United States Patent [19]

Goodwin

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[45] **Sept. 23, 1975**

[54] **DOOR LOCKING STRUCTURE**

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[21] Appl. No.: **418,196**

[52] **U.S. Cl.** **292/33;** 292/36; 292/144; 292/179

[51] **Int. Cl.**[2] **E05C 1/02**

[58] **Field of Search** 292/179, 33, 36, 40, 37, 292/144; 70/432, 118

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Primary Examiner—Robert L. Wolfe
Attorney, Agent, or Firm—Clarence A. O'Brien; Harvey B. Jacobson

[57] **ABSTRACT**

A sliding bolt door locking structure is provided wherein a manual handle is utilized to actuate the sliding bolt or bolts into operative position and a solenoid actuated release is provided for releasing the bolt or bolts for movement under spring-biasing action to the retracted or inoperative positions. The solenoid actuated release structure includes spring members by which the release structure is automatically shifted to the applied position in response to manual shifting of the locking bolts to their active positions and the solenoids are actuated in order to retract the release structure against the biasing force of the associated spring members in order to allow the latch bolt or bolts to shift under the biasing action of their associated springs to the retracted positions. The solenoids of the door locking structure may be actuated by any suitable control such as the door lock push button control disclosed in my copending application U.S. Ser. No. **371,418,** filed June **19, 1973.**

10 Claims, 16 Drawing Figures

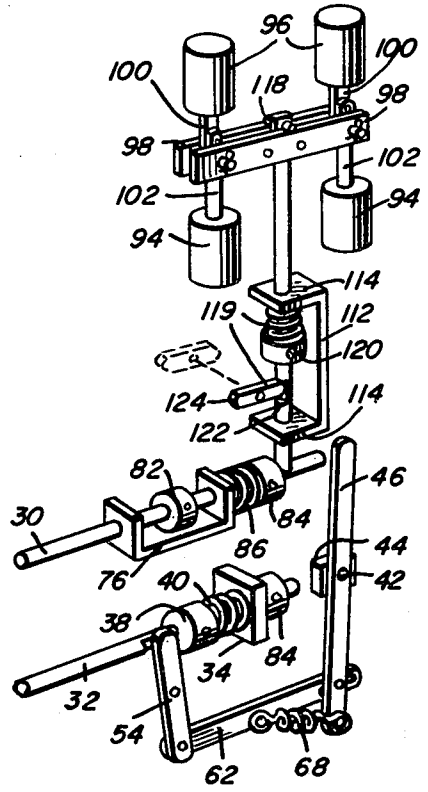


Fig. 1

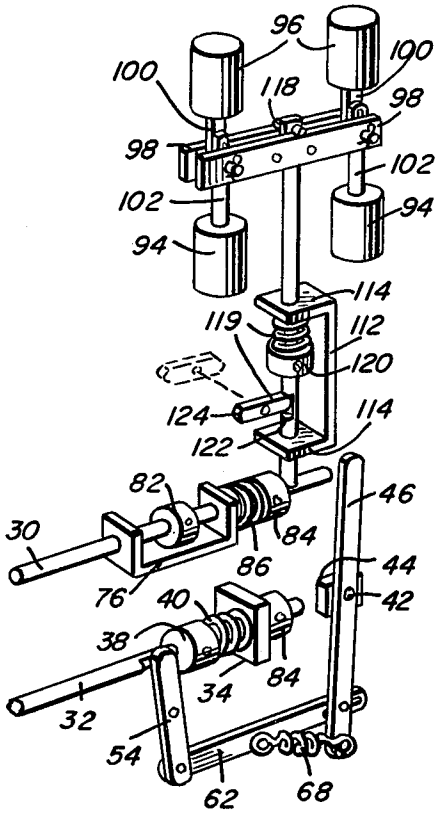


Fig. 5

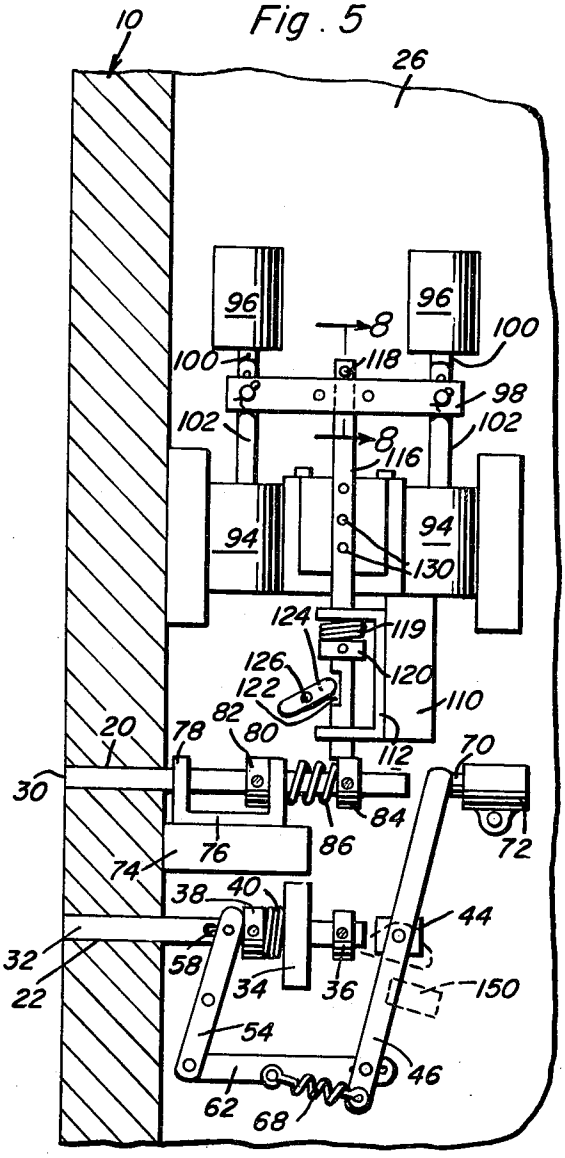


Fig. 6

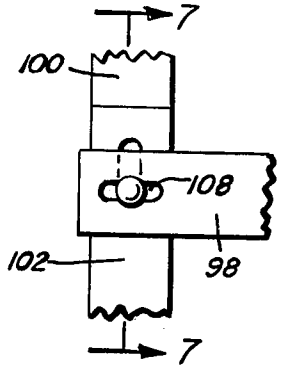


Fig. 7

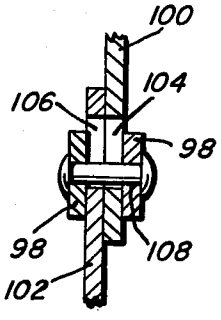


Fig. 8

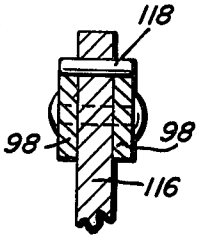


Fig. 2

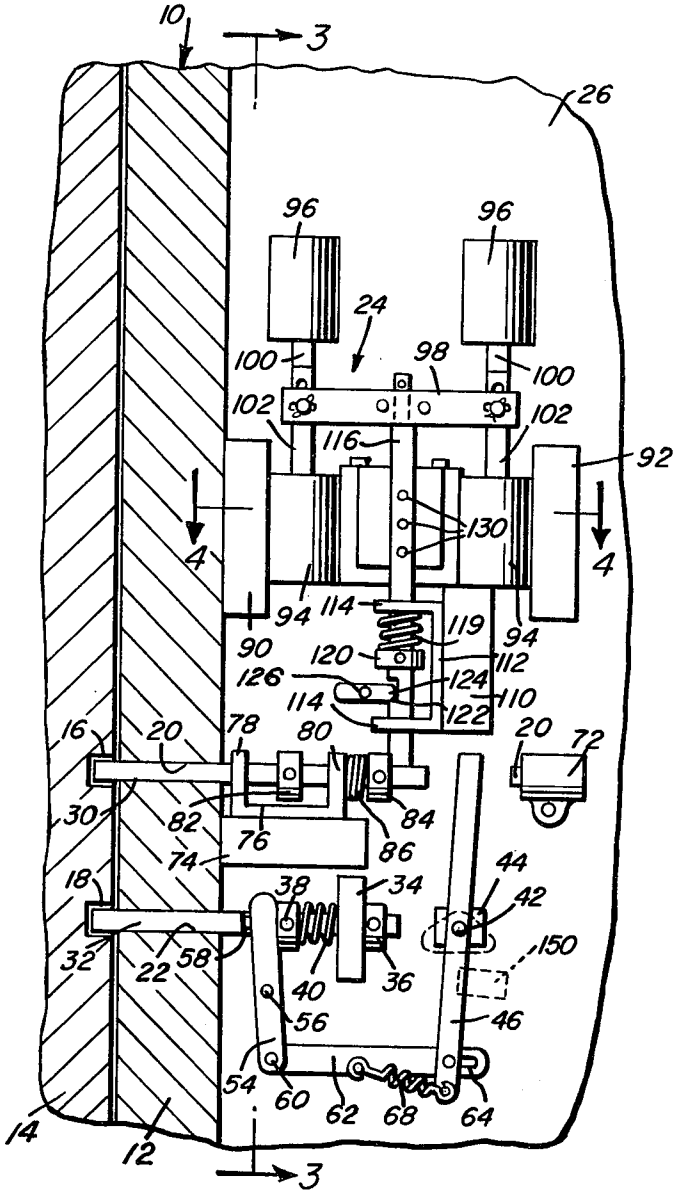


Fig. 3

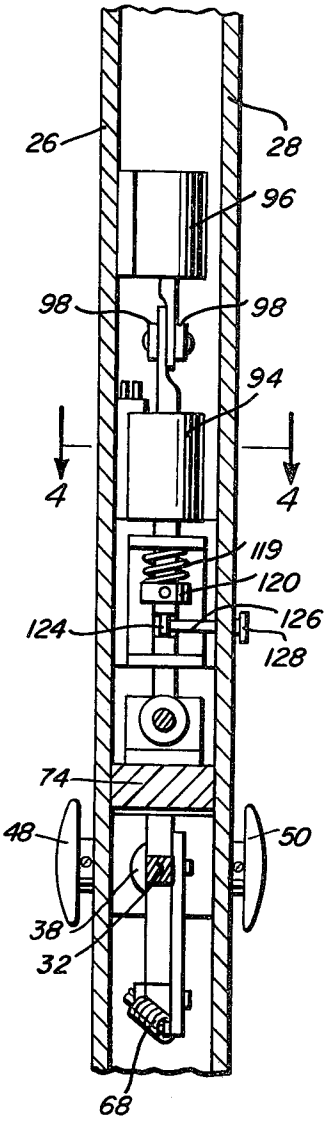


Fig. 4

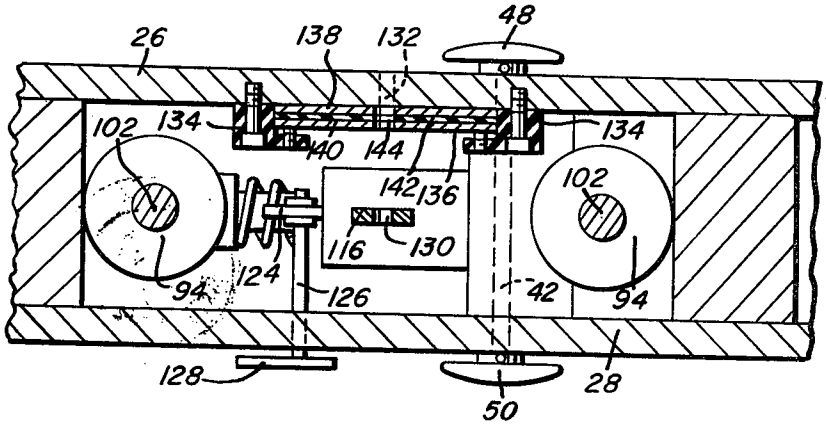


Fig. 9

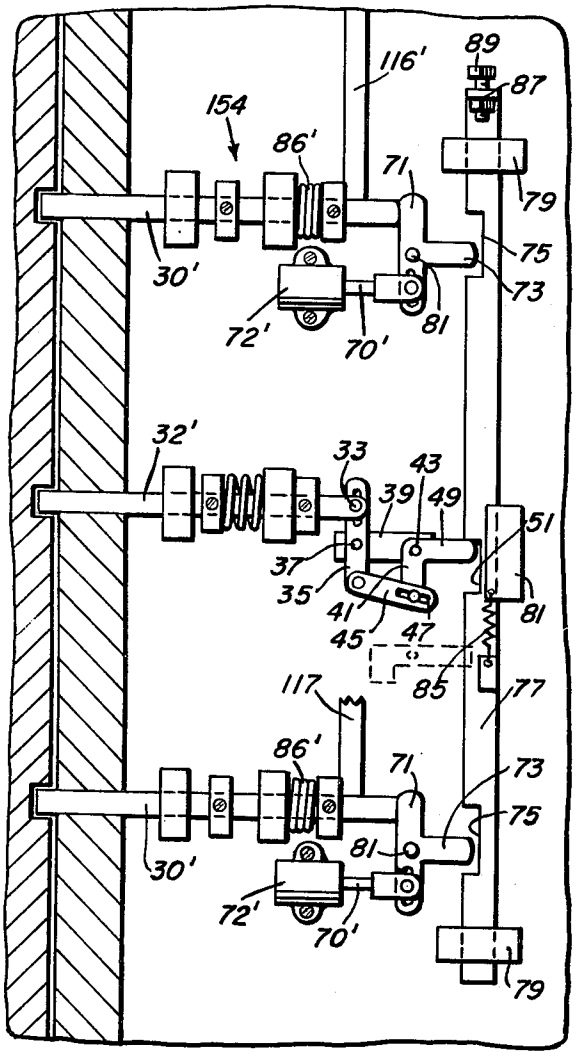


Fig. 10

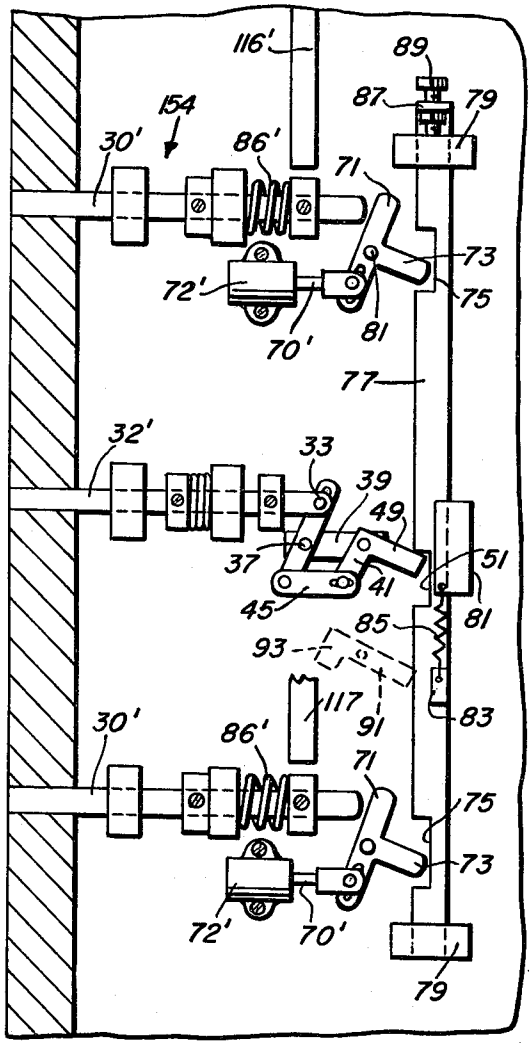


Fig. 13A

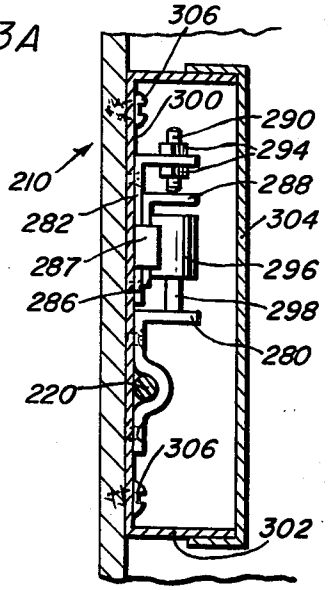


Fig. 15

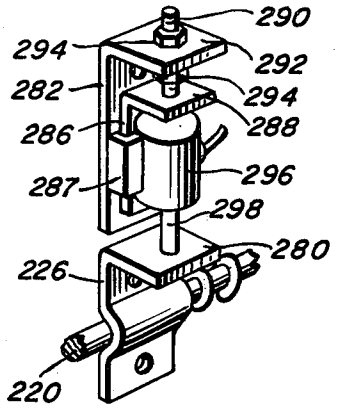


Fig. 11

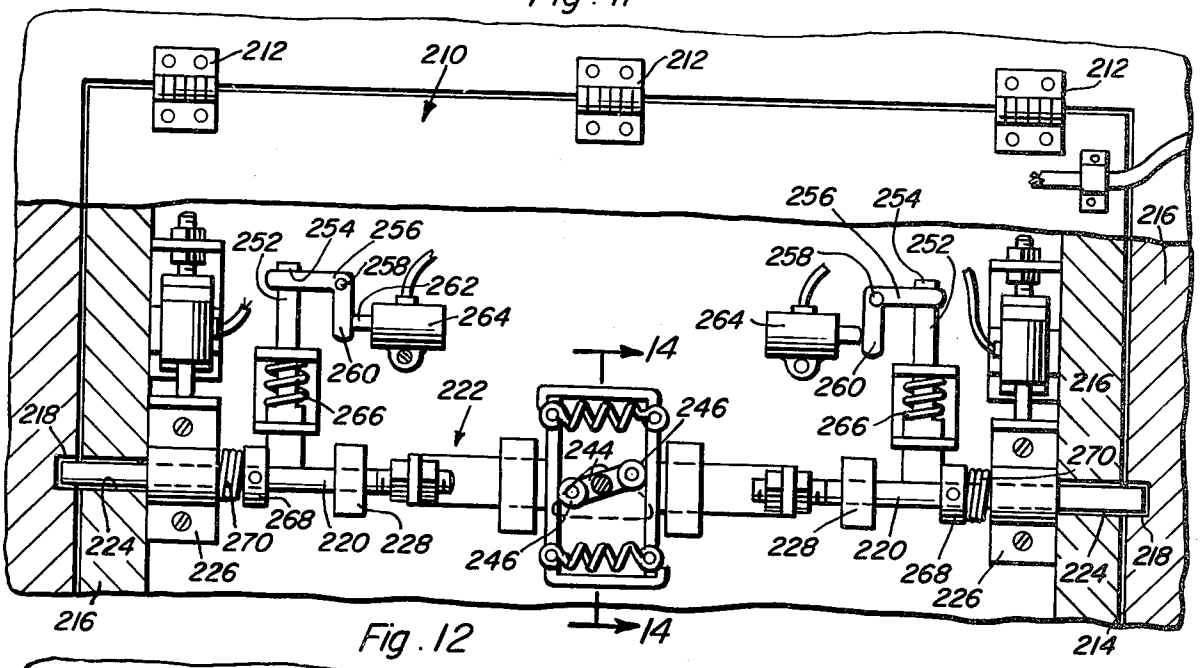


Fig. 12

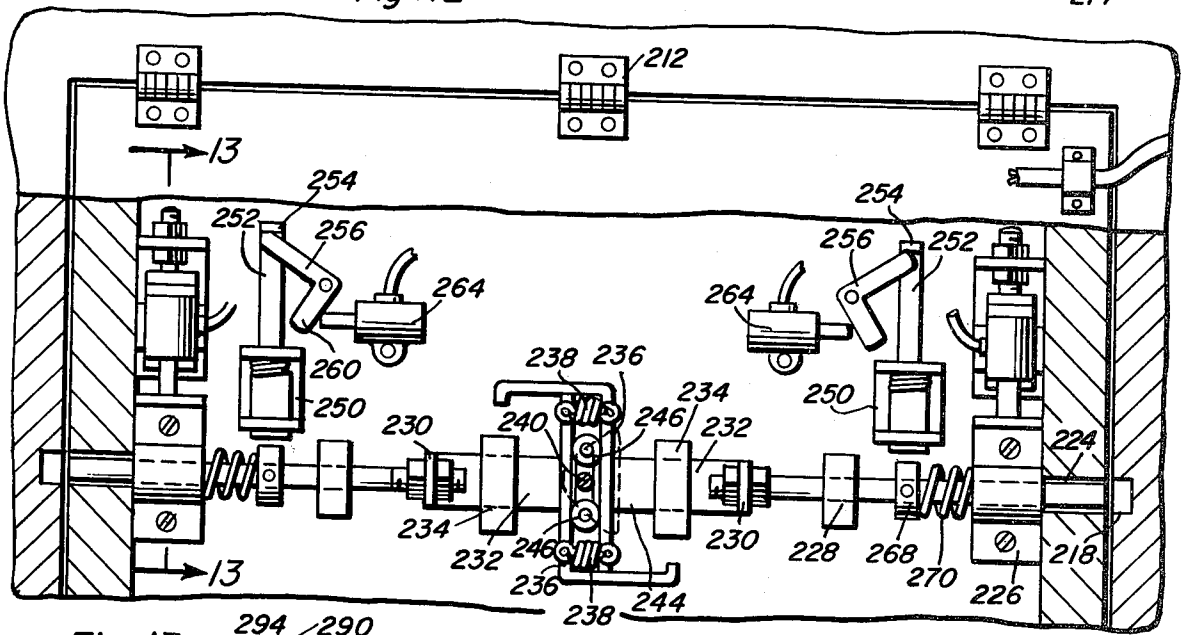


Fig. 13

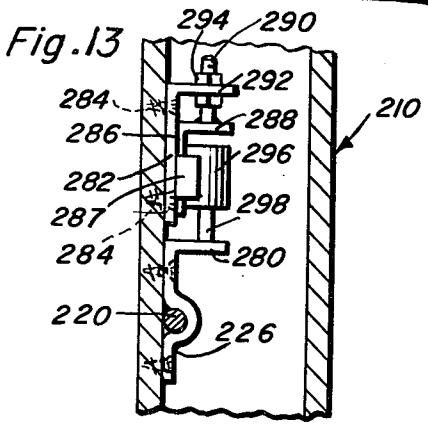
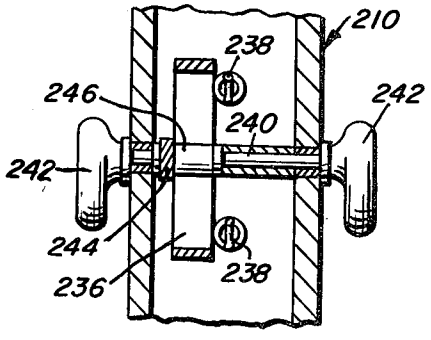


Fig. 14



DOOR LOCKING STRUCTURE

The door locking structure of the instant invention has been primarily designed to provide a dependable security-type door locking system which will be substantially tamper-proof and which will include alarm systems actuatable under various different attempts at unauthorized opening of the associated door.

The main object of this invention is to provide a security-type door locking structure which will be capable of resisting all but the most extensive unauthorized attempts to open an associated door.

Another object of this invention, in accordance with the immediately preceding object, is to provide a door locking structure which may be manually locked and will require electrical actuation in order to allow the associated door to be opened.

A still further object of this invention is to provide a door locking structure of a design such that it may be utilized on substantially any door, either as an addition thereto or as a component manufactured into the door.

A final object of this invention to be specifically enumerated herein is to provide a door locking structure in accordance with the preceding objects which will conform to conventional forms of manufacture, be of simple construction and dependable in operation so as to provide a device that will be economically feasible, long lasting and relatively trouble free.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

FIG. 1 is a perspective view of a first form of door locking structure constructed in accordance with the present invention;

FIG. 2 is an enlarged fragmentary vertical sectional view of the free swinging edge of a door and an associated jamb structure with the door locking structure illustrated mounted within the door and the door latching and locking components of the door locking structure in the active position;

FIG. 3 is a vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of FIG. 2;

FIG. 4 is an enlarged fragmentary horizontal sectional view taken substantially upon the plane indicated by the section line 4—4 of FIG. 3;

FIG. 5 is a vertical sectional view similar to FIG. 2 but with the door latching and locking components illustrated in the inactive positions;

FIG. 6 is an enlarged fragmentary elevational view illustrating the manner in which the upper and lower solenoids at the left in FIG. 5 are operatively connected to the crosshead of the door lock release structure;

FIG. 7 is a fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 7—7 of FIG. 6;

FIG. 8 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 8—8 of FIG. 5;

FIG. 9 is a fragmentary vertical sectional view similar to FIG. 2 but illustrating a section form of door locking structure with the latching and locking components in the active positions;

FIG. 10 is a fragmentary vertical sectional view similar to FIG. 9 but illustrating the locking and latching components of the second form of door locking structure in the inactive positions;

FIG. 11 is a fragmentary vertical sectional view illustrating a third form of door locking structure with the locking components in the active positions;

FIG. 12 is a fragmentary vertical sectional view similar to FIG. 11 but with the door locking components in the inactive positions;

FIG. 13 is a fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 13—13 of FIG. 12;

FIG. 13A is a sectional view similar to FIG. 13, but illustrating a slightly modified structure incased in a unitary housing.

FIG. 14 is a fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 14—14 of FIG. 11; and

FIG. 15 is a fragmentary perspective view of the structure illustrated in FIG. 13.

Referring now more specifically to the drawings, the numeral 10 generally designates a hollow door construction including a free swinging edge portion 12 closable relative to a door jamb 14 having first and second recesses 16 and 18 opposing the free swinging edge 12.

The free swinging edge 12 includes first and second bores 20 and 22 registrable with the recesses 16 and 18 when the door 10 is in the closed position and a first form of door locking structure is referred to in general by the reference numeral 24 and mounted within the door 10 between the opposite side panels 26 and 28 thereof. The structure 24 includes a locking bar 30 slidable through the bore 20 and a latch bar 32 slidable through the bore 22. The inner end of the latch bar 32 is slidably received through a mounting block 34 secured to and extending between the opposite side panels 26 and 28 and the inner terminal end of the bar 32 has a stop collar 36 mounted thereon. In addition, a second stop collar 38 is mounted on the bar 32 on the side of the block 34 remote from the collar 36 and a compression spring 40 is disposed about the bar 32 between the stop collar 38 and the block 34.

An actuating knob shaft 42 is journaled through a block 44 supported between the panels 26 and 28 and an oscillating lever 46 is mounted on the shaft 42 for oscillation therewith. One end of the shaft 42 is provided with a handle or knob 48 and the other end of the shaft 42 is provided with a similar knob or handle 50. Further, a lever 54 is pivotally supported from the door 10 as at 56 and has one end thereof pivotally engaged in a notch 58 in the latch bolt 32 while the other end of the lever 54 is pivotally attached as at 60 to a connecting link 62 at one end thereof. The other end of the connecting link 62 enjoys a pin-and-slot connection 64 with the lower end of the oscillating lever 46 and an expansion spring 68 is connected between the lever 46 and the connecting link 62.

The upper end of the lever 46 is positioned between the extendible armature 70 of a solenoid 72 supported between the door panels 26 and 28 and the innermost end of the locking bar 30. A mounting block 74 is supported between the panels 26 and 28 and supports a U-shaped guide member 76 therefrom including a pair of upstanding legs 78 and 80 through which the locking bar 30 is guidingly received. A stop collar 82 is mounted on the bar 30 between the legs 78 and 80 and the inner end portion of the bar 30 inwardly of the leg

80 includes a stop collar 84. A compression spring 86 is disposed about the bar 30 between the leg 80 and the stop collar 84.

A further pair of mounting blocks 90 and 92 are supported between the opposite side panel members 26 and 28 of the door 10 and a pair of lower horizontally spaced solenoids 94 are mounted on the blocks 90 and 92. Still further, a pair of upper solenoids 96 are mounted on the inner surface of the side panel 26 of the door 10 and a pair of spaced horizontal connecting straps 98 are pivotally connected between the lower ends of the armatures 100 of the solenoids 96 and the upper ends of the armatures 102 of the solenoids 94. The outer ends of the armatures 100 and 102 are slotted as at 104 and 106 and the opposite ends of the connecting straps 98 are longitudinally slotted as at 108.

Still another mounting block 110 is supported between the panels 26 and 28 and mounts a U-shaped bracket 112 including a pair of legs 114 through which a vertically disposed latch bar 116 is slidably disposed. The upper end of the latch bar passes upwardly between the connecting straps 98 and is provided with a transverse pin 118 which overlies the midportions of the connecting straps 98. When the locking bar 30 (which may operate independently of bar 32) is in the retracted position illustrated in FIG. 5, the lower end of the vertical latch bar 116 rests upon the upper surface of the collar 84. However, when the latch bar 32 is in the extended position illustrated in FIG. 2 of the drawings, the lower end of the latch bar 116 rests upon the upper surface of the locking bar 30 immediately inwardly of the collar 84 and the lower terminal end of the latch bar 116 prevents inward movement of the lock bar 30 to the retracted inoperative position.

The latch bar 116 has a stop collar 120 mounted thereon between the legs 114 and a compression spring 119 is disposed about the latch bar 116 between the stop collar 120 and the upper leg 114 of the bracket 112. Thus, the compression spring 119 yieldingly biases the latch bar 116 in a downward direction.

The lower end portion of the latch bar 116 immediately below the collar 120 and above the lower leg 114 is provided with a horizontally opening notch 122 in which an off-center pawl 124 mounted on a pivot shaft 126 journaled through the inside door panel 28 is received. The inner end of the pivot shaft 126 has an indicator 128 mounted thereon to indicate whether the latch bar 116 is in the upper inoperative position or in the lower operative position. Of course, although the indicator 128 may not be turned in order to extend the lock bar 30, turning of the indicator 128 may cause the end of the pawl 124 engaged in the notch 122 to be elevated and thus the latch bar 116 to be elevated from the position thereof illustrated in FIG. 2 of the drawings to the position illustrated in FIG. 5 whereupon the locking bar 30 may be released for movement to the unlocked position illustrated in FIG. 5. Further, inasmuch as the pawl 124 is weighted so as to be upwardly inclined in the notch 122 with a greater clearance between the pawl end and the lower end of the notch 122, a sharp upward thrust on the bar 116 by either solenoids 94 or solenoids 96 will prevent the bar 116 from sharply hitting the pawl 124, the downward spring pressure on the bar 116 by the solenoids being a milder thrust.

The latch bar 116 is provided with a plurality of vertically spaced bores 130 by which the latch bar 116 may be manually raised upon the forming of a bore 132 in the panel 26, see FIG. 4. Once the bore 132 has been formed, a long thin instrument may be inserted through the bore 132 and engaged in one of the bores 130 in order to pry the latch bar 116 upwardly to the inoperative position and allow the locking bolt 30 to move from the operative position of FIG. 2 to the inoperative position of FIG. 5. However, a pair of insulative brackets 134 are mounted on the inner surface of the panel member 26 and support a multiple plate structure 136 including opposite side conductive plates 138 and 140 and an intermediate insulative plate 142. The plates 136 and 138 may be serially connected in an alarm circuit (not shown) and aligned bores 144 are formed through the plates 138, 140 and 142. The location of the bores 144 is predetermined so that the owner or operator of the door locking structure 24 will know precisely where to form the bore 132 in the event it becomes necessary to manually lift the latch bar 116 by means of an instrument inserted through the bores 132 and 144 and into one of the bores 130. Although the structure 136 is clamped between the insulative brackets 134 and the outer panel 26, the structure 136 may be pried upward within the confines of brackets 134 when the latch bar 116 is pried upward by an instrument inserted through bores 132 and 144 during an emergency. Should anyone else attempt to drill the bore 132 by means of a conventional steel bit and the bore being drilled in the panel 26 is not properly aligned with the bores 144, the drill bit, in passing through the panel structure 136 will electrically connect the plates 138 and 140 and thus actuate the associated alarm system (not shown).

One pair of the solenoids 94 and 96 are actuated by conventional 110 volt household current, with or without current changing means, and the other pair of solenoids are actuated by lower voltage which may be supplied from suitable batteries. The door lock push button control structure disclosed in my above mentioned copending application includes structure by which the 110 volt solenoids or the lower voltage solenoids may be selectively actuated. Of course, the armatures 100 of the solenoids 96 are pulled upward upon actuation of the solenoids 96 and the armatures 102 of the solenoids 94 are pushed upwardly upon actuation of the solenoids 94. Therefore, both solenoids of each pair will be actuated according to the voltage circuit which is used. Because of the pin-and-slot connections between the connecting straps 98 and the armatures 100 and 102, the latch bar 116 may be lifted even though only one solenoid of the four solenoids is operative.

In lieu of the expansion spring 68 a selected weight counterweight 150 may be mounted on the lower end of the lever 46. In addition, it will be apparent that the armature 70 of the solenoid 72 may be extended upon actuation of the solenoid 72 in order to swing the lever 46 in a counterclockwise direction from the position thereof illustrated in FIG. 5 of the drawings in order to extend the latching bolt 32 and allow the latch bar 116 to drop down behind the collar 84 and retain the locking bolt 30 in the operative position.

With attention now invited more specifically to FIGS. 9 and 10 of the drawings, there will be seen a modified form of door locking structure referred to in general by the reference numeral 154 and which is similar to the door locking structure 24 except that the lower end of the latch bar 116' thereof corresponding to the latch

bar 116 includes a laterally offset lower extension 117. The door locking structure includes a pair of locking bolts 30' corresponding to the locking bolt 30 and a pair of solenoids 72' corresponding to the solenoid 72. However, the solenoids 72', instead of acting upon the corresponding locking bolts 30' through levers corresponding to the lever 46, are operative to project the locking bolts 30' by means of bell cranks 71 to which they are pivotally connected. The bell cranks 71 are pivotally supported by pivot shafts and include arm portions 73 which function in the manner of the pawl 124 of the door locking structure 24 and are received in notches 75 formed in an upstanding bar 77 supported from door mounted guides 79.

The midportion of the bar 77 is guided by a door mounted guide structure 81 and a block 83 is adjustable along the bar 77 and connected to the guide 81 by means of an expansion spring 85 extending between the block 83 and the guide 81. The expansion spring 85 counterbalances a portion of the weight of the bar 77 and the upper end of the bar 77 includes a laterally directed flange portion 87 having an adjustable threaded stop screw 89 threadedly passed therethrough and engageable with the upper guide 79 to limit downward movement of the bar.

The door locking structure 154 includes a latch bolt 32' corresponding to the latch bolt 32, and the inner end of the latch bolt 32' is connected, by means of a pin-and-slot connection 33, to a pivot lever 35 pivotally supported as at 37 from a mounting block 39. A bell crank 41 is also pivotally supported from the mounting block 39 by means of a door knob shaft 43 corresponding to the shaft 42 and the bell crank is connected to the lower end of the lever 35 by means of a connecting link 45 pivotally secured to the lever 35 and secured to the bell crank 41 by means of a pin-and-slot connection 47. The arm 49 of the bell crank 41 is received in a central notch or recess 51 formed in the bar 77 and accordingly, rotation of the door knob shaft 43 (by means of knobs mounted on its opposite ends may cause the bell crank 41 to rotate in a counterclockwise direction as viewed in FIG. 9 of the drawings in order to project the latching bolt 32' and the locking bolts 30'. However, in FIG. 10, the lower end of the latch bar 116' and extension 117 are raised by means of the solenoids corresponding to the solenoids 94 and 96 and thus the springs 86' have biased the locking bars 30' to their inoperative positions.

If it is desired, a suitable pivoted lever 91, counterbalanced as at 93 may be provided and utilized in lieu of the spring 85 and anchor block 83 in order to counterbalance a portion of the weight of the bar 77.

With reference now more specifically to FIGS. 11 through 14, there will be seen a modified form of door referred to in general by the reference numeral 210. The door 210 is supported by hinges 212 and is swingable in a vertical plane between a closed position closing the associated door opening 214 and a raised open position. The opening 214 is defined between a pair of vertical door jamb members 216 including horizontally aligned recesses 218 opening inwardly of the opening 214 and into which the remote ends of a pair of locking bolts 220 are projectable when the door 210 is in the closed position. The locking bolts 220 comprise portions of a third form of door locking structure referred to in general by the reference numeral 222 and are supported from the door 210 for sliding movement through bores 224 formed in the opposite side marginal edge portions of the door 210, brackets 226 mounted inwardly of the opposite side marginal edge portions of the door 210 and guide blocks 228 mounted within the door 210.

The adjacent ends of the door locking bars or bolts 220 are secured through remote angulated ends 230 of slide brackets 232 supported from door mounted guides 234. The adjacent ends of the brackets 232 include opposing plate portions 236 between which expansion springs 238 are secured and a knob operating shaft 240 is journaled through the door 210 and has a pair of actuating knobs 242 mounted on its opposite ends. The shaft 240 has a crosshead 244 mounted thereon and a pair of rollers 246 are mounted on the opposite ends of the crosshead 244 between the plates 236 whereby 90° angular displacement of the shaft 240 from the position thereof illustrated in FIG. 12 of the drawings to the position thereof illustrated in FIG. 11 will cause the plates 236 to be displaced away from each other and thus the brackets 232 to project the locking bars 220 into the recesses 218.

A pair of slide brackets 250 are mounted within the door 210 and slidably support a pair of latch bars 252 above the locking bars 220 for vertical movement toward and away from the latter. The upper ends of the latch bars 252 include transverse abutment portions 254 beneath which the upper arms 256 of a pair of bell cranks pivoted as at 258 are disposed. The bell cranks 256 include lower arms 260 against which armatures 262 of solenoids 264 are engageable to lift the latch bars 252. The latch bars 252 are spring-biased downwardly by means of expansion springs 266 and are engageable behind collars 268 mounted on the locking bars 220 and compression springs 270 are mounted on the locking bars 220 between the brackets 226 and the stop collars 268. Accordingly, the expansion springs 270 yieldingly bias the locking bars 220 toward the inactive retracted positions thereof illustrated in FIG. 12. Of course, when the solenoids 264 are not actuated, the latch bars 252 rest upon the collars 268 if the locking bars 220 are in the retracted positions of FIG. 12. Then, if the shaft 240 is displaced 90° from the position illustrated in FIG. 12 to the position illustrated in FIG. 11, the locking bars 220 are projected and the latch bars 252 drop down behind the collars 268 to the positions thereof illustrated in FIG. 11 in order to retain the spring-biased locking bars 220 in the operative position.

With reference now more specifically to FIGS. 13 and 15, it may be seen that each bracket 226 includes an upper lateral abutment flange 280. A mounting bracket 282 is secured by fasteners 284 to the door 210 above each bracket 226 and guidingly supports a slide plate 286 between angle flanges 287 carried by each bracket 282, the slide plates 286 being vertically shiftable relative to the brackets 282. Each plate 286 includes an upper outwardly directed flange 288 provided with a fixed upwardly projecting threaded stud 290 received through an opening (not shown) provided therefor in an outwardly directed flange 292 carried by the upper end of the corresponding bracket 282. A pair of upper and lower stop nuts 294 are threaded on each stud 290 and thereby determine the vertical positioning of each bracket 286 relative to the corresponding bracket 282. A normally closed switch 296 is carried by each slide plate 286 and includes a downwardly biased

actuator **298** positioned for engagement with the corresponding flange **280** to limit downward movement of the actuator **298** to a lower position thereof with the switch **296** in the open position.

In operation, after the bracket **286** has been properly positioned by adjustment of the nuts **294** with the actuator **298** abutted against and slightly upwardly displaced from the closed position of the switch **296** by the flange **280,** any attempt to force the door **210** by prying upward on the door **210** will cause a bracket **226** to be cocked downward to allow final downward movement of the actuator **298** to the closed position thereof. Of course, the switches **296** may be connected in parallel in an alarm circuit (not shown) and having a control switch and test light therefor disposed in the door lock push button control disclosed in my copending application U.S. Ser. No. **371,418,** filed June **19, 1973.**

In FIG. **13A** there is illustrated a modified form of the structure shown in FIG. **13.** The modified structure is identical, except that the brackets **226** and **282** are secured to one wall portion **300** of a housing **302** having a removable cover **304** therefor and in turn supported from the door **210** by means of fasteners **306** secured through the wall portion **300.**

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications may and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. In combination, a support structure including at least one marginal edge portion, a lock assembly supported from said support structure, said lock assembly including an elongated locking bar guidingly mounted on said support structure for lengthwise reciprocation between an operative position with one end portion of said bar extended relative to said one marginal edge portion and a retracted position with said one end portion of said bar retracted relative to said one marginal edge portion, a laterally enlarged abutment carried by the other end portion of said bar for reciprocation therewith, a latch member guidingly supported from said support member for shifting toward and away from said bar laterally of the latter, first means yieldingly biasing said bar toward said retracted position, second means yieldingly biasing said latch members toward said bar, said latch member including a portion abuttingly engaged with said abutment when said bar is in said retracted position and positioned, when said bar is in said extended position and said latch member is shifted toward said bar, immediately adjacent said abutment on the side thereof remote from said one end portion of said bar and against said abutment may abut to prevent said bar from being shifted, under the biasing action of said first means, from said extended position to said retracted position, said motor means including first and second solenoid means, said latch member comprising a bar member disposed in upstanding position and said locking bar being disposed below the lower end of said bar member, a horizontal cross member having an upper portion of said bar member adjacent its mid-portion, said upper portion of said bar member and said mid-portion including coasting means establishing a one-way connection between said bar member and said cross member to lift the former in response to upward movement of the mid-portion of the cross member, said first and second solenoid means being mounted from said support structure and having their armatures connected to the opposite ends of said cross member for elevating the corresponding end of said cross member, and thus the mid-portion thereof, upon actuaction of either of said armature means.

2. In combination, a support structure including at least one marginal edge portion, a lock assembly supported from said support structure, said lock assembly including an elongated locking bar guidingly mounted on said support structure for lengthwise reciprocation between an operative position with one end portion of said bar extended relative to said one marginal edge portion and a retracted position with said one end portion of said bar retracted relative to said one marginal edge portion, laterally enlarged abutment carried by the other end portion of said bar for reciprocation therewith, a latch member guidingly supported from said support member for shifting toward and away from said bar laterally of the latter, first means yieldingly biasing said bar toward said retracted position, second means yieldingly biasing said latch member toward said bar, said latch member including a portion abuttingly engaged with said abutment when said bar is in said retracted position and positioned, when said bar is in said extended position and said latch member is shifted toward said bar, immediately adjacent said abutment on the side thereof remote from said one end portion of said bar and against said abutment may abut to prevent said bar from being shifted, under the biasing action of said first means, from said extended position to said retracted position, said lock assembly including remotely operable motor means operatively connected to said latch member to displace the latter away from said locking bar, said motor means including first and second pairs of solenoids, the first pair of solenoids being adapted to be actuated by a first source of electrical potential of a first voltage value and the second pair of solenoids being adapted to be actuated by a second source of electrical potential of a second voltage value, said latch member comprising a bar member disposed in upstanding position and said locking bar is disposed below the lower end of said latch bar member, a horizontal cross member having an upper portion of said latch bar member adjacent its mid-portion, said upper portion of said latch bar member and said mid-portion including coacting means establishing a one-way connection between said latch bar member and cross member to lift the former in response to upward movement of the latter, one pair of solenoids being mounted below and having their armatures connected to the opposite ends of said cross member and the other pair of solenoids being mounted above and having their armatures connected to the opposite ends of said cross member.

3. The combination of claim **2** including shiftable handle means movably mounted on said support structure and operatively associated with said latch member to shift the latter away from said bar against the biasing action of said second means.

4. The combination of claim **2** wherein said armatures are connected to the corresponding ends of said cross member by means of pin-and-slot connections in a manner enabling any one armature to lift the corre-

sponding cross member end independent of movement of any of the other armatures.

5. The combination of claim **2** including an indicator shaft journaled from said support structure, means operatively associated with said indicator shaft and latch member for oscillating said indicator shaft in response to movement of said latch member toward and away from said locking bar.

6. The combination of claim **2** including a latch bolt supported from said support structure for lengthwise shifting between extended and retracted positions relative to said one marginal edge portion, manually shiftable latch bolt operating means supported from said support structure and operatively associated with said latch bolt for extending and retracting the latter.

7. The combination of claim **6** including remotely operable motor means mounted on said support structure and operatively associated with said latch bolt operating means for actuating the latter to extend the latch bolt.

8. In combination, a support structure including at least one marginal edge portion, a lock assembly supported from said support structure, said lock assembly including an elongated locking bar guidingly mounted on said support structure for lengthwise reciprocation between an operative position with one end portion of said bar extended relative to said one marginal edge portion and a retracted position with said one end portion of said bar retracted relative to said one marginal edge portion, a laterally enlarged abutment carried by the other end portion of said bar for reciprocation therewith, a latch member guidingly supported from said support member for shifting toward and away from said bar laterally of the latter, first means yieldingly biasing said bar toward said retracted position, second means yieldingly biasing said latch member toward said bar, said latch member including a portion abuttingly engaged with said abutment when said bar is in said retracted position and positioned, when said bar is in said extended position and said latch member is shifted toward said bar, immediately adjacent said abutment on the side thereof remote from said one end portion of said bar and against said abutment may abut to prevent said bar from being shifted, under the biasing action of said first means, from said extended position to said retracted position, a latch bolt supported from said support structure for lengthwise shifting between extended and retracted positions relative to said one marginal edge portion, manually shiftable latch bolt operating means supported from said support structure and operatively associated with said latch bolt for extending and retracting the latter, remotely operable motor means mounted on said support structure and operatively associated with said latch bolt operating means for actuating the latter to extend the latch bolt, said latch bolt operating means being also operatively associated with said locking bar to shift the latter, subsequent to said latch member being shifted away from said locking bar, to its extended position upon actuation of said latch bolt operating means.

9. The combination of claim **2** wherein said support structure comprises a door.

10. The combination of claim **1** wherein said support structure comprises a door including spaced opposite side panels between which said latch bar member is mounted for reciprocation along a predetermined path, said latch bar member having openings formed therethrough sapced along said path, said latch bar member being spaced slightly inwardly from one of said opposite side panels, a pair of spaced conductive plates insulatively supported from the inner side of said one panel and adapted to be serially connected in an alarm circuit, said plates having registered bores formed therethrough in registry with a predetermined location on said one panel, said path and bores lying in the same plane, whereby an an emergency a further bore may be drilled in said one side panel at said location and an elongated latch bar member operator tool may be passed through said bores into one of said openings for shifting said latch bar operator along said path from the exterior of said door without bridging said conductive plates.

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