United States Patent [19]

Peterson

[11] **3,873,141**

[45] **Mar. 25, 1975**

[54] **DOOR SECURING APPARATUS HAVING REMOTELY CONTROLLED MEANS TO HOLD ITS LATCH BOLT IN A RETRACTED POSITION**

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[22] Filed: **Nov. 1, 1973**

[21] Appl. No.: **411,800**

[52] **U.S. Cl.** **292/40,** 292/21, 292/92, 292/153, 292/210, 70/92

[51] **Int. Cl.** **E04c 9/04**

[58] **Field of Search** 292/21, 92, 93, 144, 201, 292/40, 153, 210; 70/92

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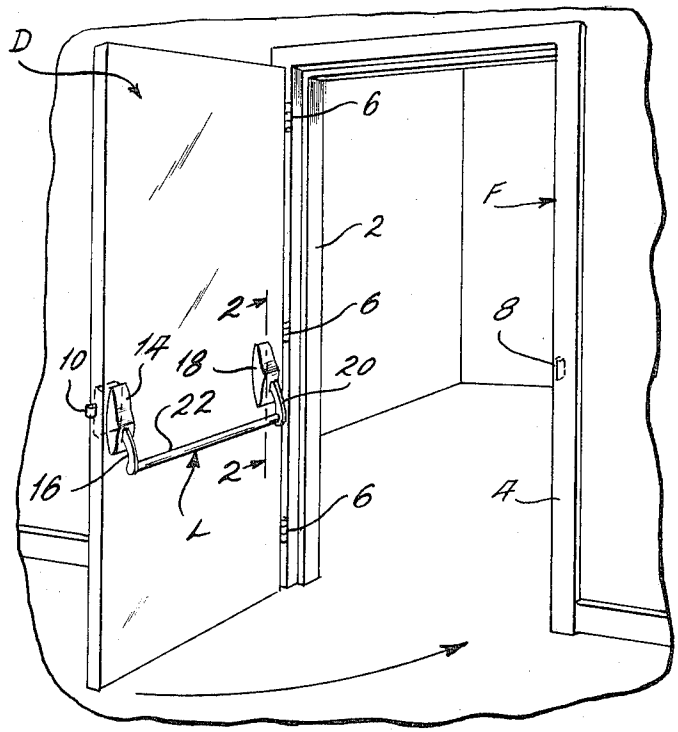
Primary Examiner—Robert L. Wolfe

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[57] **ABSTRACT**

An apparatus for securing a door includes a latch bolt which engages the door frame when extended and prevents the door from opening. To release the door the latch bolt is retracted by manually operated operating means, and a dogging mechanism retains the operating means in a position wherein it holds the latch bolt in its retracted position. This enables the door to be opened and closed during periods of high use without operating any of the parts of the apparatus, thus reducing wear and preventing early failure. The dogging mechanism is electrically operated and is controlled from a remote location.

14 Claims, 7 Drawing Figures



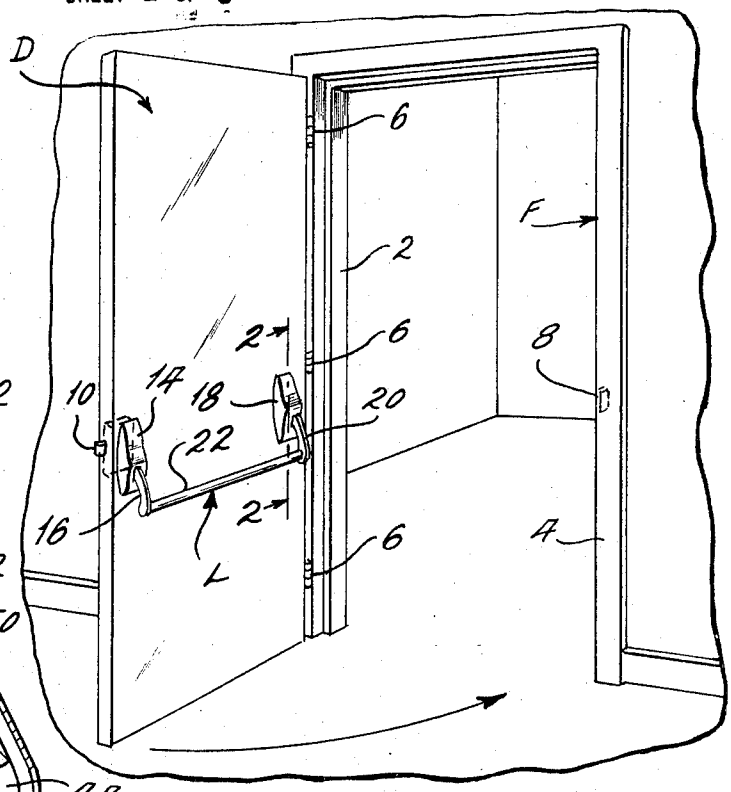

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FIG. 1

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FIG. 2

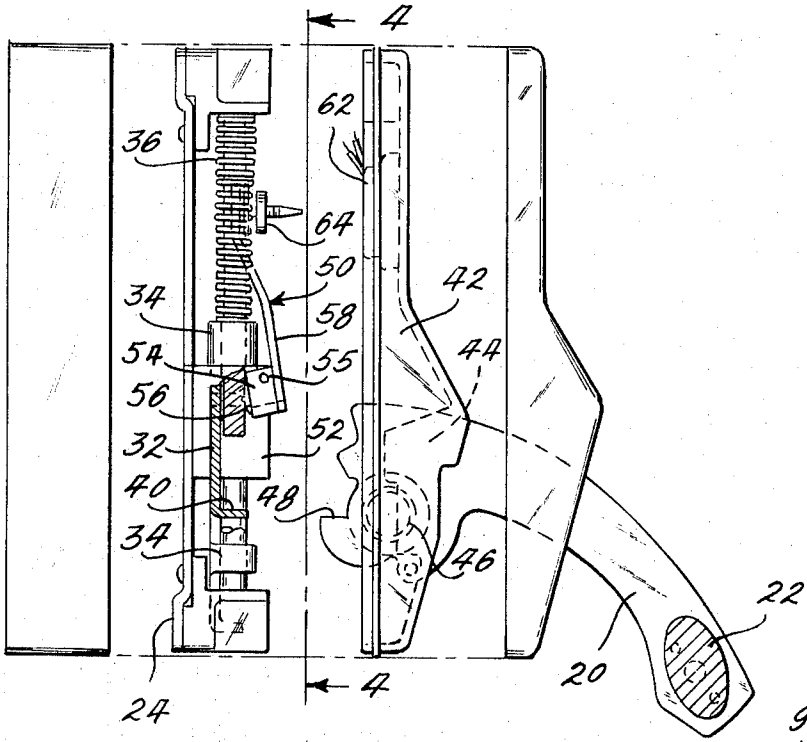


FIG. 3

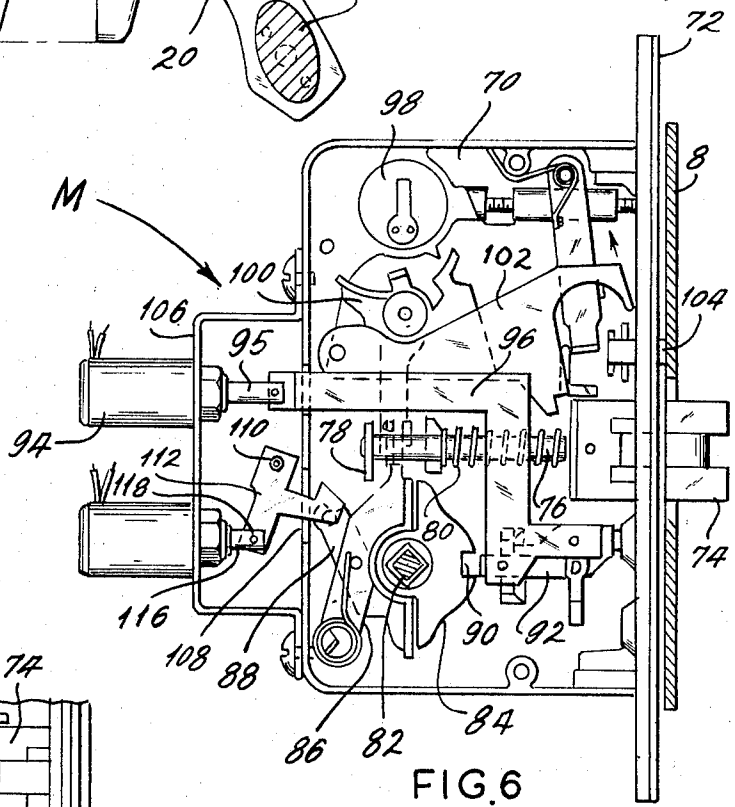


FIG. 6

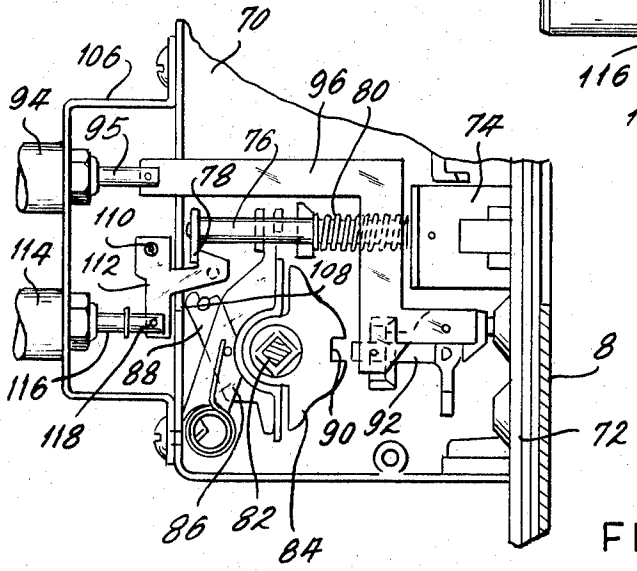


FIG. 7

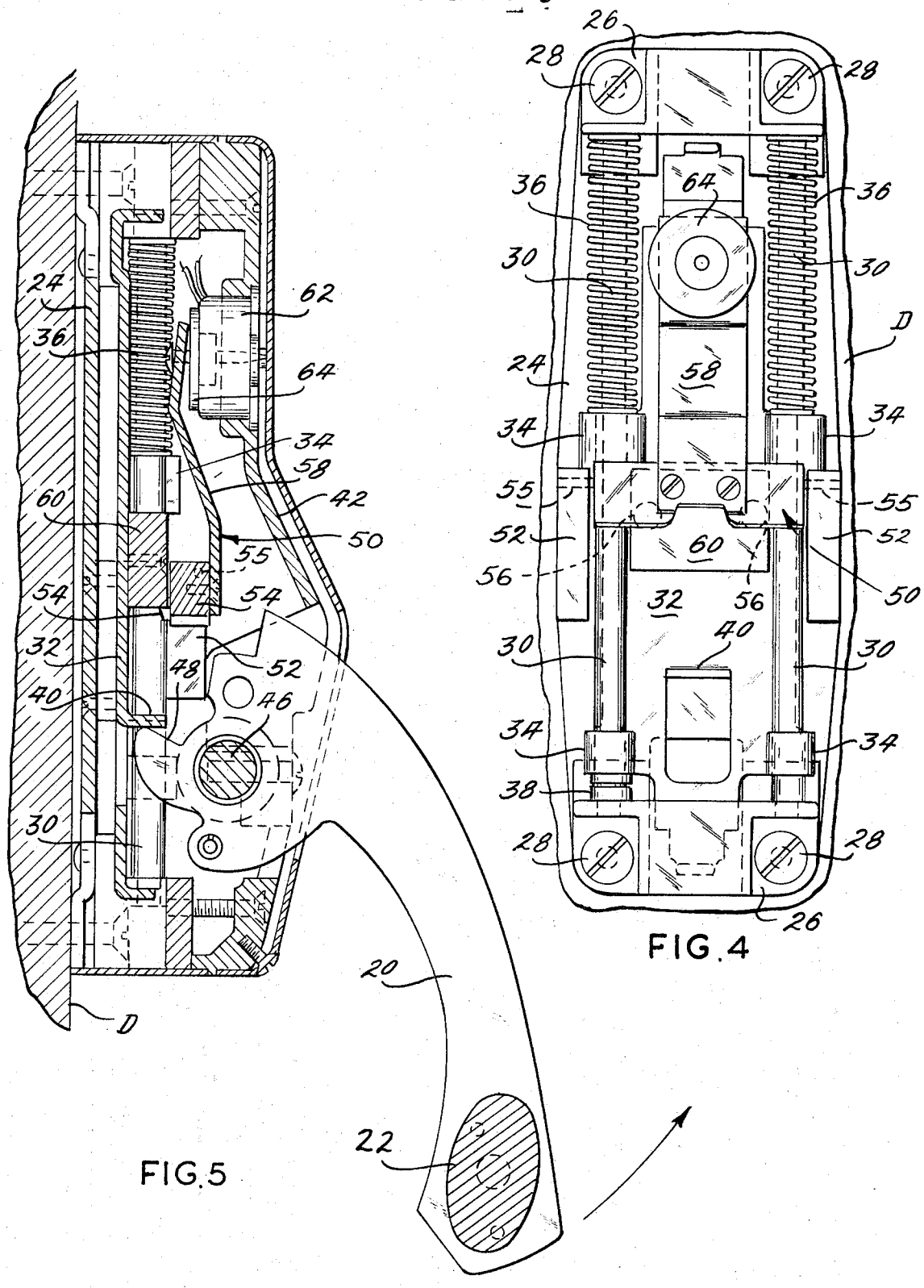

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FIG. 4

FIG. 5

DOOR SECURING APPARATUS HAVING REMOTELY CONTROLLED MEANS TO HOLD ITS LATCH BOLT IN A RETRACTED POSITION

BACKGROUND OF THE INVENTION

This invention relates in general apparatus for securing doors, and more particularly to an apparatus of the type stated which can be retained in an inoperative condition to prevent wear.

Doors in high use passageways are often provided with locks or other securing devices which upon closure of the doors latch the doors in a closed position. Each time the door is opened the latch must be released and as a result the locking or securing mechanisms for these doors wear out quite rapidly.

Many high use doors are equipped with locks operated by so-called panic bars or paddles. These bars or paddles merely are mounted on one face of the door and when pressed in the direction of the door cause the door to open in that direction. They are most often found in public buildings such as schools. Some of these devices are provided with dogging mechanisms to hold their latch bolts in an open position so that the lock will not have to be operated each time the door is opened. Custodial personnel usually set the dogging mechanisms before business hours and then release them after business hours so that during the periods the doors are used most, the locks are not operated. Dogging mechanisms of this nature are usually nothing more than a set screw which when tightened bears against one of the operating parts of the lock and holds the latch bolt in the open position. Setting and releasing such dogging mechanisms is a time consuming procedure and requires the presence of custodial personnel at the doors. Moreover, there is always the possibility that the custodial personnel will forget to release a dogging mechanism after business hours, permitting unauthorized entry into the building.

Heretofore, attempts have been made to maintain the locks of heavily used doors in a release condition with electrically operated devices. These devices when operated actually move the entire locking mechanism to its release position. Consequently, devices of this nature draw considerable current, and do not meet the electrical codes of many localities which restrict the voltage and amperage in electrical circuitry for doors to minimal amounts.

SUMMARY OF THE INVENTION

One of the principal objects of the present invention is to provide a door securing apparatus with a dogging mechanism for holding the latch bolt for the door in an open position at selected times. Another object is to provide dogging mechanism which may be operated from a remote location. A further object is to provide a door securing apparatus of the type stated in which the dogging mechanism is electrically operated. An additional object is to provide a door securing apparatus of the type stated in which the force necessary to move the locking mechanism to the release position in which it is dogged is supplied by the first person to use the door after the dogging mechanism is activated. Another object is to provide a dogging mechanism which latches the locking mechanism in its release position so that little electrical energy is requires to operate the apparatus. Still another object is to provide an electrically operated door securing apparatus of the type stated which will comply with electrical codes.

The present invention is embodied in an apparatus for securing a door and includes electrically operated dogging means for holding the latch bolt of the door in a retracted position. The invention also consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

DESCRIPTION OF THE DRAWINGS

In the accompanying drawings which form part of the specification and wherein like numerals and letters refer to like parts wherever they occur.

FIG. 1 is a perspective view of a door provided with a locking device constructed in accordance with and embodying the present invention;

FIG. 2 is a sectional view of the spring return unit for the locking device taken along line 2—2 of FIG. 1, and showing the lever arm in its extended position and the dogging latch in its release position;

FIG. 3 is an exploded elevational view of the spring return unit for the locking device with the slide of the unit being partially broken away and in section;

FIG. 4 is an elevational view of a portion of the spring return unit taken along line 4-4 of FIG. 3;

FIG. 5 is a sectional view of the spring return unit similar to FIG. 2, but showing the lever arm in its depressed position and the dogging latch in its restraining position;

FIG. 6 is a sectional view of a modified locking device forming part of the present invention, the dogging latch of the device being in its release position; and

FIG. 7 is a fragmentary view similar to FIG. 6 but showing the dogging latch in its restraining position.

DETAILED DESCRIPTION

Referring now to the drawings (FIG. 1), L designates a securing apparatus or locking device for securing a door D in a closed position within a door frame F having a hinge jamb 2 and a strike jamb 4. The door D is attached to the hinge jamb 2 by hinges 6 and swings away from the strike jamb 4 when opened. The strike jamb 4 has a keeper or strike 8 on it.

The locking device L includes a mortise, rim, or some other suitable lock 10 which is secured firmly to the door D and has a spring loaded latch bolt 12 which normally projects beyond the edge of the door D and into the strike 8 on the strike jamb 4. This latch bolt 12 must be retracted in order to open the door D. The locking device L also includes an actuating unit 14 which is attached to the door D adjacent to the lock 10 and has a lever arm 16 exposed along that surface of the door D facing in the direction opposite to that in which the door D swings. The lock 10 and actuating unit 14 are so connected that when the lever arm 16 is depressed, that it is moved toward the door D, the latch bolt 12 is retracted, thus freeing the door D so that it may be opened.

In addition, the locking device L includes (FIG. 1) a spring return unit 18 mounted on the opposite side of the door D from the actuating unit 14, and this unit has a lever arm 20 which is the same size and moves in the same direction as the lever arm 14. The lever arm 20 however is spring loaded so that it will return to an outermost position unless otherwise held in a depressed position. The two lever arms 14 and 20 are connected by a handle cross bar 20, sometimes referred to as a

panic bar, so that those lever arms move in unison. This enables the lever arm **20** of the spring return unit **18** to return the lever arm **16** of the actuating unit **14** to its outermost position when the cross bar **20** is not held in its depressed position. The cross bar **20** is then in a standby position in which it is spaced from the door D. The cross bar **22** provides a convenient device for depressing the lever arm **14** and retracting the latch bolt **12.**

The lock **10,** actuating unit **14,** and cross bar **22** are conventional to exit fixtures of current design and manufacture. The spring return unit **18** differs from conventional spring return units in that it is provided with a remotely controlled dogging mechanism to hold the lever arm **20** in a depressed position. The lever arms of conventional spring return units have set screws which are tightened to achieve this end.

The spring return unit **18** includes (FIGS. **2-4**) an elongated base plate **24** having end fittings **26** riveted to the ends thereof. The base plate **24** is mounted on the door D adjacent to the hinge jamb **2** with its longitudinal axis extended vertically, the plate **24** being secured by screws **28** which extend through the end fittings **26** and thread into the door D. Extended between the end fittings **26** in the vertical direction are parallel guide rods **30** on which a slide **32** is mounted. The main body of the slide **32** is actually positioned between the base plate and the guide rods **30,** but the slide **32** is provided with guide shoes **34** which bend around the rods **30** and retain the slide **32** on them. The slide **32** is urged toward the lower end fittings **28** by coil springs **36** which encircle the upper portions of the guide rods **30** and bear against the upper end fittings **28** and uppermost guide shoes **34.** One of the guide rods **30** has a stop collar **38** (FIG. 4) surrounding it to limit the downward movement of the slide **32.** At its lower end, the slide **32** is provided with an outwardly struck actuating tab **40** which projects away from the base plate **24** and is located intermediate the two guide rods **30.**

The lever arm **20** for the spring return unit **18** is mounted on a covering member **42** (FIGS. **2** and **3**) which is fastened to the end fittings **28** by screws. The covering member **42** has an elongated aperture **44** located outwardly from the slide **32** and carries a horizontal pin **46** which spans the aperture **44** parallel to the base plate **24.** The lever arm **26** projects from the aperture **44** and the pin **46** serves as a journal for it. The lever arm **20** has a drive shoulder **48** which lies against the downwardly presented surface of the actuating tab **40** on the slide **32.** Thus, when the exposed portion of the lever arm **20** is depressed toward the door D, the shoulder **48** swings upwardly in an arc and, being in contact with the slide **32** at the actuating tab **40** thereon, moves the entire slide **32** upwardly against the force exerted by the springs **36.**

The foregoing components of the spring return unit **18** are conventional and along with the cross bar **22,** actuating unit **4** and portions of the lock **10,** may be considered intermediate operating means between the cross bar **20** and the latch bolt **12** for retracting the latch bolt **12** of the lock **10.**

Aside from the foregoing conventional components, the spring return unit **20** of the locking device L includes a dogging mechanism **50** (FIGS. **2–4**) for retaining the lever arms **16** and **20** and the cross bar **22** connecting them in their depressed positions. The dogging mechanism **50** is remotely controlled and includes a pair of hinge blocks **52** (FIGS. **2–4**) which are secured firmly to the base plate **24** along the sides of the guide rods **30.** These blocks **52** serve as a mount for a latching dog **54** which is positioned between them and extends over the guide rods **30** at about the midpoints thereof. The latching dog **54** is connected to the hinge blocks **52** only at hinge pins **55** and is free to rotate a limited amount relative to the hinge blocks **52** when the slide **32** is in its uppermost position (FIG. **5**), which is when the lever arm **20** is depressed. The latching dog **54** has latching bosses **56** (FIG. **2**) which project inwardly toward the base plate **24** and are located below the hinge pins **55.** The latching dog **54** also has an operating arm **58** which projects upwardly toward the upper end fitting **26,** with the upper end of the operating arm **58** being positioned between the two guide rods **30** and the springs **36** surrounding them (FIGS. **2–4**).

The portion of the slide **32** which moves adjacent to the latching dog **54** is provided with a retention block **60** (FIGS. **2–4**) having a downwardly presented surface **61** lying in a plane generally perpendicular to axes of the rods **30.** When the upper end of the operating arm **58** is moved toward the base plate **24** (FIG. **2**), the latching bosses **56** are presented far enough away from the slide **32** to enable the retention block **60** thereon to pass behind the latching dog **54.** This is the release position for the latching dog **54.** However, when the upper end of the operating arm **58** is moved away from the base plate **24,** the latching bosses **56** move inwardly, and if the retention block **60** is not in the way, they will assume a position in the path of the retention block **60** (FIG. **5**). Hence, the retention block **60** will be prevented from returning to its original position under the force exerted by the springs **36.** This is the retention or latching position for the latching dog **54.**

The latching dog **54** is moved from its release position to its retention or latching position by an electromagnet **62** (FIGS. **2–5**) which attracts a ferrous disk **64** secured to the upper end of the operating arm **58.** The wires which energize the electromagnetic extend through the door D and are concealed therein. These wires pass into the door frame F, preferably through a hinge capable of completing an electrical circuit such as the Contact Hinge disclosed in U.S. Pat. No. 3,659,063 or the Slip Ring Hinge disclosed in U.S. pat. application No. 375,788 of Francis C. Peterson, filed July 2, 1973. The wires are connected to an electrical energy source through a switch located remote from the door frame F.

During periods of relatively little use, such as after business hours, the electromagnet is left de-energized and in that case the locking device L will operate in the conventional manner (FIG. **2**). In particular, when the cross bar **22** is manually depressed by a person desiring to open the door D, the two lever arms **16** and **20** at its ends are likewise depressed. The lever arm **16** of the retracting unit **14** retracts the latch bolt **12** so as to release the door D from the strike jamb **4.** The lever arm **20** of the spring return unit **18,** on the other hand, moves the slide **32** upwardly against the restoring force exerted by the springs **36.** When the cross bar **22** is depressed, the operating mechanisms associated with the lever arms **16** and **20** are considered to be in a restraining position for they hold the latch bolt **12** in its retracted position. Once the cross bar **22** is released, the springs **36** urge the slide **32** downwardly and the slide **32,** in turn, bears against the shoulder **48** on the lever

arm 20 and urges that arm outwardly to its initial position. The lever arm 20 carries the cross bar 22 and lever arm 16 of the actuating unit 14 to its initial portion so the latch bolt 12 extends and latches the door D when the door D again closes. The operating mechanisms associated with the two lever arms 16 and 20 are then considered to be in a release position.

During periods of high use such as during business hours, the electromagnetic 62 is energized from the remote location, and as a result the upper end of the operating arm 58 is drawn toward the magnet 62. Thereafter, the first person to use the door D will, upon depressing the cross bar 22, cause the slide 32 to move upwardly. When the retention block 60 passes beyond the latching shoulder 56, the latching dog 54 will pivot under the force exerted on its operating arm 58 by the electromagnet 62. The rotation of the latching dog 54 brings its latching bosses 56 into the path of the retention block 60 (FIG. 5). When the cross bar 22 is released, the spring 36 moves the slide 32 downwardly until its retention block 60 engages the latching bosses 56 of the latching dog 54. As a result the slide 32 is retained in its upper position, and the lever 20 and cross bar 22 remain in their depressed positions. Likewise, the lever arm 16 on the actuating unit 14 remains depressed, and this holds the latch bolt 12 in its retracted position. In this connection, the weight of the cross bar 22 and the two actuating arms 16 and 20 is great enough to overcome the relatively weak spring force which urges the latch bolt 12 to its extended position.

After the first person uses the door D and in effect latches the locking device L in its inoperative position, the door D will swing freely without movement of any of the parts in the locking device L.

Actually, the first person to use the door, and not the latching mechanism 50, supplies the force necessary to move the locking device L to its inoperative position wherein the latch bolt 12 is retracted. The latching mechanism 50 merely engages the operating mechanism and maintains it in its inoperative position once the operating mechanism has been manually moved to that position. Consequently, the electromagnet 62 is relatively weak and draws relatively little current. Indeed, the current and voltage requirements of the electromagnet 62 are well within the limits prescribed by electrical codes for doors.

At the end of the period of high use, the electromagnetic 62 is de-energized, releasing the force on the end of the operating arm 58. The force exerted by the springs 36 on the slide 32, swings the latching dog 54 back to its inoperative position and the slide 32 moves downwardly, restoring the lever arm 20 and the cross bar 22 and the lever arm 16 to their initial positions (FIG. 2), in which case the latch bolt 12 extends from engagement with the strike 8 on the strike jamb 4.

The electromagnet 62 may be further controlled by a heat sensor on the ceiling above the door D so that it is deenergized in the event of a fire. This releases the latching mechanism 50 and causes the latch bolt 12 to extend into the strike 8, thus preventing fire-induced drafts from blowing the door D open.

MODIFICATION

The principle of the present invention may also be utilized in a mortise lock M (FIGS. 6–7) mounted on the door D instead of the locking device L. The mortise lock M includes a housing 70 set into the door D and a face plate 72 secured to the housing 70 and located opposite to the strike jamb 4 when the door D is closed. The housing 70 contains a latch bolt 74 which moves therein from a retracted position to an extended position. The latch bolt 74 has an operating rod 76 contained entirely within the housing 70 and an actuating tab 78 secured firmly to the end of the operating rod 76. The rod 76 extends through a coil spring 80 which urges the bolt 74 toward its extended position.

Extended through the housing 70 below the latch bolt 74 is a spindle 82 to which knobs (not shown) are secured, and this spindle also extends through a knob hub 84 in the housing 70 such that the knob hub 84 turns when the spindle 82 turns. The knob hub 84 in turn operates a hub lever 86 when turned in one direction and another hub lever 88 when turned in the other direction. The hub lever 88 is connected to the hub lever 86 such that the two operate together, irrespective of which one is deflected by the knob hub 84. Moreover, the hub lever 86 projects upwardly behind the tab 78 of the latch bolt 74 so that when the knob hub 84 is rotated, the hub lever 86 will engage the tab 78 and move the latch bolt 74 to its retracted position. The tab 78 on the latch bolt 72 coupled with the hub levers 86 and 89, knob hub 84, spindle 52 and knobs 83 may be considered operating means for moving the latch bolt 74 to its retracted position.

The knob hub 84 has a slot 90 which opens toward the face plate 72 and a locking dog 92 is mounted to move into and out of the slot 90. Of course, when the dog 92 is in the slot 90, the knob hub 84 and spindle 82 cannot rotate and the latch bolt 74 cannot be retracted by turning the knobs on the spindle 82. The locking dog 92 is moved by a solenoid 94 which is mounted externally of the housing 70 and has a spring loaded armature 95 which is connected to the locking dog 92 by a link 96. When the solenoid 94 is de-energized the locking dog 92 remains out of the slot 90 due to the spring load on the armature 95 so that the latch bolt 74 can be retracted by the knobs on the spindle 82. However, when the solenoid 94 is energized, the locking dog enters the slot 90 and prevents the knobs and spindle 82 from rotating.

The latch bolt 74 may also be retracted by a key-operated lock cylinder 98 (FIG. 6) which rotates a cylinder lever 100. The end of the cylinder lever 100 is also behind the tab 78 so that when the lever is rotated in the proper direction that end engages the tab 78 and shifts the entire latch bolt 74 to its retracted position.

To prevent the latch bolt 74 from being retracted by a thin object passed between the face plate 72 and the strike 6, the lock M is provided with a locking lever 102 (FIG. 6) which normally lies in the path of the latch bolt 74. This lever is controlled by an auxiliary latch 104 which is depressed by the strike 8 when the door D is closed. However, when the auxiliary latch 104 is out, a tab on it lifts the locking lever 102 out of the path of the latch bolt 74 so that the latch bolt 74 can momentarily move inwardly and latch upon subsequent closure of the door. The locking lever 103 is also elevated by the hub lever 86 and the cylinder lever 100 so that it will be out of the path of the latch bolt 74 when the door knobs on the spindle 82 or the lock cylinder 98 are operated.

Fastened to the back wall of the housing 70, that is the wall positioned parallel to the face plate 72, is an auxiliary housing 106 into which the end of link 96

projects. The solenoid 94 is mounted firmly on the auxiliary housing 106 and connects to the link 96 within that housing.

The auxiliary housing 106 opens into the main lock housing 106 through an aperture 108, and adjacent to this aperture the auxiliary housing 106 is provided with a pivot pin 110 positioned rigidly therein. The pivot pin 110 serves as a pivot for a latching dog 112, a portion of which projects through the aperture 108 and into the path of the latch bolt 74. This portion of the latching dog 112 has leading edges inclined relative to the axis of the operating rod 76 for the latch bolt 74 and a back edge which is disposed generally at a right angle to the axis of the operating rod 76.

As the latch bolt 74 moves to its fully retracted position, the tab 78 thereon will engage the inclined edge and cam that portion of the latching dog 112 which projects into the housing 70 downwardly against a spring resistance. Once the end of the inclined edge is reached, the latching dog 112 will spring upwardly so that its perpendicular edge is behind the tab 78 and retains that tab and the entire latch bolt 74 in the fully retracted position (FIG. 7).

The latching dog 112 is rotated about the pivot pin 110 by a solenoid 114 which is secured to the auxiliary housing 106 and has a movable armature 116 connected to the latching dog 112 by means of a connecting pin 118. The armature 116 is spring loaded and urged toward the housing 70 so that the latching dog 112 is spring loaded toward its dogging or retaining position (FIG. 6), that is the position in which it will retain the latch bolt 74 in its retracted position. However, when the solenoid 114 is energized, it rotates the latching dog 112 such that the portion projected into the lock housing 30 moves downwardly and releases the tab 78 (FIG. 7), thus enabling the spring 80 to move the latch bolt 74 to its extended position.

During periods of low use, the solenoid 114 is energized so that the latching dog 112 is held out of the path of the latch bolt 74 (FIG. 6). Consequently, each time the latch bolt 74 is retracted by turning one of the knobs on the spindle 82 or the lock cylinder 98, it will move back to its extended position under the force exerted by the spring 80, once the knob or lock cylinder 98 is released. Whether or not the knobs may be turned depends on the condition of the other solenoid 94. If it is energized, then locking dog 92 is in the slot 90 of the knob hub 84 and the spindle 82 cannot be turned by the knobs. If the solenoid 94 is de-energized, then its spring loaded armature 95, acting through the connecting link 96, holds the locking dog 92 away from the knob hub 84 so that that hub 84 can be rotated by the spindle 82. The knob hub 84 of course rotates the hub lever 86 which in turn lifts the locking lever 102 and retracts the latch bolt 74.

During periods of high use, both solenoids 94 and 114 are de-energized (FIG. 7). The spring loaded armature of the former of course, holds the locking dog 92 away from the knob hub 84 so that the latch bolt 74 can be retracted by turning one of the knobs on the spindle 82. The spring loaded armature 116 of the latter solenoid 114, on the other hand, elevates the latching dog 112 into the path of the latch bolt 74. Consequently, the first person to turn one of the knobs drives the tab 78 of the latch bolt 74 against the latching dog 112 and the latching dog 112 engages that tab 78 and holds the latch bolt 74 in its fully retracted position. Thereafter, the door D can be opened without turning the knobs or otherwise moving any of the parts within the lock M.

This invention is intended to cover all changes and modifications of the example of the invention herein chosen for purposes of the disclosure which do not constitute departures from the spirit and scope of the invention.

What is claimed is:

1. An apparatus for securing a door in a structure framing the door, said apparatus comprising a bolt mounted on the door and movable between extended and retracted positions, the bolt when in its extended position being capable of engaging the structure framing the door so as to secure the door in that structure; a movable handle on the door, the handle being normally in a standby position; intermediate operating means interconnecting the handle and the bolt for causing the bolt to move to its retracted position when the handle is moved away from its standby position; a latching dog engageable with the intermediate operating means and movable between latching and release positions, the latching dog when urged to its latching position being capable of engaging the intermediate means each time the intermediate means, as a result of the handle being moved, brings the bolt to its retracted position, the latching dog when engaged with the intermediate means restraining the intermediate means such that the latch bolt remains retracted, whereby the first individual to move the handle away from its standby position when the latching dog is urged to its latching position will cause the latching dog to engage and retain the intermediate means so as to maintain the latch bolt in its retracted position; and electromagnetic means connected with the latching dog for urging the latching dog to and holding it in one of its positions.

2. An apparatus for securing a door in a structure framing the door, said apparatus comprising a bolt mounted on the door for engaging the framing structure and securing the door thereto when projected from the door, the bolt being retractable to release the door from the framing structure; a slide carried by the door and movable between first and second positions; means interconnecting the slide and the bolt such that movement of the slide from its first position to its second position will cause the bolt to retract; a spring urging the slide to its first position; a lever pivotally mounted with respect to the door and engaged with the slide such that when the lever is moved, the slide will move toward its second position against the force exerted by the spring and will retract the latch bolt; a handle on the lever for manually moving the lever; a latching dog pivoted with respect to the door and movable between latching and release positions, the latching dog when urged to its latching position becoming engaged with the slide when the slide is moved to its second position so as to hold the slide in the second position against the force exerted by the spring, whereby the bolt will remain retracted; and electromagnetic means for moving the latching dog to and holding it in its latching position.

3. An apparatus according to claim 2 wherein the slide moves vertically with its first position being below its second position, and the lever pivots about a horizontal axis.

4. An apparatus according to claim 3 wherein the latching dog pivots about a horizontal axis and has at

least one projection which extends beneath the slide when the slide is in its latching position.

5. An apparatus for securing a door in a structure framing the door, said apparatus comprising a bolt mounted on the door for engaging the framing structure and securing the door thereto when projected from the door, the bolt being retractable to release the door from the framing structure; a slide carried by the door and movable vertically between upper and lower positions; means interconnecting the slide and the bolt such that movement of the slide from its lower position to its upper position will cause the bolt to retract; a spring urging the slide to its lower position; a lever pivotally mounted with respect to the door for rotational movement about a horizontal axis, the lever projecting away from the door and being engaged with the slide such that when the lever is moved, the slide will move toward its upper position against the force exerted by the spring and will retract the latch bolt; a handle spaced from the door and mounted firmly on the lever such that when the handle is depressed toward the door, the lever will move and will in turn move the slide to its upper position; a latching dog pivoted with respect to the door and movable between engaged and released positions, the latching dog when urged to its latching position while the slide still is in its lower position becoming engaged with the slide when the slide is moved into its upper position so as to hold the slide in the upper position against the force exerted by the spring, whereby the bolt will remain retracted; and electromagnetic means for moving the latching dog from one of its positions to the other of its positions.

6. An apparatus according to claim 5 wherein the electromagnetic means when energized urges the latching dog to its engaged position.

7. A device according to claim 1 wherein the intermediate operating means includes a spring which urges the operating means to the position in which the operating means allows the bolt to assume its extended position; and wherein the electromagnet means when energized urges the latching dog to a position wherein it will engage the operating means and hold the operating means in the position which keeps the bolt retracted.

8. A device according to claim 7 wherein the intermediate operating means includes a slide which moves in opposition to the spring and a lever arm for operating the slide; and wherein the latching dog engages a surface fixed in position on and movable with the slide when the slide is in a position which compresses the spring.

9. A device according to claim 8 wherein the slide moves in a vertical direction and is urged downwardly by the spring; and wherein the lever arm has an outwardly exposed portion and pivots about a horizontal axis, the lever arm moving and slide upwardly against the force exerted by the spring when the lever arm is depressed toward the door, and the latching dog being capable holding the slide in the elevated position when the electromagnet means is energized.

10. A device according to claim 9 wherein the operating means includes another lever arm pivoted about a horizontal axis and spaced laterally across the door from the lever arm which operates the slide, the other lever arm being adjacent to the bolt, and the handle is a cross bar interconnecting the two lever arms so that the lever arms operate in unison.

11. A device according to claim 1 wherein the latching dog is spring loaded to a position wherein it will engage the operating-means and hold the operating-means in its restraining position; and wherein the electromagnet means when energized urges the latching dog to a position wherein it will not engage the operating means.

12. A device according to claim 1 wherein the operating means includes means mounted firmly on the bolt and having a surface which extends generally transverse to the direction of movement for the bolt, and wherein the latching dog engages that surface.

13. A device according to claim 12 wherein the means mounted firmly on the bolt is a tab on the end of the bolt.

14. A device according to claim 13 wherein the operating means further includes a rotatable spindle and a lever which is pivoted by the spindle when the spindle is rotated, the lever further engaging the tab when pivoted to retract the bolt.

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