Feb. 12, 1957 D. N. JEWETT 2,781,218

LATCH UNIT FOR PANIC EXIT LOCK

Filed Oct. 15, 1954 3 Sheets-Sheet 1

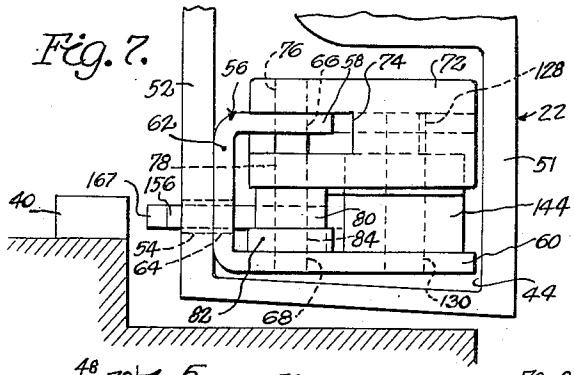


Fig. 7.

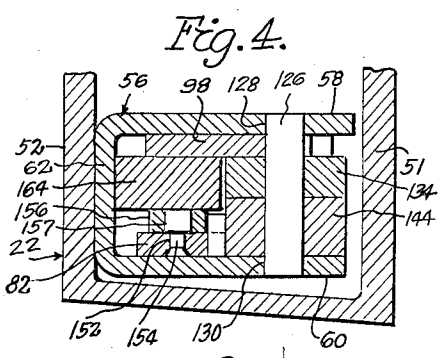


Fig. 4.

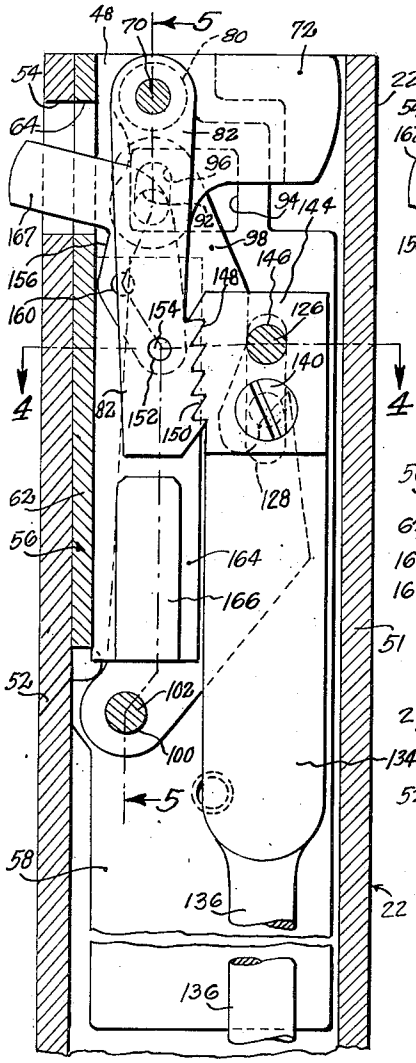


Fig. 1.

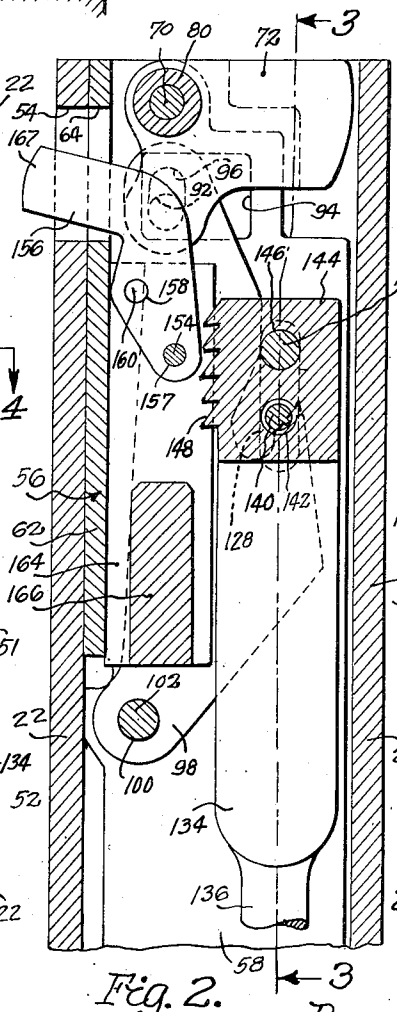


Fig. 2.

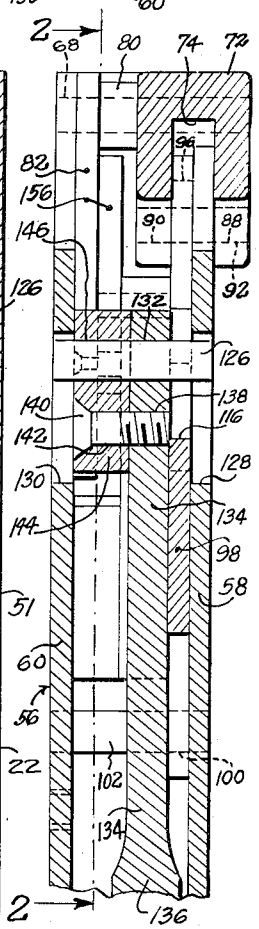


Fig. 3.

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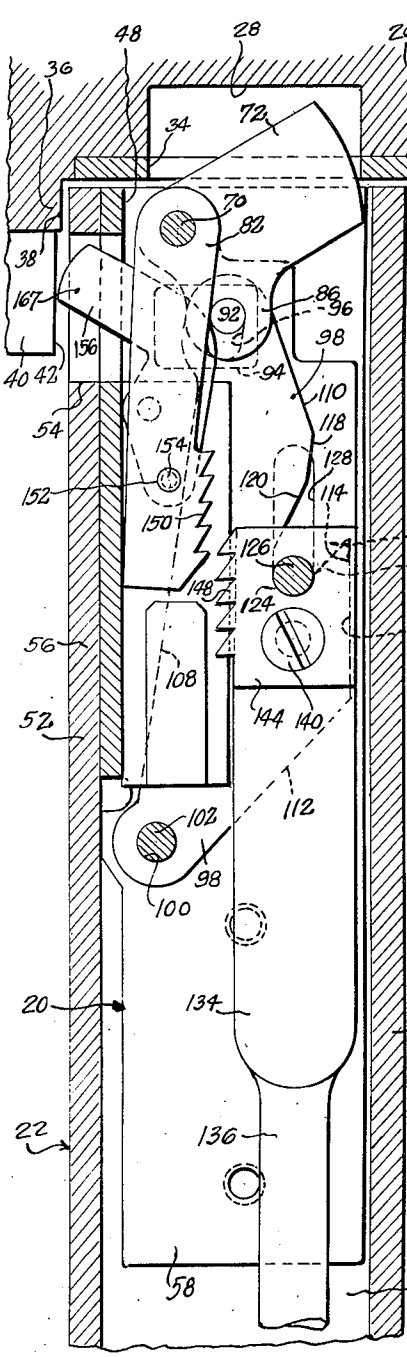


Fig. 6.

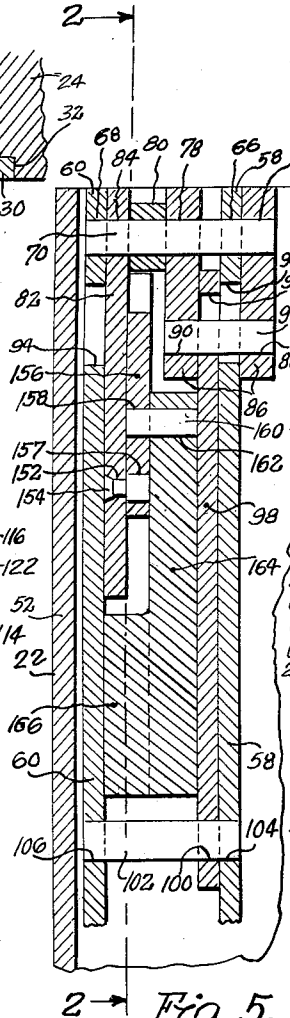


Fig. 5.

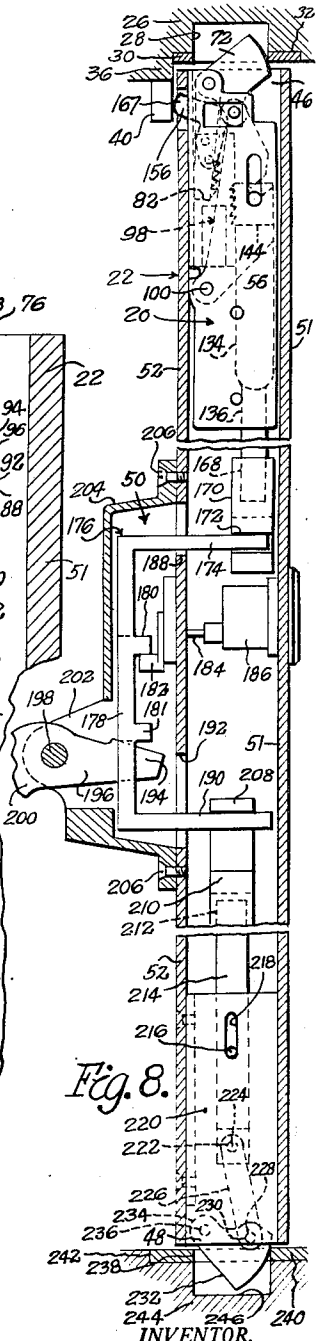


Fig. 8.

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LATCH UNIT FOR PANIC EXIT LOCK

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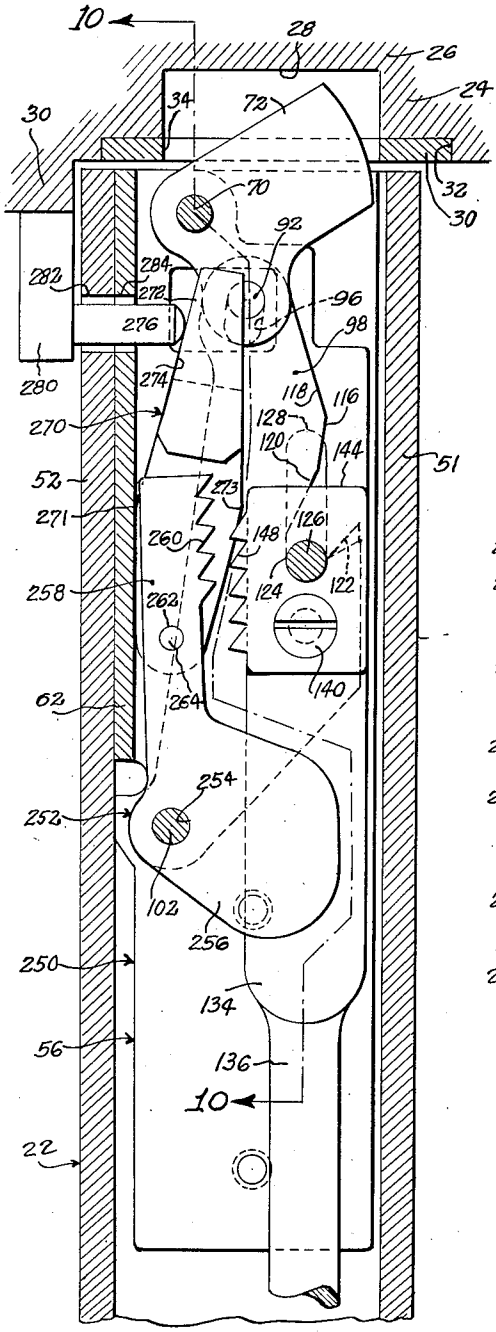


Fig. 9.

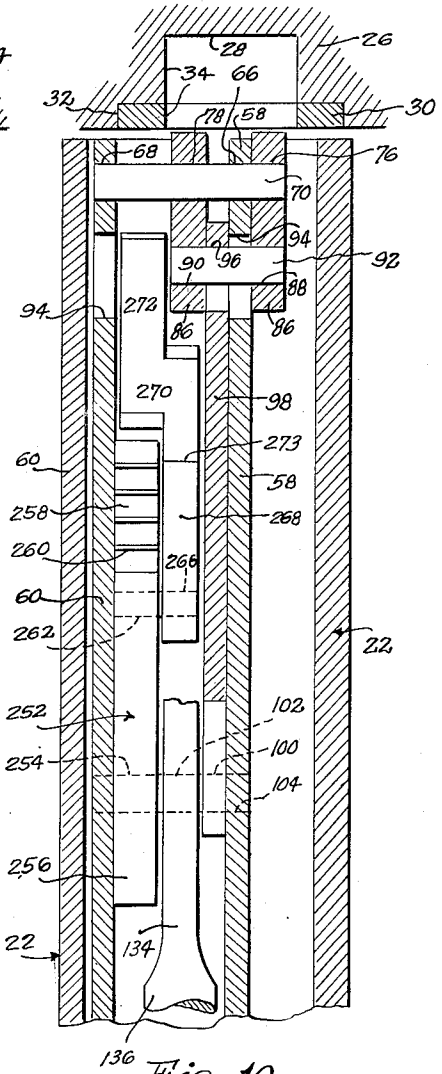


Fig. 10.

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LATCH UNIT FOR PANIC EXIT LOCK

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Application October 15, 1954, Serial No. 462,419

6 Claims. (Cl. 292—336)

This invention relates to locks and, in particular, to panic exit locks.

One object of this invention is to provide a dead-locking upper latch unit for a panic exit lock for doors of public buildings or the like, wherein the latching bolt is released to latch the door only when the door has reached its fully closed position, and wherein the latch bolt cannot be accidentally released and deadlocked before it reaches its fully closed position.

Another object is to provide a dead-locking latch unit for a panic exit lock wherein the latching bolt of the upper latch unit is operated by the force of gravity acting upon the weight of the rods and other vertically-reciprocating parts to urge the latch bolt into locking position, without requiring the use of the bolt-actuating springs of prior panic exit lock latch units.

Another object is to provide a dead-locking latch unit for a panic exit lock wherein the latch bolt is irreversibly locked in its raised position engaging the keeper at the top of the door frame when the door reaches its fully closed position, and cannot be pried open by the use of tools inserted in the crack between the door and the door frame.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawings, wherein:

Figure 1 is a front elevation, partly in section, with the door edge wall removed, of a gravity-operated dead-locking upper latch unit for a panic exit lock, according to one form of the invention, wherein the latch bolt is in its retracted position with the door open in the position shown in Figure 7;

Figure 2 is a vertical section similar to Figure 1, but in a parallel plane slightly farther in from the edge of the door, as taken along the lines 2—2 in Figures 3 and 5;

Figure 3 is a vertical section taken along the line 3—3 in Figure 2, in a plane at right angles to the section planes of Figures 1 and 2;

Figure 4 is a horizontal section taken along the line 4—4 in Figure 1;

Figure 5 is a vertical section taken along the line 5—5 in Figure 1, in a plane slightly nearer the front edge of the door and the section plane of Figure 3;

Figure 6 is a vertical section similar to Figure 1, but with the latch bolt in its extended or locking position after the door has reached its fully closed position within the door frame;

Figure 7 is a top plan view of the outer stile of a door equipped with the upper latch unit of Figure 1, with the parts in the position of Figure 1, nearing but not yet having reached the fully closed position of the door;

Figure 8 is a vertical section through the outer stile of a door equipped with the upper latch unit of Figures 1 to 7 inclusive, showing the lower latch unit and the remainder of the parts leading to the panic exit bar and to the cylinder lock by which the parts are locked and unlocked;

Figure 9 is a vertical section similar to Figure 6, through

the outer stile of a door equipped with a modification of the upper latch unit shown in Figures 1 to 8 inclusive; and

Figure 10 is a vertical section substantially at right angles to the section plane of Figure 9, taken along the line 10—10 in Figure 9.

Hitherto, the doors of public buildings have been equipped with so-called panic exit locks which, while easily opened from the inside of the building in the event of fire or other emergency, have been capable of being securely locked at night-time or outside business hours. Such so-called "panic" hardware of prior manufacture has been subject to the disadvantage of sometimes being accidentally projected into its locking or latching position before the door has reached its fully closed position, thereby causing the prematurely projected latch bolt to collide with the edge of the door frame, with consequent damage to both. For a latch bolt to be "dead-locking," i. e. to be irreversibly projected into its locking position without the capability of being pried back into its closed position by a screw driver or burglar's tool inserted in the crack between the door and the door frame, the latch bolt must be unyielding to externally-applied forces, hence this dead-locking characteristic increases the possibility of damage in the event of such accidental premature projection of the latch bolt under the circumstances just mentioned. Furthermore, many prior panic exit locks have required operating springs to provide the force necessary to shift the heavy parts thereof and project the upper and lower latch bolts of the upper and lower latching units into their latching positions.

The present invention provides a deadlocking upper latch unit for a panic exit lock wherein the latch bolt cannot be accidentally released prematurely, and wherein the above-mentioned damage cannot occur, means being provided to prevent release of the latching bolt until the door has reached its fully closed position within the door frame. Moreover, the parts of the latch unit of the present invention are fully operative by the weight of the rods and other vertically-reciprocating parts, without the need for additional operating springs other than the possible provision of a spring to retract the panic exit bar on the inside of the door. According to one form of the invention (Figures 1 to 8 inclusive), the upper latch unit is provided with a finger which projects through an aperture in the upper inner wall of the door in the unlatched position of the door, and engages the door frame or a strike plate thereon only when the door has substantially reached its fully closed position. According to another form of the invention (Figures 9 and 10), the latch bolt releasing mechanism is operated by a stop pin projecting outwardly from the strike plate on the door frame and adapted to pass through an aperture in the upper inner wall of the door into engagement with the latch bolt releasing mechanism to automatically release the latch bolt only when the door has substantially reached its fully closed position.

Referring to the drawings in detail, Figures 1 to 8 inclusive show an upper latch unit, generally designated 20, according to one form of the invention as mounted in the outer edge of a hollow metal door 22 (Figure 8) which slides into and out of a door frame 24. The door frame 24 has a lintel 26 (Figures 6 and 8) containing a latch bolt recess 28 framed by a keeper plate 30 set into a shallow recess 32 surrounding the bolt recess 28 and having an opening 34 aligned with the recess 28. The lintel 26 of the door frame 24 also has an abutment portion 36 forming a door stop with a surface 38 engaged by the door 22. Secured to and extending downwardly from the lintel 26 of the door frame 24 is a strike plate 40 having a strike surface 42 for actuating the release mechanism of the upper bolt unit 20.

The door 22 and its frame 24 are conventional and their details are beyond the scope of the present invention. Although a hollow metal door has been shown for purposes of illustration, it will be understood that doors of other materials, such as wood, are also contemplated as adapted to the installation of the present invention. The door 22 has been shown as having a chamber 44 extending from top to bottom thereof and apertures 46 and 48 at the top and bottom thereof, the chamber 44 housing the major portion of the mechanism of a panic exit device, generally designated 50, of which the upper latch unit 20 forms a part. The door 22 has front and rear walls 51 and 52, the rear wall or inside wall 52 being provided with an aperture 54 near the top through which the release mechanism of the upper latch unit 20 engages the strike plate 40.

Secured in any suitable way to the door 22 within the upper end of the chamber 44 is an upper case 55 of channel or U-shaped cross-section (Figures 4 and 7) formed of sheet metal and having parallel opposite side walls 58 and 60 interconnected by an end wall 62. The end wall 62 is provided with an aperture 64 aligned with the aperture 54 in the door 22 and for the same purpose. The opposite side walls 58 and 60 are drilled with aligned holes 66 and 68 respectively (Figure 5) for the reception of a pivot pin 70. Pivotally mounted on the pin 70 is a latch bolt 72 having a slot or groove 74 therein with transverse holes 76 and 78 opening into the slot for the reception of the pivot pin 70, which it loosely and pivotally engages. Also mounted on the pivot pin 70 is a spacing washer 80 separating the latch bolt 72 from the upper end or hub of a latch holdback lever 82 which is also bored as at 84 to loosely and pivotally receive the pivot pin 70.

The bolt 72 is provided with a downwardly-extending lug 86 (Figure 6) through which the slot or groove 74 also extends and which is drilled transversely as at 88 and 90 to receive a pin 92 (Figures 3 and 5). The pin 92 swings to and fro within an opening 94 in the casing side wall 58, and passes through an elongated slot 96 in the upper end of an approximately triangular bolt-actuating lever 98, the lower end of which is bored as at 100 to receive a pivot pin 102 having its opposite ends seated in aligned bores 104 and 106 in the opposite side walls 58 and 60 of the casing 56. The bolt-actuating lever 98 has a hypothenuse edge 108 extending approximately from adjacent the slot 96 to adjacent the pivot pin hole 100, and upper and lower converging edges 110 and 112 respectively (Figure 6) disposed at acute angles to the hypothenuse edge 108. The edge 112 continues upward in an edge 114 which is almost but not quite parallel to the hypothenuse edge 108.

Formed in the bolt-actuating lever 98 and extending inward between the edges 110 and 114 thereof is a notch 116 having outer and inner upper edge portions 118 and 120 and a lower edge portion 122 converging toward the upper edge portion 120 and meeting it in an inner or dead-locking notch portion 124, the sides of which are substantially parallel to the edge 114. The inner notch portion 124 constitutes the dead-locking notch by which the latch bolt 72 is held in its extended position and prevents restriction of the latch bolt 72 by the use of a screw driver or burglar's tool inserted in the crack between the upper end of the door 22 and the keeper 30, as explained below in connection with the operation of the invention.

Engageable with the various portions of the notch 116 is a deadlocking pin 126, the outer ends of which engage aligned vertical elongated guide slots 128 and 130 (Figure 3). The deadlocking pin 126 is mounted solidly in a transverse hole 132 in the narrowed upper end portion 134 of an upper bolt-operating rod 136 which extends downward to the remainder of the mechanism shown in Figure 8. The rod 134 is drilled and threaded transversely as at 138 (Figure 3) to receive a screw 140 which passes through a hole 142 in a toothed rod stop 144, securing the latter to the rod 136. The toothed rod stop 144 also is provided with a hole 146 for the passage of the pin 126. Downwardly-angled saw teeth 148 are provided on one edge of the rod stop 144 for engagement with corresponding but upwardly angled saw teeth 150 on the lower end of the latch hold-back lever 82. The latter is bored as at 152 to receive a pivot pin 154 upon which a boomerang-shaped release lever 156 is pivotally mounted as at 157 (Figure 5). The release lever 156 (Figure 5) in turn is bored as at 158 to receive a pin 160 which passes through a hole 162 in the upper end of a vertically-reciprocating counterweight or compensator 164 in the form of a narrow vertical plate having an integral weight portion 166 projecting laterally from its lower portion (Figures 1 and 6). The release lever 156 has a contact arm 167 projecting through the apertures 54 and 64 and adapted to engage the strike plate 40 when the door 22 closes.

The upper latch unit 20 is connected to the remainder of the panic exit lock mechanism of the panic exit device 50 (Figure 8) by the elongated downwardly-extending rod 136, the lower end of which is threaded or otherwise secured in a socket 168 in the upper end of a connecting member 170 having a notch or slot 172 therein engaging the upper arm 174 of an E-shaped member 176, the central portion 178 of which is provided with spaced lugs 180 and 181, one of which is engaged by the crank arm 182 operated by the rotatable rod 184 extending into engagement therewith from the operating mechanism of a key-actuated conventional cylinder lock 186 mounted in the outer or front wall 51 of the door 22. Rotation of the key in the cylinder lock 186 rotates the rod 184 and swings the crank arm 182 to engage the lug 180 in order to raise the E-member 176.

The upper arm 174 of the E-member 176 passes through an aperture 188 in the inner wall 52 of the door 22, and a lower arm 190 thereof passes through a similar aperture 192 in the door wall 52. The apertures 188 and 192 are elongated to permit the necessary up-and-down travel of the E-member 176. The other lug 181 of the E-member 176 is engaged by the inner end portion 194 of the arm 196 mounted on the pivots 198 (one only of which is shown) connected to the panic bar 200, the pivots 198 being mounted in ears 202 (one only being shown) in an auxiliary casing 204 secured as at 206 to the inner wall 52 of the door 22 (Figure 8). The panic bar 200 and its associated parts are also conventional and are beyond the scope of the present invention.

The lower arm 90 of the E-member 176 engages a projection 208 on the upper end of a member 210 having in its lower end a socket 212 into which is threaded or otherwise secured a lower bolt-operating rod 214 (Figure 8). The latter is drilled transversely to receive a guide pin 216 which reciprocated vertically in guide slots 218 (one only of which is shown) in a channel-shaped casing 220 of U-shaped cross-section similar to the upper latch bolt casing 56. The lower end of the rod 214 is drilled as at 222 to receive a pivot pin 224 which pivotally engages the upper end of a link 226, the lower end of which pivotally engages a pivot pin 228 which passes through a hole 230 in a lower latch bolt 232. The latter has a boss or lug 234 thereon drilled to receive a pivot pin 236 mounted in the opposite side walls of the channel casing 220. The bolt 232 swings through an aperture 238 in a keeper 240 mounted in a recess 242 in the floor 244, which has a recess 246 corresponding in outline to the aperture 238 for receiving the latch bolt 232.

In the operation of the form of the invention shown in Figures 1 to 8 inclusive, let it be assumed that the door 22 containing the upper latch unit 20 is in its open position, but in the process of being closed, with the door 22 nearing its closed position shown in Figure 7. Let it, of course, also be assumed that the latch bolt 72 is in its retracted position as in Figure 1, that the bolt-operating rod 136 is latched up in its raised position by the inter-engagement of the teeth 148 of the rod stop 144 with the corresponding teeth 150 of the latch

holdback lever 82, and with the contact arm 167 projecting through the apertures 54 and 64 in the door side wall 52 and casing wall 62 respectively.

As the door reaches its closed position (Figure 7), the contact arm 167 of the latch-releasing lever 156 engages the strike plate 40, and is pushed backward into the door (Figure 6), swinging the latch-releasing lever 156 about its pivot pin 160 on the counterweight 164. This action swings the lower ends of the lever 156 outward, thereby swinging the pivot pin 154 and the lower end of the latch holdback lever 82 outward, withdrawing the teeth 150 thereof from engagement with the teeth 148 of the rod stop 144, releasing the latter. As a result, the weight of the latch-operating rod 136 and its associated parts causes the rod 136 to drop into the position of Figure 6, pulling the pin 126 carried thereby downwardly along the portions 122 of the notch toward the dead-locking notch portion 124. The camming action of the pin 126 upon the notch edge 122 forces the triangular lever 98 to swing clockwise around its pivot pin 102, causing the elongated slot 96 to exert a camming action upon the pin 92 in the lug 86 at the bottom of the latch bolt 72, swinging the latch bolt 72 upward around its pivot pin 70 from the position shown in Figure 1 to the position shown in Figures 6 and 8. In the latter position, the latch bolt 72 has passed through the aperture 34 of the keeper 30 into the recess 28 in the lintel 26 of the door frame 24.

Meanwhile, the pin 126 carried by the top portion 134 of the upper bolt-operating rod 136 has moved further down the inclined notch edge 122 into the dead-locking notch portion 124 at the bottom of the notch 116. In this position, the pin 126 positively prevents reverse swinging of the bolt 72 and triangular lever 98 by the action of a screw driver or burglar's tool inserted in the crack between the top of the door 22 and the keeper 30, making the latching action irreversible. While this has been going on, the dropping of the upper bolt-operating rod 136 from the position of Figure 1 to that of Figures 6 and 8 transmits this downward motion through the notched member 170 (Figure 8) to the upper arm 174 of the E-member 176, the lower arm 190 of which moves downward, permitting the member 210 and lower bolt-operating rod 214 likewise to move downward. The downward motion of the rod 214, guided by the pin 216 in the guide slots 218, by the action of the link 226 swings the lower latch bolt 232 downward around its pivot pin 236 through the aperture 238 in the lower keeper 242 into the recess 246 in the floor 244, thereby locking the door 22 at both top and bottom.

To unlock the door 22 and retract the latch bolts 72 and 232 from their respective keepers 30 and 242, the operator inserts the proper key in the cylinder lock 186 (Figure 8) and, by rotating the key, rotates the rod 184 and swings the crank 182 upward, consequently moving the E-member 176 upward by the engagement of the crank 182 with the lug 180. The upward motion of the E-member 172 by its engagement with the notched members 170 and 210 on the ends of the upper and lower bolt-operating rods 136 and 214 respectively, moves both of these rods upward. The upward motion of the lower bolt-operating rod 214 swings the lower bolt 232 upward through the aperture 238 in the lower keeper 242 into the chamber 44 of the door 22, unlocking the lower end of the door.

Meanwhile, the upward motion of the upper bolt-operating rod 136 pushes the pin 126 (Figure 6) upward out of the dead-locking notch portion 124 of the notch 116 and along the notch edges 120 and 118, thereby camming the triangular bolt-operating lever 98 to swing counterclockwise to the left. The consequent left-ward swinging of the elongated slot 96 in the upper end of the triangular lever 98 by a camming action on the latch bolt pin 92 swings the latch bolt 72 downward out of its keeper 30 about its pivot pin 70 from the extended position of Figure 6 into the retracted position of Figures 1 and 2. Immediately thereafter, as the operator pulls the thus-unlocked door 22 open, the contact arm 167 of the bent release lever 156 becomes disengaged from the surface 42 of the strike plate 40, and is swung clockwise round its upper pivot pin 160 by the downward gravitational pull of the counterweight 164 to which the pin 160 is attached. At the same time, this counterclockwise swinging of the bent release lever 156 moves the lower pivot pin 154 to the right, swinging the lower end of the latch holdback lever 82 to the right, bringing its saw teeth into engagement with the saw teeth 148 of the rod stop 144 attached to the upper end portion 134 of the upper bolt-operating rod 136. The downwardly-inclined constructions of the saw teeth 148 and 150 respectively enable them to slide past one another while the rod stop 144 is being moved upward by the upward motion of the upper bolt-operating rod 136, but to positively engage the instant the rod 136 and rod stop 144 start to drop back in a downward direction. This action (Figure 1) latches the upper bolt-operating rod 136 in its raised position, the latch bolt 72 in its lower or retracted position, and the release lever 156 in the projected position of its contact arm 167.

The modified upper latch unit, generally designated 250, shown in Figures 9 and 10 in its locked position, is in many respects similar in construction and operation to the upper latch unit 20 shown in Figures 1 to 8 inclusive, similar and corresponding parts being designated with the same reference numerals. In particular, as shown by comparing Figure 1 with Figure 6, the two latch units 20 and 250 are similar in the construction and mounting of the U-shaped or channel cases 56, the latch bolts 72 with their pivot pins 70 and 92, the triangular bolt-operating lever 98 with its upper elongated slot 96 and its lower pivot pin 102 and its intermediate notch 116 with the upper camming portions 118 and 120 and the lower camming portion 122 converging toward the dead-locking notch portion 124. The rod stock 144 is also similar in the two forms of the invention.

The modified upper latch unit 250, however, is provided with a latch hold-back lever 252 which differs from the latch hold-back lever 82 of Figure 6 in that it is bored as at 254 to receive the lower pivot pin 102 on which the triangular lever 98 is mounted. Below and to the right of the bore 254, the lever 252 is provided with a counterweight portion 256 and above it a latching arm 258 extending upward and terminating on its inner edge in upwardly-inclined saw teeth 260. The latch holdback lever 258 thus has the approximate shape of a rudder of a small sail boat (Figure 9). The upper arm 258 of the latch hold-back lever 252 is drilled as at 262 to receive a pivot pin 264 which also enters an aligned bore 266 (Figure 10) in the lower or offset arm 268 of a coffin-shaped swinging release lever 270 having fulcrums 271 and 273 pivotally engageable respectively with the casing portion 62 and the top portion 134 of the rod 136. The release lever 270 has an upper arm 272 with a forward edge 274 adapted to be engaged by a strike pin 276 attached to a strike plate 280 similar to the strike plate 40 and similarly mounted beneath the portion 30 of the door frame 24. The strike pin 276 passes through apertures 282 and 284 respectively in the inner door side wall 52 and connecting portion 62 of the channel case 56 respectively.

In the operation of the modifier upper latch unit 250, let it again be assumed that the door 22 is in its open position and nearing the closed position thereof, with the bolt 72 retracted and with the release lever 270 swung into its left-hand position, with the saw teeth 260 of the latch holdback lever 252 engaging the saw teeth 148 of the rod stop 144 in the raised and latched-up position of the upper bolt-operating rod 136, the positions of the parts being the opposite of those shown in Figures 9 and

10, and analogous to those shown in Figures 1 and 2. As the door 22 swings into its closed position, the strike pin 276 on the strike plate 280 enters the holes 282 and 284 and engages and pushes to the left the upper arm 272 of the release lever 270, swinging it clockwise to the right around the fulcrum 273 into the position shown in Figure 9. This action swings the upper arm 258 of the latch holdback lever 252 counterclockwise around the pivot pin 201 by the engagement of the pin 264 therewith, withdrawing the saw teeth 260 from engagement with the saw teeth 148.

The rod stop 144, when thus released, permits the upper bolt-operating rod 136 to drop, carrying with it the pin 126. The latter cams the lower edge 122 of the notch 116 as before, swinging the triangular lever 98 clockwise to the right, so that its upper elongated slot 96 cams the latch bolt pin 92 to the right to swing the latch bolt 72 upward around its pivot 70 through the keeper aperture 34 into the recess 28, locking the door. Meanwhile, the pin 126 moves downward into the dead-locking notch portion 124, preventing reverse movement of the latch bolt 72 by prying with a screw driver or burglar's tool. The upper bolt operating rod 136 operates the remainder of the mechanism shown in Figure 8 in the same manner as described in connection with the operation of the form of the invention shown in Figures 1 to 8 inclusive.

The opening of the door follows the reverse procedure in the operation of the modified upper latch unit 250. As the door 22 is swung to the right in Figure 9, it moves away from the strike pin 276, permitting the counterweight and release lever 270 to swing counterclockwise around its fulcrum 271 against the casing wall 62. The upward motion of the upper bolt-actuating rod 136 in response to the turning of the key by the operator in the cylinder lock, as described above, and the consequent camming action of its pin 126 against the upper cam edges 120 and 118 of the notch 116, swing the triangular lever 98 counterclockwise around its pivot pin 102, retracting the latch bolt 72 from its keeper 32 by swinging it downward about its pivot 70 as a result of the camming action of the elongated slot 96 of the triangular lever 98 agains the latch bolt pin 92. The release of the release lever 270 by the strike pin 276 permits the counterweight 256 of the latch holdback lever 252 to swing the latter clockwise, moving its saw teeth 260 into engagement with the saw teeth 148 of the rod stop 144, latching the upper bolt-operating rod 136 in its raised position.

Thus, in either of the two forms of the invention shown in Figures 1 to 8 inclusive, and Figures 9 and 10, it is impossible for the latch to be released and prematurely dead-locked before it reaches the door frame, as has been possible with prior types of panic exit locking devices. The applicant's upper latch unit 20 or 250 does not release the upper bolt-operating rod 136 from its latched-up position until the engagement is made with the strike plate 40 or strike pin 276 as the door 22 reaches its fully closed position within the door frame. Consequently, no damage can be done by the bolt being projected prematurely before the door has entered the door frame, as in prior types of panic exit locks.

What I claim is:

1. A panic exit lock latch unit for cooperating door and door frame structures comprising a latch unit supporting structure adapted to be mounted near the upper edge of said door structure, a latch bolt movably mounted on said supporting structure for movement between unlocked and locked positions below and above said upper edge respectively, a bolt-shifting member mounted on one of said structures for vertical reciprocation relatively thereto, motion-transmitting mechanism operatively connecting said member to said bolt and responsive to the downward reciprocation of said member to move said bolt upward into locking position above said upper edge, a detent catch mounted on said bolt-shifting member and reciprocable therewith, a detent movably mounted on said supporting structure for travel into and out of detaining engagement with said catch in the raised position of said member, yielding means normally urging said detent into detaining engagement with said catch, and a detent actuator mounted on one of said structures operatively engaging and moving said detent out of detaining engagement with said catch in response to the closing engagement of said door structure with said door frame structure whereby to release said member and bolt.

2. A panic exit lock latch unit for cooperating door and door frame structures comprising a latch unit supporting structure adapted to be mounted near the upper edge of said door structure, a latch bolt movably mounted on said supporting structure for movement between unlocked and locked positions below and above said upper edge respectively, a bolt-shifting member mounted on one of said structures for vertical reciprocation relatively thereto, motion-transmitting mechanism operatively connecting said member to said bolt and responsive to the downward reciprocation of said member to move said bolt upward into locking position above said upper edge, a detent catch mounted on said bolt-shifting member and reciprocable therewith, a detent including an arm pivotally mounted on said supporting structure for travel into and out of detaining engagement with said catch in the raised position of said member, yielding means normally urging said detent into detaining engagement with said catch, and a detent actuator mounted on one of said structures operatively engaging and moving said detent out of detaining engagement with said catch in response to the closing engagement of said door structure with said door frame structure whereby to release said member and bolt.

3. A panic exit lock latch unit for cooperating door and door frame structures comprising a latch unit supporting structure adapted to be mounted near the upper edge of said door structure, a latch bolt movably mounted on said supporting structure for movement between unlocked and locked positions below and above said upper edge respectively, a bolt-shifting member mounted on one of said structures for vertical reciprocation relatively thereto, motion-transmitting mechanism operatively connecting said member to said bolt and responsive to the downward reciprocation of said member to move said bolt upward into locking position above said upper edge, a detent catch mounted on said bolt-shifting member and reciprocable therewith, a detent movably mounted on said supporting structure for travel into and out of detaining engagement with said catch in the raised position of said member, yielding means normally urging said detent into detaining engagement with said catch, and a detent actuator mounted on one of said structures operatively engaging and moving said detent out of detaining engagement with said catch in response to the closing engagement of said door structure with said door frame structure whereby to release said member and bolt, said detent catch and said detent having mutually-engageable teeth thereon engageable with one another.

4. A panic exit lock latch unit for cooperating door and door frame structures comprising a latch unit supporting structure adapted to be mounted near the upper edge of said door structure, a latch bolt movably mounted on said supporting structure for movement between unlocked and locked positions below and above said upper edge respectively, a bolt-shifting member mounted on one of said structures for vertical reciprocation relatively thereto, motion-transmitting mechanism operatively connecting said member to said bolt and responsive to the downward reciprocation of said member to move said bolt upward into locking position above said upper edge, a detent catch mounted on said bolt-shifting member and reciprocable therewith, a detent including an arm

pivotally mounted on said supporting structure for travel into and out of detaining engagement with said catch in the raised position of said member, yielding means normally urging said detent into detaining engagement with said catch, a detent actuator mounted on one of said structures operatively engaging and moving said detent out of detaining engagement with said catch in response to the closing engagement of said door structure with said door frame structure whereby to release said member and bolt, said detent catch and said arm having mutually-engageable teeth thereon engageable with one another.

5. A panic exit lock latch unit for cooperating door and door frame structures comprising a latch unit supporting structure adapted to be mounted near the upper edge of said door structure, a latch bolt movably mounted on said supporting structure for movement between unlocked and locked positions below and above said upper edge respectively, a bolt-shifting member mounted on one of said structures for vertical reciprocation relatively thereto, motion-transmitting mechanism operatively connecting said member to said bolt and responsive to the downward reciprocation of said member to move said bolt upward into locking position above said upper edge, a detent catch mounted on said bolt-shifting member and reciprocable therewith, a detent movably mounted on said supporting structure for travel into and out of detaining engagement with said catch in the raised position of said member, yielding means normally urging said detent into detaining engagement with said catch, and a detent actuator mounted on one of said structures operatively engaging and moving said detent out of detaining engagement with said catch in response to the closing engagement of said door structure with said door frame structure whereby to release said member and bolt, said detent catch and said detent having mu-

tually-engageable ratchet teeth thereon detainingly engageable with one another in a downward direction of motion of said member and slidable past one another in an upward direction of motion thereof.

6. A panic exit lock latch unit for cooperating door and door frame structures comprising a latch unit supporting structure adapted to be mounted near the upper edge of said door structure, a latch bolt movably mounted on said supporting structure for movement between unlocked and locked positions below and above said upper edge respectively, a bolt-shifting member mounted on one of said structures for vertical reciprocation relatively thereto, motion-transmitting mechanism operatively connecting said member to said bolt and responsive to the downward reciprocation of said member to move said bolt upward into locking position above said upper edge, a detent catch mounted on said bolt-shifting member and reciprocable therewith, a detent movably mounted on said supporting structure for travel into and out of detaining engagement with said catch in the raised position of said member, yielding means normally urging said detent into detaining engagement with said catch, a detent actuator mounted on one of said structures operatively engaging and moving said detent out of detaining engagement with said catch in response to the closing engagement of said door structure with said door frame structure whereby to release said member and bolt, said supporting structure having an aperture therein, and a pusher element adapted to be mounted on said door frame structure and adapted to project through said aperture into operative engagement with said actuator.

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