Feb. 25, 1958 G. WARTIAN 2,824,441

DOOR LATCH AND LOCK

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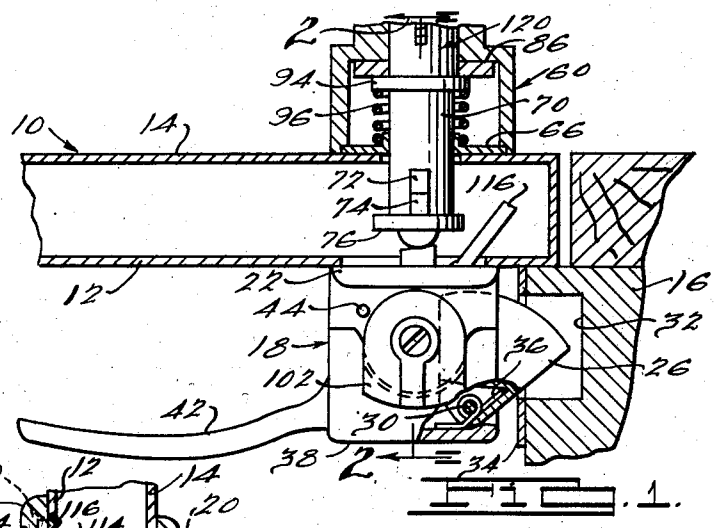


FIG. 1.

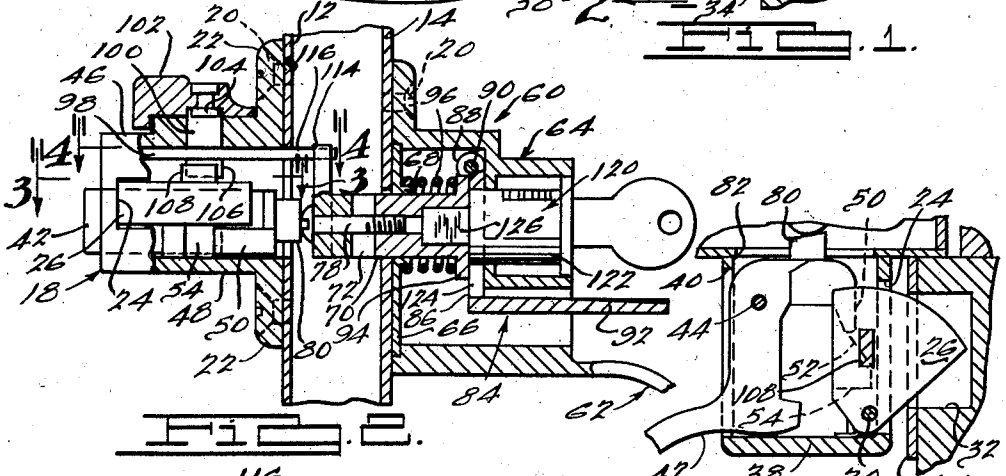


FIG. 2.

FIG. 3.

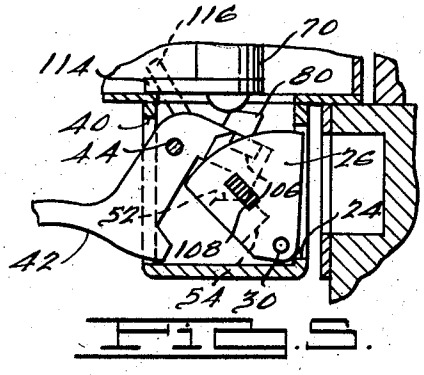
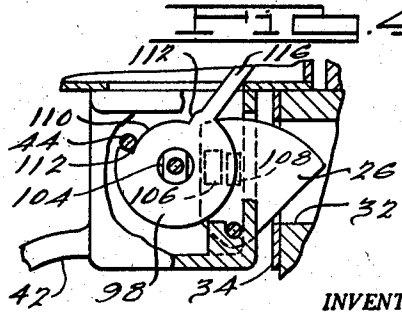


FIG. 5.

FIG. 4.



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DOOR LATCH AND LOCK

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4 Claims. (Cl. 70—150)

This invention relates to a door latch and more particularly to a new and improved latch mechanism adapted for use on metal storm doors or screen doors or the like.

A principal object of the invention is to provide a new and improved door latch and lock mechanism.

Another object of the invention is to provide an improved door latch which may be locked or unlocked from either side of the door and which is simple in construction and economical to manufacture.

Other and further objects of the invention will be apparent from the following description and claims and may be understood by reference to the accompanying drawing, which by way of illustration shows a preferred embodiment of the invention and what I now consider to be the best mode in which I have contemplated applying the principles of my invention. Other embodiments of the invention may be used without departing from the scope of the present invention as set forth in the appended claims.

In the drawing:

Fig. 1 is a horizontal sectional view through a door having the improved latch applied thereto and with parts of the latch mechanism broken away;

Fig. 2 is a vertical sectional view taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 2; and

Fig. 5 is a view similar to Fig. 3 but showing the latch bolt in its retracted position.

In the drawings, the latch is shown applied to a door 10 having an inner side 12 and an outer side 14 and adapted to be closed against a conventional door jamb 16. The door 10 is preferably a metal door of the type now often employed as a storm door or a screen door. A casing 18 is mounted on the inner side 12 of the door by screws 20 extending through flanges 22 formed along the upper and lower edges of the casing 18 and seated against the door panel. The casing 18 has an opening 24 at one side thereof and a latch bolt 26 pivoted within casing 18 on a pin 30 may be swung into and out of the casing 18 through the bolt opening 24. The bolt 26 is shown in Fig. 1 in its latched position in which it projects into a recess 32 formed in jamb 16 through a conventional strike plate 34. A spring 36 has one end reacting against the end wall 38 of casing 18 and is wrapped around pin 30 and has its other end located within a recess formed in the bolt 26 so as to urge the bolt outwardly of the casing into its latched position.

The casing 18 at the side thereof opposite the bolt opening 24 is provided with an elongated slot 40 and a pivoted handle member 42 is pivotally mounted within casing 18 by a pin 44 extending between the top and bottom walls 46 and 48 of the casing 18. The handle

member projects outwardly through slot 40 and at its inner end is provided with a hooked portion 50 adapted to engage a cam surface 52 formed on a lug 54 projecting from the underside of latch bolt 26. When the handle 42 is pivoted in a clockwise direction, as viewed in the drawings, the end 50 of the handle will react against cam surface 52 to swing the latch bolt 26 in a counterclockwise direction on pin 30 to the position thereof illustrated in Fig. 5 in which the bolt 26 is retracted from the strike plate 34 to its unlatched position. When the handle is released, the spring 36 will return the latch bolt and handle to their normally latched positions.

A bracket 60 is adapted to be mounted on the other side of the door 10 and includes an integral handle portion, a part of which is shown at 62 in Fig. 2, and a housing portion 64 integral with and at the upper end of the handle portion 62, the bracket 60 being secured to the outer side of the door 10 by screws 20. The housing portion 64 of the bracket 60 is closed at its inner end by a plate 66 having a sleeve 68 in which a plunger 70 is slidably and rotatably disposed. The inner end of the plunger 70 has a slot 72 adapted to receive a key 74 formed on a locking element 76 which is secured to the plunger 70 by a screw 78 extending through an aperture in the element 76 and threaded into plunger 70, as shown in Fig. 2.

The pivoted handle member 42 has a projection 80 thereon projecting through an aperture 82 in the door 10 in alignment with the plunger 70. The locking element 76 or the head of the screw 78 which secures the locking element to the plunger 70 is adapted to engage the projection 80 on handle member 42 so that when the plunger 70 is slid axially inwardly the handle member 42 will be pivoted so as to engage latch bolt 26 to move the same to its retracted or unlatched position. An operating member 84 is provided for effecting such axial movement of plunger 70, and the operating member 84 includes a vertical portion 86 having spaced ears 88 at its upper end adapted to receive a pin 90 for supporting the operating member for pivotal movement within the bracket 60 on a horizontal axis. The operating member 84 also includes a horizontally extending portion 92 projecting outwardly from the housing 64 adapted to be engaged by the thumb for manually depressing the operating lever 84. The plunger 70 is provided with an enlarged shoulder 94 at its outer end, which shoulder is seated against the vertical portion 86 of the operating member 84 so that upon pivoting of the member 84 by depressing the thumb piece 92 the plunger 70 will be moved axially against the projection 80 on the pivoted handle 42 to retract the bolt 26. A spring 96 surrounds the outer end of plunger 70 and reacts between plate 66 and shoulder 94 to urge the plunger 70 out of engagement with handle 42.

A locking disk 98 is located within casing 18 above bolt 26 and is provided with an integral shaft 100 rotatably journaled in the top wall 46 of the casing 18. A lock operating member 102 is keyed onto the upper end of the shaft 100 by means of a flat 104 formed on the shaft 100, and the operating member 102 may be rotated in either direction to rotate locking disk 98 between locked and unlocked positions thereof. The disk 98 has a locking lug 106 projecting from its underside and the lug 106 is adapted to be moved into and out of the path of movement of a similar lug 108 projecting upwardly from bolt 26. When the operating member 102 and the disk 98 carried thereby are turned to the position shown in Fig. 4, the locking lug 106 will be disposed in the path of

movement of lug **108** formed on bolt **26** so that the bolt cannot be retracted by the pivoted handle **42**. When the disk is turned in a counterclockwise direction, the lug **106** will be moved out of the path of lug **108** and the bolt **26** may be withdrawn in the manner described. The position of the lug **106** in its unlocked condition is illustrated in dotted lines in Fig. 5. The disk **98** is provided with a cut-out **110** to define shoulders **112** engageable with the pin **44** on which the handle **42** is pivoted so as to provide stops for limiting rotation of the locking disk **98**.

The locking element **76** provided on the inner end of plunger **70** has an arm **114** engageable with an arm **116** projecting from disk **98** through the aperture **82** formed in the inner door panel **12**. The housing portion **64** of bracket **60** is adapted to receive a conventionel key-operated lock means **120**, including a barrel **122**, which is normally locked against rotation within the housing **64** by the locking tumblers but which may be rotated by means of a key. The barrel **122** is adapted to project through a vertically elongated slot **124** formed on the vertical portion **86** of the operating member **84** and includes a part **126** projecting into a recess formed in the outer end of plunger **70**. The part **126** may be keyed to plunger **70** in any suitable manner so as to rotate the plunger upon rotation of barrel **122** while permitting axial movement of the plunger **70** relative to the part **126** upon depression of the thumb piece **92**. The arm **116** on locking disk **98** is engaged by arm **114** on plunger **70** so as to move the disk to and from its locking position upon operation of the lock means **120**. The lock means **120** may be of the type in which the barrel **122** may be rotated through 360° so that the arm **114** may engage either side of arm **116** to move disk **98** in either direction. It is also contemplated that the lock means **120** will be constructed so that the key may be withdrawn therefrom only when the arm **114** is in a position which permits the locking disk **98** to be moved between its two positions from the inner side of the door so that the door may be locked or unlocked from either side thereof.

While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification, and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. A door latch comprising a casing adapted to be mounted on one side of a door, a latch bolt pivoted in said casing and movable between latched and unlatched positions, a handle pivoted in said casing and engageable with said bolt for moving the same to its unlatched position, spring means urging said bolt to latched position, a bracket adapted to be mounted on the other side of the door, a plunger slidably mounted in said bracket and having an inner end adapted to project through an opening in the door into engagement with said pivoted handle, an operating member pivoted in said bracket on a horizontal axis and having a vertical portion engageable with the outer end of said plunger and a horizontal portion projecting outwardly from said bracket and forming a manually depressible lever for actuating said plunger, said operating member upon depression thereof being operable to move said plunger against said pivoted handle to cause the latter to move said bolt to unlatched position, a movable locking member supported on said casing and movable into the path of movement of said bolt to lock said bolt in latched position, said plunger being rotatable and having an arm engageable with said locking member upon rotation of said plunger to move said locking member to and from its locking position, and key-operated lock means mounted in said bracket and projecting through said vertical portion of said operating member into engagement with said outer end of said plunger to rotate the latter upon operation of said lock means.

2. A door latch comprising a casing adapted to be mounted on one side of a door, a latch bolt pivoted in said casing and movable between latched and unlatched positions, a handle pivoted in said casing and engageable with said bolt for moving the same to its unlatched position, spring means urging said bolt to latched position, a bracket adapted to be mounted on the other side of the door, a plunger slidably mounted in said bracket and having an inner end adapted to project through an opening in the door into engagement with said pivoted handle, an operating member pivoted in said bracket and having a portion engageable with the outer end of said plunger and projecting outwardly from said bracket and forming a manually depressible lever for actuating said plunger, said operating member upon depression thereof being operable to move said plunger against said pivoted handle to cause the latter to move said bolt to unlatched position, a movable locking member supported on said casing and movable into the path of movement of said bolt to lock said bolt in latched position, said plunger being rotatable and engageable with said locking member upon rotation of said plunger to move said locking member to and from its locking position, and key-operated lock means mounted in said bracket and having a part engaging said outer end of said plunger to rotate the latter upon operation of said lock means, said plunger being slidably connected to said lock means.

3. A door latch comprising a casing adapted to be mounted on one side of a door, a latch bolt pivoted in said casing and movable between latched and unlatched positions, a handle pivoted in said casing and engageable with said bolt for moving the same to its unlatched position, spring means urging said bolt to latched position, a bracket adapted to be mounted on the other side of the door, a plunger slidably mounted in said bracket and having an inner end adapted to project through an opening in the door into engagement with said pivoted handle, an operating member pivoted in said bracket and engageable with the outer end of said plunger and projecting outwardly from said bracket to form a manually depressible lever for actuating said plunger, said lever upon depression thereof being operable to move said plunger against said pivoted handle to cause the latter to move said bolt to unlatched position, a locking member supported on said casing and movable into the path of movement of said bolt to lock said bolt in latched position, said plunger being rotatable and having an arm engageable with said locking member upon rotation of said plunger to move said locking member to and from its locking position, and key-operated lock means mounted in said bracket and slidably and non-rotatably connected to said plunger to rotate the latter upon operation of said lock means while permitting actuation of said plunger by said lever independent of said lock means.

4. A door latch comprising a casing adapted to be mounted on one side of a door, a latch bolt pivoted in said casing and movable between latched and unlatched positions, a handle pivoted in said casing and engageable with said bolt for moving the same to its unlatched position, spring means urging said bolt to latched position, a bracket adapted to be mounted on the other side of the door, a plunger slidably mounted in said bracket and having an inner end adapted to project through an opening in the door into engagement with said pivoted handle, an operating member pivoted at one end in said bracket on a horizontal axis and having a vertical portion engageable with the outer end of said plunger and a horizontal portion projecting outwardly from said bracket and forming a manually depressible lever for actuating said plunger, said lever upon depression thereof being operable to move said plunger against said pivoted handle to cause the latter to move said bolt to unlatched position, a locking member supported on said casing and movable into the path of movement of said bolt to lock said bolt in latched position, said plunger being rotatable

and engageable with said locking member upon rotation thereof to move said locking member to and from its locking position, said vertical portion of said operating member having a slot therein, and key-operated lock means supported by said bracket and projecting through said slot into engagement with said outer end of said plunger to rotate the latter upon operation of said lock means, said plunger being slidable by said lever relative to said lock means.

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