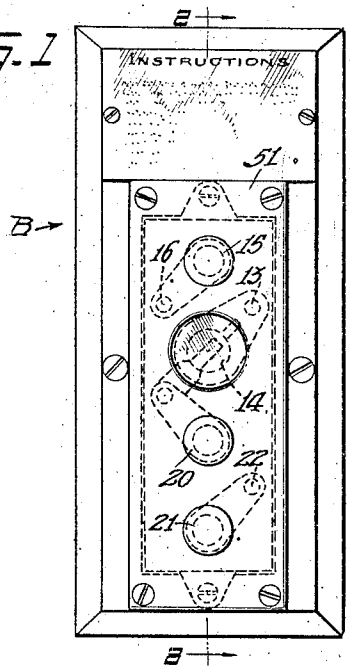


Fig. 2

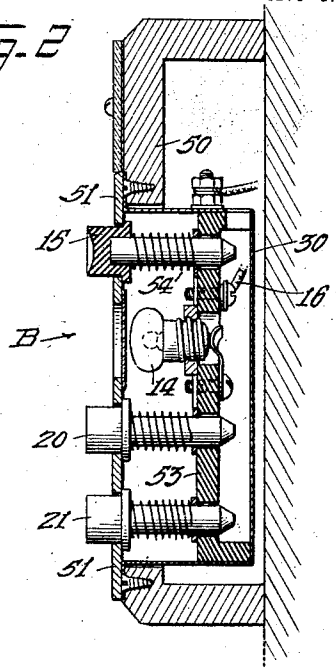


Fig. 4

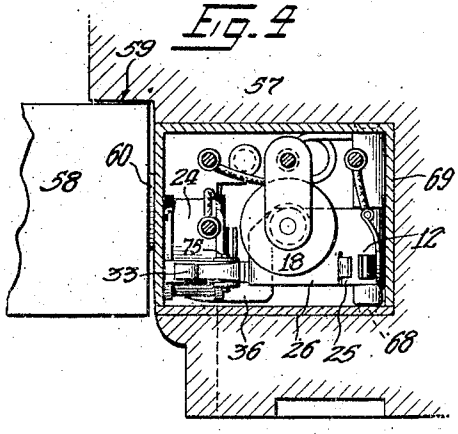


Fig. 3

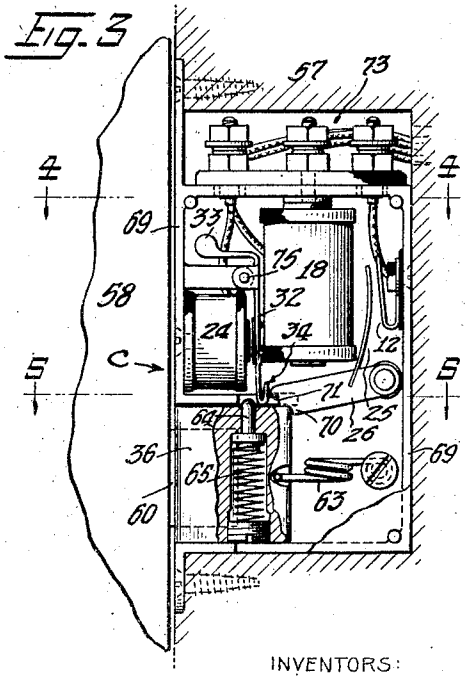
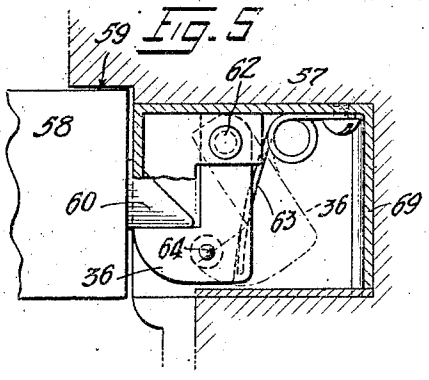


Fig. 5



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2 SHEETS—SHEET 2.

Fig. 6

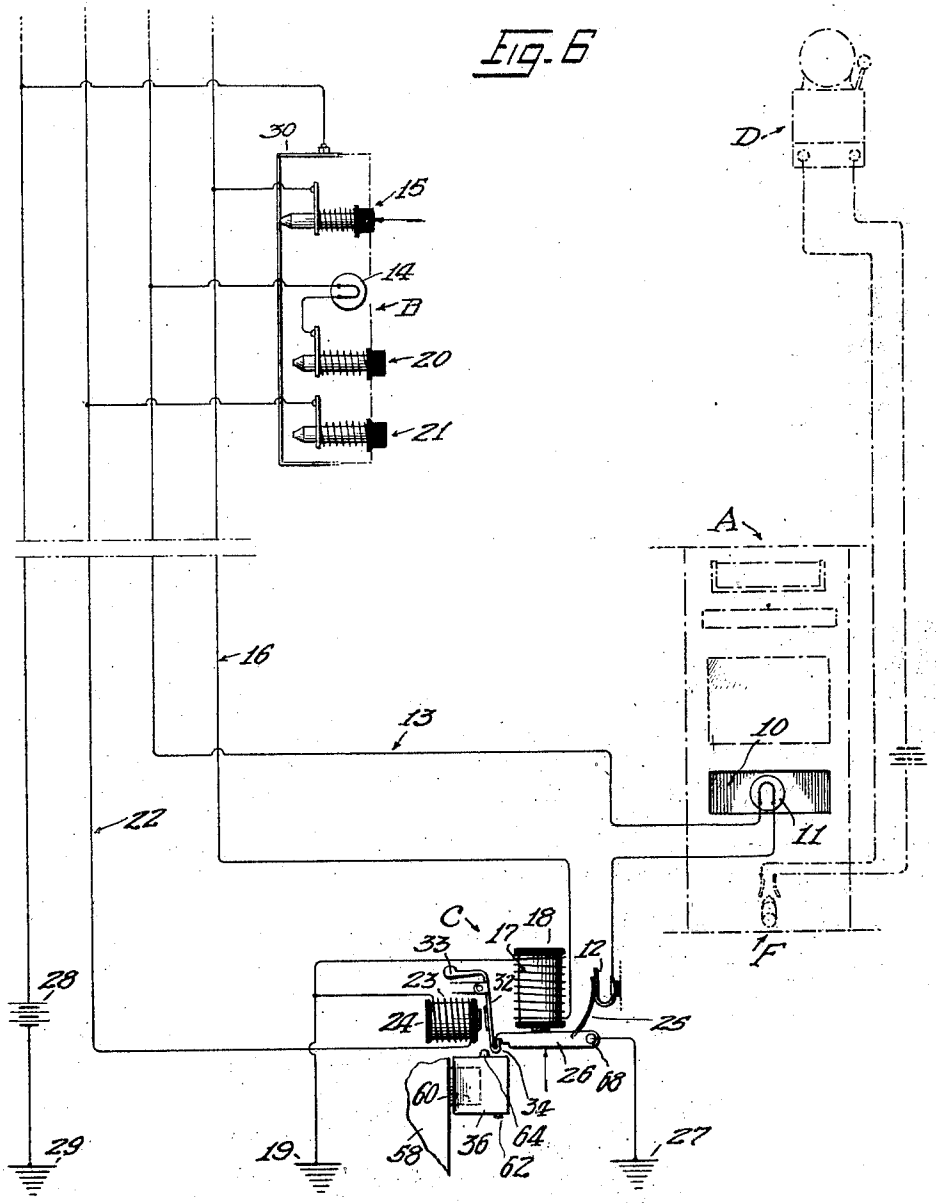
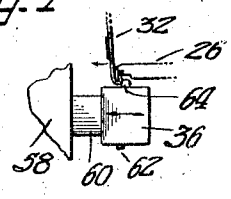


Fig. 7



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UNITED STATES PATENT OFFICE.

NATHAN FIENBERG, OF BONDI, NEAR SYDNEY, AND WALTER LESLIE WAKEHAM, OF FIVE DOCK, NEAR SYDNEY, NEW SOUTH WALES, AUSTRALIA.

ELECTRIC-LOCK STRIKE.

1,383,269. Specification of Letters Patent. Patented June 28, 1921.

Application filed September 21, 1920. Serial No. 411,853.

To all whom it may concern:

Be it known that we, NATHAN FIENBERG and WALTER LESLIE WAKEHAM, subjects of the King of Great Britain and Ireland, residing at "Doretta," Curlewis street, Bondi, near Sydney, New South Wales, Australia, and Fortescue street, Five Dock, near Sydney, aforesaid, respectively, have invented certain new and useful Improvements in Electric-Lock Strikes, for which I have filed an application in the Commonwealth of Australia, #12,405, filed Sept. 5, 1919, and of which the following is a specification.

This invention relates to electrically controlled latch locks for doors, and it has been devised with the object of providing an effective common entry door latch lock control system for apartment houses and flats whereby the occupant of any room or flat may release said lock to admit an incomer, may ascertain if the door has been opened thereafter, and may relock the door by operating press button control switches located in the flat, and whereby also the lock will be automatically reset before the door has been fully opened prior to the entry of an incomer so that when reclosed it will be again effectively relocked.

In the accompanying drawings, Figure 1 is an elevational view of the control board which is located in a flat or apartment;

Fig. 2 is a transverse section on the line 2—2 Fig. 1;

Fig. 3 is an elevational view of the lock as viewed from the inner side, that is the side of the lock toward which the door closes; portion of the bolt is shown in section in this view;

Fig. 4 is a horizontal section on the plane 4—4 Fig. 3,

Fig. 5 is a horizontal section on the plane 5—5 Fig. 3,

Fig. 6 is a diagrammatic view showing the circuit arrangement, and explanatory of the operation of certain parts of the lock; and

Fig. 7 is a fragmentary view explanatory of the automatic mechanical re-locking device.

In Fig. 6, A represents a call or letter box fitting which is placed outside the common door or in a nearby position, one of these fittings being provided for each set of apartments or flats to which the said door serves as a common entry.

B represents a control board fitted in one flat or apartment, C represents operative portions of the latch lock device, and D represents a call bell located in the flat or apartment. The bell D may be actuated by a separate battery E or by the battery associated with the lock control equipment which will be hereinafter described, and it is controlled by the push button F which is mounted in the apartment fitting A. An indicator window 10 is fitted in proximity to the door lock, it is preferably glazed with tinted glass on which directions may be engraved for the information of incomers. In a cavity behind this tinted glass is an electric filament lamp 11. One terminal of this lamp is wired to the contact spring 12 in the lock, its other terminal is connected by a wire 13 in parallel to the indicator lamps 14 in the several control boards B in the apartments or flats to which the common board forms an entry. The upper button 15 in each control board B is wired to a circuit 16 which is connected to the winding 17 of the pawl lift magnet 18; the other terminal of the winding 17 is earthed at 19 or connected into a return wire. The circuit through the lamp 14 goes via the second push button 20. Another circuit through the third push button 21 and the line 22 goes through the winding 23 on the release magnet 24; the other terminal of the winding on that magnet is junctioned into the line to earth 19 from the magnet winding 17. The back spring 25 on the lock staple pawl 26 is adjusted to contact with the spring 12 when the pawl 26 is lifted by the magnet 18, but to break circuit at 12 when the pawl 26 is in the dropped or locked position. Said pawl is earthed at 27 or connected to a return wire.

One terminal of the battery 28 is earthed at 29; its other terminal is wired to the back plate 30 of the control board B. The magnet 24 is provided with a pendular armature 32 counterbalanced at 33 so that it will normally fall open—that is outward. An upbent toe 34 on said armature is engageable in a notch on the end of the pawl 26 and is also engageable with a spring raised knuckle 64 in the latch staple 26.

Referring to Figs. 1 and 2. The operating control board consists of a hollow back 50 covered with a face plate 51 through which the heads of finger buttons 15, 20, and 21 protrude. The stems of these but-

tons are metallic and are adapted to make contact with the back plate 30 of a box casing in which is mounted an insulator support 53 on which the various electrical connections to the wires 13, 16 and 22 are fixed, the order of these connections being shown in Fig. 1. Springs 54 serve to hold the buttons 15, 20 and 21 outward, and to establish contact between the stems of the buttons on the terminal fittings to which the several leads 16, 13 and 22 are connected up. It is to be noted that the push button 20 controls the circuit of the lamps 14 (B) and 11, these lamps being in series on the line 13. The lock control device is a staple fitting adapted to be mortised into the door post 57. 58 is the door, 59 the frame stop, and 60 the latch bolt of the door fitment. This latch bolt may be withdrawn by means of a latch key in the usual way so that the door may be opened without requiring operation of the electromagnetic control devices in which the invention consists. The latch 60 engages a hook shaped staple 36 which is mounted to turn in a horizontal path about a heavy pin 62. The staple 36 is pushed toward the outer or locked position by means of a back spring 63; when it is retired it takes up the position shown in the dotted lines in Fig. 5. In the top of the staple is an upwardly disposed knuckle pin 64 resting upon a light spring 65 in compression located in a cavity in the jaw portion of the staple. The staple is normally held in the outer or locked position by means of a drop pawl 26, which is mounted to hang freely on a horizontal pin 68 fixed in the casing 69. The forward end of this pawl 26 is formed with two stepped notches 70, 71. It carries also the back spring 25 which is adapted to make contact when the pawl is lifted, with the fixed contact spring 12, the spring 12 being wired back to the lamp 11 as seen in Fig. 6. The binding screws to take the various connections are located above the top side of the casing 69 in a cavity 73 in the door post, this cavity allowing convenient room for carrying in and connecting up the wire terminals to said screws.

The pawl 26 acts as armature to the unlatching electromagnet 18. The rear latching electromagnet 24 is arranged with its axis horizontal and its armature 32 pendent on a pin 75, its upper portion being bent backward and counter-weighted as shown at 33, so that the toe 34 on its lower end tends to bear outwardly against the nibbed end of the drop pawl 26.

The operation is as follows:—

By means of the push button F a caller announces his presence by the ringing of the annunciator bell D in the flat or apartment sought. The occupier, desiring to give admission to the caller, presses the push button 15 on the board in his flat or apartment, thereby establishing a circuit from the battery 28 through the unlatching electromagnet 18. That magnet being then energized, immediately lifts the pawl armature 26 from the position shown in Fig. 3 up to the position shown in Fig. 6. As seen in Fig. 3 the lower notch 70 on the outer end of the pawl 26 takes behind the head of the staple 36, and while located there it effectually checks movement of the staple 36 to release the latch bolt 60. When, however, the pawl 26 is lifted to the position shown in Fig. 6 its upper notch 71 comes above the toe 34 of the hanging armature 32, which immediately engages it and holds it up. The staple 36 is thus left free, subject to the pressure of the light spring 63, so that if the door be pushed by the caller, the staple will swing back against the spring 63 from the position shown in full lines to the position shown in dotted lines, Fig. 5. When the pawl 26 is raised, the spring 25 makes contact with the spring 12, and this contact is held so long as the pawl 26 is in the upper position shown in Fig. 6. The occupier of the flat or apartment, by pressing the button 20, in his control board, establishes a circuit through the local indicator lamp 14 and the admission indicator lamp 11, thereby assuring himself by observing his pilot light 14, in the first place, that the staple has been released, and in the second place giving notice to the person calling for admission that the door lock has been released. Immediately the door opening movement has brought the latch bolt 60 clear of the staple head 36 on which movement the staple is forced back to the dotted position Fig. 5, the knuckle 64 passes under the toe 34 of the hanging armature 32. In the return movement of the staple 36 which occurs immediately when contact with the latch bolt 60 terminates, the knuckle 64 strikes the toe 34 of the armature 32 backward toward the magnet 24, thus dropping the pawl 26 from the position shown in Figs. 6 and 7 to that shown in Fig. 3, so that the staple 36 is again locked by it automatically, even before the door has been opened sufficiently to clear the rabbet. When the pawl 26 is thus dropped, the lamp circuit is broken at 25—12, with the result that the lamps 14 and 11 are extinguished. Pressing home the finger button 20 to test the lamp circuit therefore informs the occupant whether the door has been opened or not, as the indicator lamp 14 will glow until the door has been opened and will cease to glow after it has been re-closed. The door 58 is fitted with a self-closing spring of any ordinary kind to insure that it will slam closed after being opened. If the occupier, finding that a false call has been received, owing to the lamp 14 remaining continuing to glow as long as the button 20 is held pressed, and he therefore

determines to restore the staple to the locked position, the button 21 is pressed to establish a circuit through the line 22 and the resetting magnet 24. This happening, the armature 32 is pulled over, thereby drawing the armature toe 34 away from the upper notch 71 on the end of the pawl 26, thus allowing said pawl to drop to its normal locked position as shown in Fig. 3.

All the several apartments or flats in the building being connected up in parallel, each local circuit self contained with the indicator lamp 11 common to all, a complete system of control is established by which any occupant is enabled to supervise the happenings at the common door in response to a call. The caller ascertains by means of the indicator lamp 11 whether the person called for is available, for that lamp does not glow unless the button 15 is pressed in the apartment called. The apartment occupant has at his hands means to satisfy himself when entry has been effected and if the lock has been automatically reset, and also has means provided whereby in the event of the call received being an accidental one or a mischievous one, the lock may be reset by pressing the restoring button 21.

What we claim as our invention and desire to secure by Letters Patent is:—

1. Electromagnetic control means for doors, comprising a spring backed hinged staple engageable by a latch bolt and adapted when free to be swung aside to allow said latch end to pass it, a drop pawl adapted to take behind said staple to chock it, an electromagnet adapted for lifting said pawl to free said staple, a counterbalanced pendent armature with toe piece adapted to engage and hold said pawl in its raised position, a resetting electromagnet adapted to pull off said pendent armature to release said pawl, a contacting member on said staple adapted to strike said pendent armature in the relocking movement of said staple, and separate circuit closing contacts with spring resetting means for closing the circuits of said pawl lifting electromagnet and said resetting electromagnet.

2. An electromagnetically controlled door latch staple attachment, comprising a hinged staple, means including an armature pawl for chocking said staple, means dependent upon the resetting movement of said staple for reëngaging said pawl therewith, an electromagnet adapted to lift said pawl, a trip device adapted to engage and hold said pawl when lifted, an electromagnet adapted to disengage said trip device from said pawl, and manually closed switches in battery circuits through said magnets.

3. In a device of the character described, the combination with a pivotally mounted spring pressed staple adapted to coöperate with a door latch, of an electromagnetically controlled drop pawl adapted to normally hold said staple in locking position, tripping means for said pawl, electromagnetic means for actuating said tripping means, and a member on the staple for contacting with said tripping means.

4. In a device of the character described, the combination with a pivotally mounted spring pressed staple adapted to coöperate with a door-latch, of an electromagnetically controlled drop pawl having a plurality of steps at one end thereof, one of said steps being adapted for engagement with said staple when the latter engages the door latch, a pivotally supported electromagnetically controlled lever having a toe piece for engaging another of said steps in the pawl to hold the latter out of engagement with the staple, and yieldable means carried by the staple to contact with said lever and move said toe piece out of engagement with its step.

In testimony whereof we affix our signatures.

NATHAN FIENBERG.
WALTER LESLIE WAKEHAM.