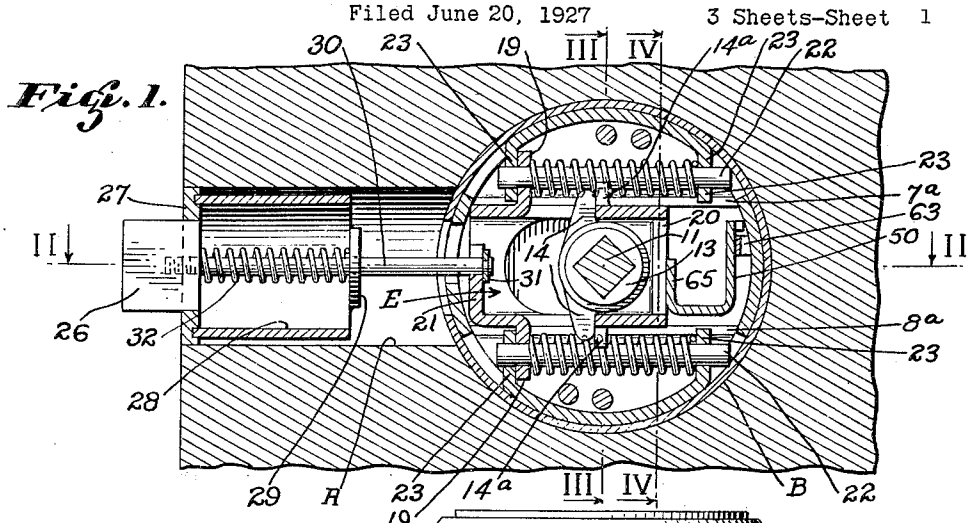
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DOOR LATCH

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Fig. 1.



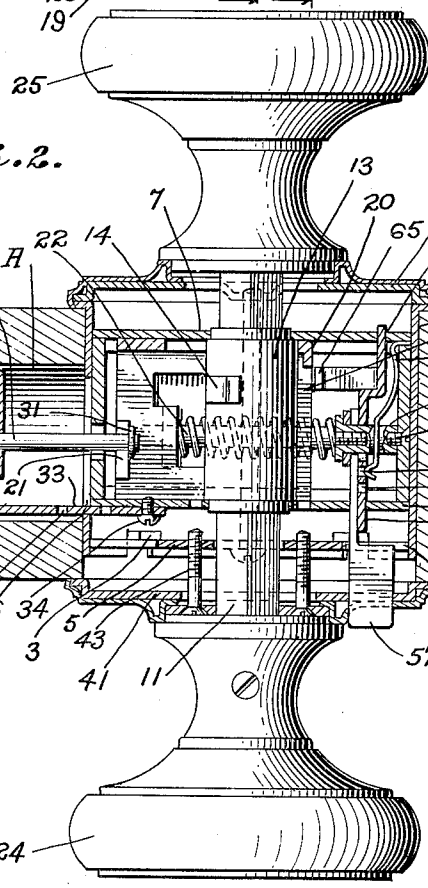


Fig. 2.

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Fig. 3.

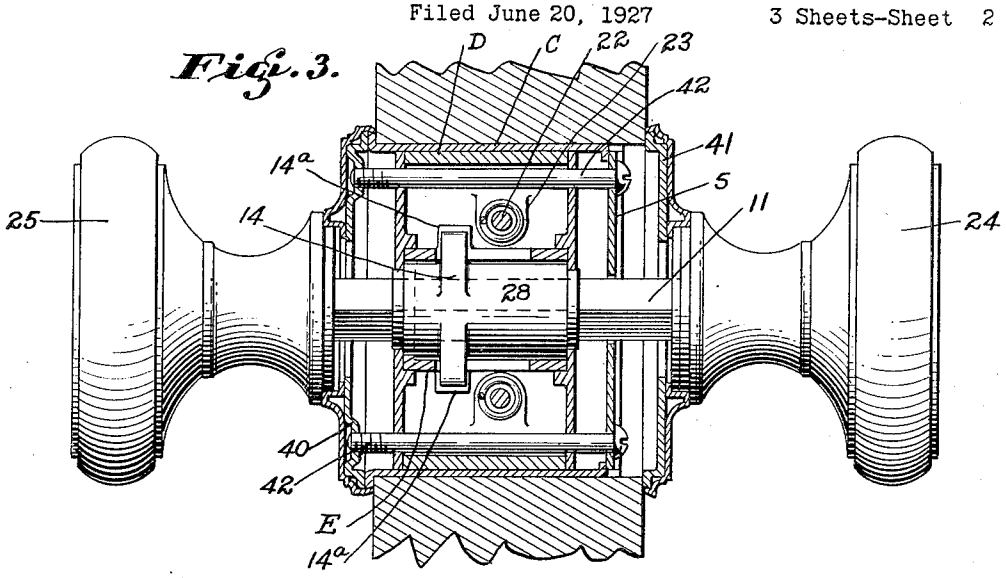


Fig. 4.

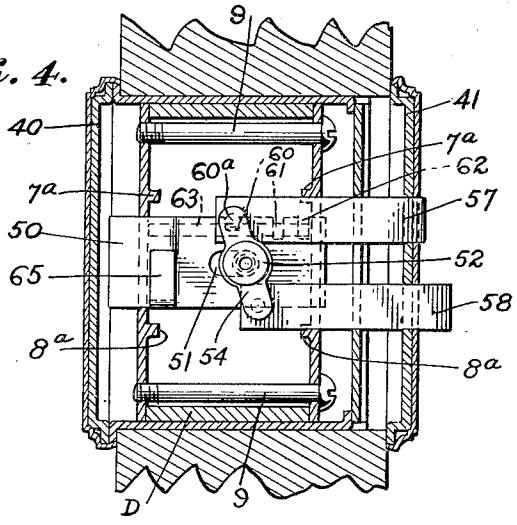
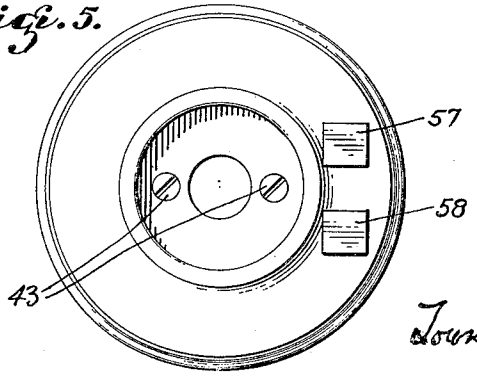


Fig. 5.



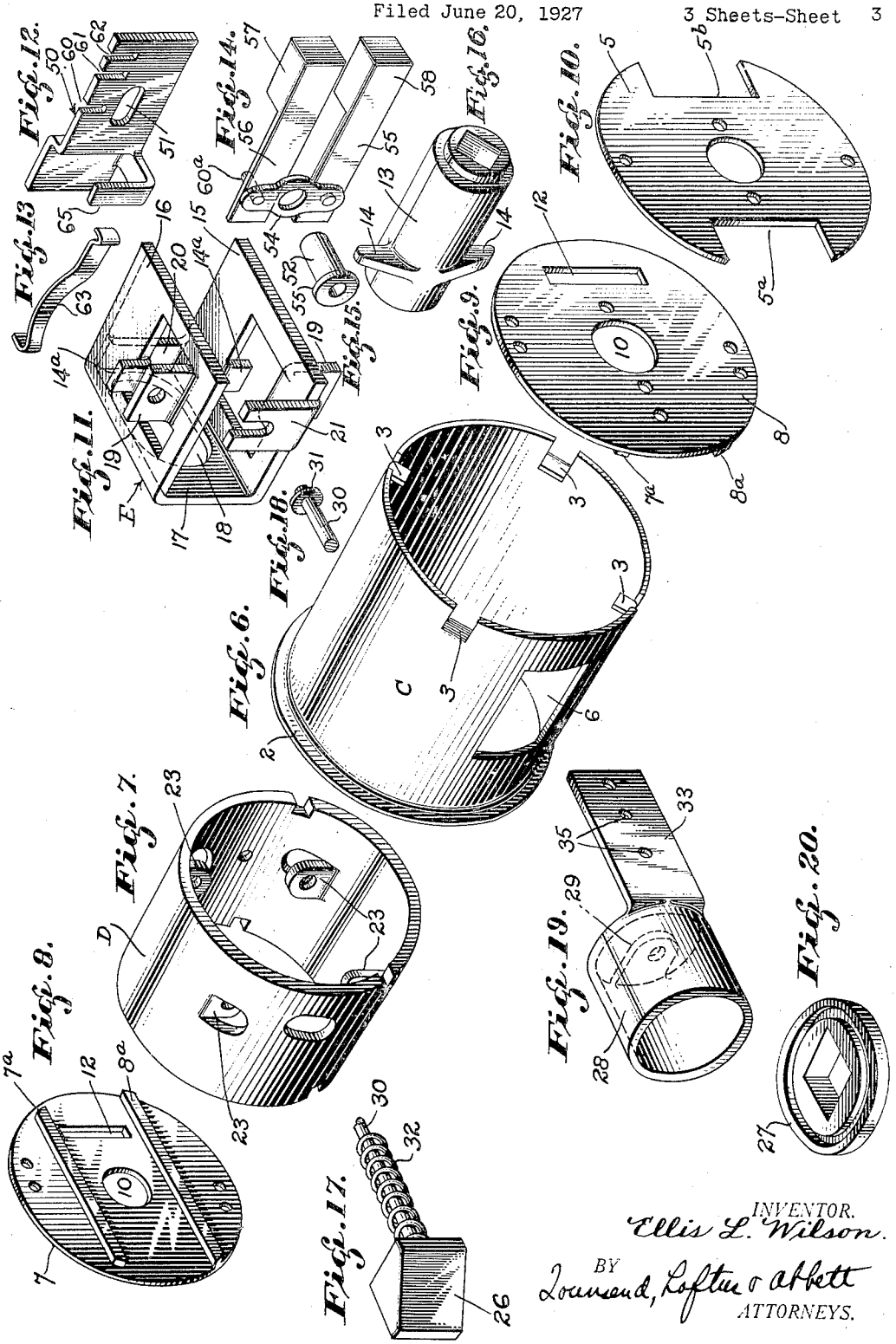
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UNITED STATES PATENT OFFICE.

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DOOR LATCH.

Application filed June 20, 1927. Serial No. 200,044.

This invention relates to door latches and especially to improvements on the type of latch illustrated in my co-pending application entitled "Door latch," filed March 7, 1927, Serial No. 173,257.

The object of the present invention is to generally improve and simplify the construction and operation of the latch mechanism shown in my co-pending application above referred to and particularly to provide a push button actuated mechanism operable from the inside of the door in which the latch is mounted whereby the knobs and spindles may be dogged against rotation so as to prevent retraction of the bolt and opening of the door from the outside.

The invention is shown by way of illustration in the accompanying drawings, in which:

Fig. 1 is a central vertical section of the latch taken on line I—I, Fig. 2,

Fig. 2 is a horizontal section of the latch taken on line II—II, Fig. 1,

Fig. 3 is a vertical section of the latch taken on line III—III, Fig. 1,

Fig. 4 is a vertical section of the latch taken on line IV—IV, Fig. 1,

Fig. 5 is a front view of the escutcheon plate which is mounted on the inside of the door,

Fig. 6 is a perspective view of the main latch housing,

Fig. 7 is a perspective view of the inner latch housing,

Figs. 8 and 9 are perspective views of the end plates employed in conjunction with the inner housing,

Fig. 10 is a perspective view of an end plate employed in conjunction with the main latch housing,

Fig. 11 is a perspective view of the retractor,

Fig. 12 is a perspective view of the dogging plate,

Fig. 13 is a perspective view of the spring which co-operates with the dogging plate,

Fig. 14 is a perspective view of the push buttons and the link connecting the same,

Fig. 15 is a perspective view of the bushing upon which the push button link is pivoted,

Fig. 16 is a perspective view of the rollback,

Fig. 17 is a perspective view of the bolt, said view also showing a portion of the retractor bolt,

Fig. 18 is a perspective view showing the inner end of the retractor bolt,

Fig. 19 is a perspective view of the retractor bolt housing,

Fig. 20 is a perspective view of an end plate which co-operates with the housing 19 and forms a guide for the bolts shown in Fig. 17.

Before entering into a detailed description of the latch mechanism, it might be stated that the type of latch illustrated is adaped to be inserted in a door which is prepared for its reception by merely drilling two holes at right angles to each other, the one hole being drilled through the edge of the door as indicated at A and the opposite hole being drilled or bored through the opposite faces of the door and being indicated at B. It might also be stated that the latch mechanism in general is substantially identical to that illustrated in my co-pending application already referred to and that the main feature of the present invention is to provide means for dogging the bolt against retraction, the means employed being a pair of push buttons which project through the inner escutcheon plate and which actuate the mechanism whereby the door knob and the spindle are secured against rotation, thereby preventing retraction of the bolt and opening of the door. In view of the fact that the mechanism is substantially identical to that disclosed in my co-pending application, a brief description thereof should suffice.

The latch in general consists of a main latch housing C which is inserted in the opening B in the door from the outer face thereof. The housing is cylindrical in shape and elongated as shown in Fig. 6 and one end is provided with an annular flange 2 which engages the outer face of the door and thereby secures the main latch housing against further inward movement. The opposite end of the latch housing is provided with a plurality of inturned lugs such as indicated at 3 which form a support for an end plate 5 (see Figs. 2 and 10). The latch housing is otherwise provided with a rectangular-shaped opening as indicated at 6 which serves a function hereinafter to be described. The latch is also provided with an inner housing generally indicated at D which is best illustrated in Fig. 7. This housing fits the interior of the main housing C and is provided with a pair of end plates

generally indicated at 7 and 8 (see Figs. 2, 3, 4, 8 and 9), these plates being secured by means of screws or the like such as indicated at 9 (see Fig. 4). Each end plate is provided with a central opening 10 to permit a spindle 11 to pass therethrough. Each plate is provided with a pair of track members such as indicated at 7^a and 8^a on its inner surface, and each plate is also provided with a vertical slot 12, the function of which will hereinafter be described.

The spindle 11 extends longitudinally through the inner latch housing D and it carries a rollback 13 (see Figs. 1, 2 and 16) which is provided with a pair of retracting lugs 14. The rollback is secured between the end plates 7 and 8 and it serves a function of actuating a retractor generally indicated at E (see Fig. 11). The retractor consists of a pair of horizontally disposed plates 15 and 16 connected by means of side plate 17, this side plate being slotted as at 18 to permit the spindle and rollback to pass therethrough and to permit reciprocal movement of the retractor. The retractor is otherwise provided with guide lugs 19—19 and cooperating retractor lugs 14^a—14^a. It is furthermore provided with an end plate 20 and with a forked front plate 21. The retractor as a whole is supported by the track members 7^a and 8^a formed on the end plates 7 and 8 and is slidable back and forth thereon. It is also guided by a pair of rods 22 (see Figs. 1 and 3). These rods extend through the guide lugs 19 and the rods are secured in lugs 23 forming a part of the inner housing D, the rods being secured against endwise removal by engaging the inner face of the main latch housing as plainly shown in Fig. 1. Springs surround the rods 22 and they are interposed between the lugs 23 at the right-hand side of the housing and the guide lugs 19. These springs are under constant pressure or tension at all times and as such automatically maintain the retractor in engagement with the left-hand side of the inner housing as shown in Fig. 1. The spindle proper is provided with an inner knob 24 and an exterior knob 25 and when either of these knobs are rotated, the spindle and the rollback will be rotated and one or another of the lugs 14 will accordingly engage the cooperating lugs 14^a on the retractor and thus force the retractor towards the right-hand side of the inner housing, (see Fig. 1), while release of either knob will permit the springs 22 to exert their pressure and thus return the retractor, the rollback, the spindle and the knobs to normal position. The reciprocal movement of the retractor is transmitted to either project or retract a bolt of the usual character which is generally indicated at 26. This bolt is guided in an end plate 27 (see Figs. 1 and 20) which forms a cover or closure for the outer end of a housing 28 (see Figs. 1 and 19). The inner end of this housing is provided with a lug 29 and this is perforated to form a guide for a retractor bolt 30. This bolt is provided with a head or washer 31 on its inner end and it is engaged by the fork-shaped lug 21 of the retractor. The opposite end of the bolt is threaded or otherwise connected with the bolt 26 so that reciprocal movement of the retractor will be imparted to either project or retract the bolt 26, retraction taking place when the spindle is rotated by means of either knob, and the bolt being projected when the knobs are released due to the tension of the springs 22 and also due to the tension of a spring 32 which is interposed between the lug 29 and the bolt proper. The inner end of the housing 28 which may be referred to as the bolt housing is also provided with a plate such as shown at 33 (see Figs. 2 and 19). This plate projects through the rectangular-shaped opening 6 which is formed in the main latch housing (see Figs. 2 and 6) and it is secured to the end plate 8 by means of a screw or the like such as indicated at 34. The distance between the outer edge of the door and the center of the spindle varies in different installations and the plate extension 33 is accordingly provided with a number of perforations such as shown at 35 (see Fig. 19), thus rendering it possible to adjust the housing 28 to or away from the main housing B, and it also makes it possible to rigidly secure the bolt housing to the main housing and the inner housing C without employing any exterior screws as is usually the case.

Outer and inner escutcheon plates are, of course, employed, the outer escutcheon plate being indicated at 40 and the inner escutcheon plate at 41. The outer escutcheon plate is secured to the main latch housing by means of bolts such as shown at 42 (see Fig. 3). These bolts pass through the plate 5 and the plates 7 and 8, and they have a threaded connection with the outer escutcheon plate 40, thus securing the same against removal. The inner escutcheon plate is secured to the plate 5 by means of screws 43 (see Fig. 2), the screws passing through the outer escutcheon plate and having a threaded connection with relation to the plate 5. Both plates are accordingly rigidly secured and so is the latch housing as a whole. In fact the latch housing cannot be removed except by removing the interior knob 24 which covers the screws 43. These can then be removed and so can the bolt housing, the plate 5 being cut away on opposite sides as shown at 5^a and 5^b to permit removal of the screw 34 when the inner escutcheon plate 41 has been removed.

The mechanism so far described merely

discloses slight changes in the type of mechanism illustrated in my co-pending application. The main object of the present invention is, however, that of providing a push button actuated mechanism whereby the door may be dogged from the interior. This mechanism is best illustrated in Figs. 2, 4, 12, 13, 14 and 15. The mechanism consists of a dogging plate generally indicated at 50 (see Figs. 2 and 12). This plate extends through the end plates 7 and 8 and it is supported and guided therein by means of the slots 12. The plate is longitudinally slotted as at 51 and a bushing 52 extends therethrough (see Figs. 2 and 15), this bushing being secured to the inner latch housing by means of a screw 53. A link 54 is pivotally mounted on the bushing (see Figs. 2 and 14) and it is secured against endwise removal with relation to the bushing by means of an outer shoulder or flange 55 (see Figs. 2 and 15). Connected with the opposite ends of the link 54 is a pair of bars 55 and 56, on the outer ends of which are formed push buttons 57 and 58 (see Figs. 2 and 14). The inner ends of the bars 55 and 56 are supported by being pivotally secured to the link 54 while the outer ends of the bars and the buttons proper are supported by extending through the plates 8 and 41 (see Figs. 2 and 4). The upper edge of the dogging plate 50 is provided with a series of slots and notches such as indicated at 60, 61 and 62. A pin 60^a projects from the bar 56 into the slot 50, while the slots 61 and 62 are adapted to be engaged by a flat leaf spring 63 (see Figs. 2 and 13). The spring 63, together with the cooperating slots or notches 60 and 61 merely serve the function of resiliently securing or raising the dogging plate in one position or another as will hereinafter be described. It should also be noted that the dogging plate is provided with an extended lug 65 (see Figs. 2 and 12). This lug will be referred to as a dogging lug as it serves the function of engaging the retractor E and securing it against movement.

The operation of the push button actuated dogging mechanism will be as follows:

If a person enters through a door and wishes to dog the door from the inside, for instance when entering the bedroom and retiring for the night, that person merely pushes inwardly on the upper button indicated at 57. This inward movement of the button 57 and the connected bar 56 causes the link 54 to rock so that the button 58 will become projected, at the same time pin 60^a carried by the bar 56 and which projects through the slot 60 forces the dogging plate inwardly thereby bringing the lug 65 (see Fig. 2) into a position where it aligns with the end plate 20 of the retractor E (see Figs. 2 and 11). The dogging plate and the push buttons are secured in this position by the end of the spring 63 dropping into engagement with the slot 62. The moment the stop lug 65 and the end plate 20 of the retractor are aligned, the spindle 11, the rollback 55, the retractor and the knobs 24 and 25 will be dogged against rotation as the retractor will be dogged against reciprocal movement. The door is accordingly dogged from the inner side and it cannot be opened from the outside as the outer knob cannot be rotated, and furthermore, it cannot be opened as there is no key mechanism provided. The person on the inside may, however, open the door at any time by merely reversing the position of the push buttons, i. e., by depressing the projected button indicated at 58. This reverses the movement of the link 54 and the dogging plate 50 and thereby causes retraction of the dogging lug 65, i. e., it is moved out of alignment with relation to the end plate 20 on the retractor, and the retractor will accordingly be free to reciprocate, thus leaving the knob, the spindle and the rollback free to rotate. Such rotation causes reciprocal movement to be imparted to the retractor and at the same time causes retraction of the bolt. The dogging plate is retained in its released position as the spring will engage the slot 61 and thereby resiliently retain the plate and the buttons in the released position.

The foregoing description illustrates a simple push button actuated mechanism whereby the spindle and the knobs of an ordinary door latch may be dogged against rotation from the inside face of the door. This is important as it, practically speaking, provides a burglar proof door latch, this statement being made in view of the fact that no key mechanism is provided and it is accordingly impossible to open a door from the exterior when it has been dogged from the interior. The mechanism is simple and substantial in construction, and while it is here illustrated as applying to a specific form of latch mechanism, it is obvious that it may be applied wherever a reciprocal retractor is employed as the only function of the push buttons and the mechanism actuated thereby is to interpose a stop lug between the retractor and the latch housing.

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

1. In a latch of the character described, a housing, a spindle journaled therein, a pair of knobs, one on each end of the spindle, a bolt, a retractor connected with the bolt, said retractor and bolt adapted to be reciprocated during turning movement of the knobs and spindle to retract or project the bolt, and a dogging plate manually movable

between the housing and the retractor, said plate adapted to assume one position where it leaves the knobs and spindle free to rotate and the retractor and bolt free to reciprocate, and a second position where it secures the retractor against reciprocal movement and the spindle and knobs against rotation.

2. In a latch of the character described, a housing, a spindle journaled therein, a pair of knobs, one on each end of the spindle, a bolt, a retractor connected with the bolt, said retractor and bolt adapted to be reciprocated during turning movement of the knobs and spindle to retract or project the bolt, a dogging plate mounted in the housing, said plate adapted to move in a direction transverse to the movement of the retractor, and manually actuated means whereby the dogging plate may be moved to assume one or another of two positions, one position where it leaves the knobs and spindle free to rotate and the retractor free to reciprocate, and a second position where it becomes interposed between the housing and the retractor thereby secures the retractor against reciprocal movement and the spindle and knobs against rotation.

3. In a latch of the character described, a housing, a spindle journaled therein, a pair of knobs, one on each end of the spindle, a bolt, a retractor connected with the bolt, said retractor and bolt adapted to be reciprocated during turning movement of the knobs and spindle to retract or project the bolt, a dogging plate mounted in the housing, said plate adapted to move in a direction transverse to the movement of the retractor, and manually actuated means whereby the locking plate may be moved to assume one or another of two positions, one position where it leaves the knobs and spindle free to rotate and the retractor free to reciprocate, and a second position where it becomes interposed between the housing and the retractor thereby securing the retractor against reciprocal movement and the spindle and knobs against rotation, said means leaving the bolt free to move inwardly with relation to the latch housing and the retractor.

4. In a latch of the character described, a housing, a spindle journaled therein, a pair of knobs, one on each end of the spindle, a bolt, a retractor connected with the bolt, said retractor and bolt adapted to be reciprocated during turning movement of the knobs and spindle to retract or project the bolt, a dogging plate mounted in the housing, said plate adapted to move in a direction transverse to the movement of the retractor, an escutcheon plate at one end of the latch housing, a pair of push buttons extending therethrough, and a connection between the push buttons and the dogging plate whereby depression of one button will move the plate to a position where it leaves the knobs and spindle free to rotate and the retractor free to reciprocate, and whereby depression of the other button will move the dogging plate to a position where it becomes interposed between the housing and the retractor, thereby securing the retractor against reciprocal movement and the spindle and knobs against rotation.

5. In a latch of the character described, a housing, a spindle journaled therein, a pair of knobs, one on each end of the spindle, a bolt, a retractor connected with the bolt, said retractor and bolt adapted to be reciprocated during turning movement of the knobs and spindle to retract or project the bolt, a dogging plate mounted in the housing, said plate adapted to move in a direction transverse to the movement of the retractor, an escutheon plate at one end of the latch housing, a pair of push buttons extending therethrough, a connection between the push buttons and the dogging plate whereby depression of one button will move the plate to a position where it leaves the knobs and spindle free to rotate and the retractor free to reciprocate, and whereby depression of the other button will move the dogging plate to a position where it becomes interposed between the housing and the retractor, thereby securing the retractor against reciprocal movement and the spindle and knobs against rotation, and spring actuated means for retaining the dogging plate and the push buttons in either of the before mentioned positions.

6. In a latch of the character described, a housing, a spindle journaled therein, a pair of knobs, one on each end of the spindle, a bolt, a retractor connected with the bolt, said retractor and bolt adapted to be reciprocated during turning movement of the knobs and spindle to retract or project the bolt, a dogging plate mounted in the housing, said plate adapted to move in a direction transverse to the movement of the retractor, an escutheon plate at one end of the latch housing, a pair of push buttons extending therethrough, a connection between the push buttons and the dogging plate whereby depression of one button will move the plate to a position where it leaves the knobs and spindle free to rotate and the retractor free to reciprocate, and whereby depression of the other button will move the dogging plate to a position where it becomes interposed between the housing and the retractor, thereby securing the retractor against reciprocal movement and the spindle and knobs against rotation, said dogging plate having a pair of slots formed therein, and a spring latch movable into

and out of the slots to retain the dogging plate and the push buttons in either of the before mentioned positions.

7. In a latch of the character described, a housing, a spindle journaled therein, a pair of knobs, one on each end of the spindle, a bolt, a retractor connected with the bolt, said retractor and bolt adapted to be reciprocated during turning movement of the knobs and spindle to retract or project the bolt, a dogging plate mounted in the housing, said plate adapted to move in a direction transverse to the movement of the retractor, an escutcheon plate mounted at one end of the latch housing, a pair of push buttons extending therethrough, a centrally pivoted link mounted within the housing, a connection between one push button and one end of the link, a connection between the other push button and the opposite end of the link, a connection between one end of the link and the dogging plate, and a spring latch engageable with the dogging plate, said dogging plate having slots formed therein with which the spring latch cooperates.

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