Dec. 11, 1956 G. WARTIAN 2,773,376

DOOR LATCH AND LOCK

Filed June 10, 1954 2 Sheets-Sheet 1

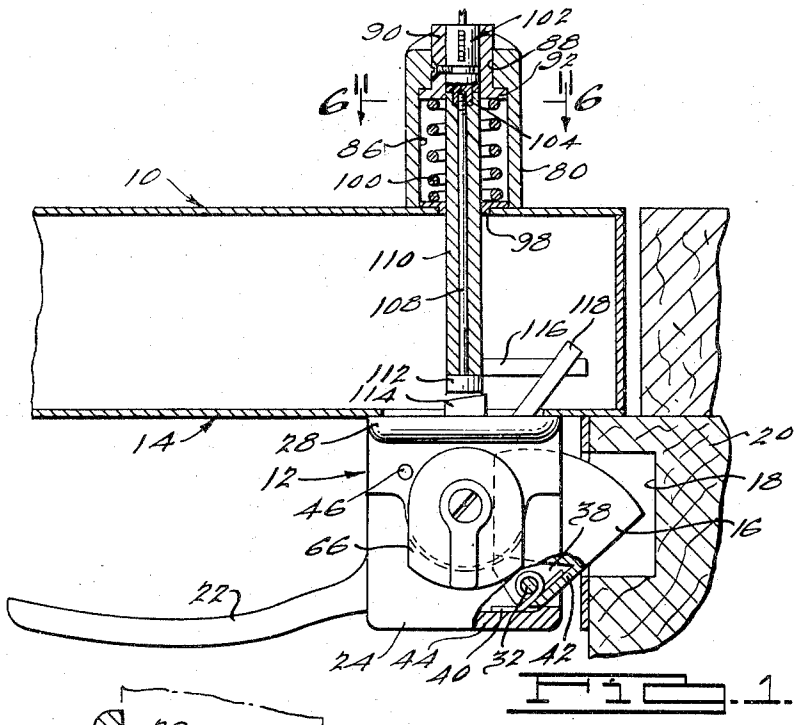


FIG. 1.

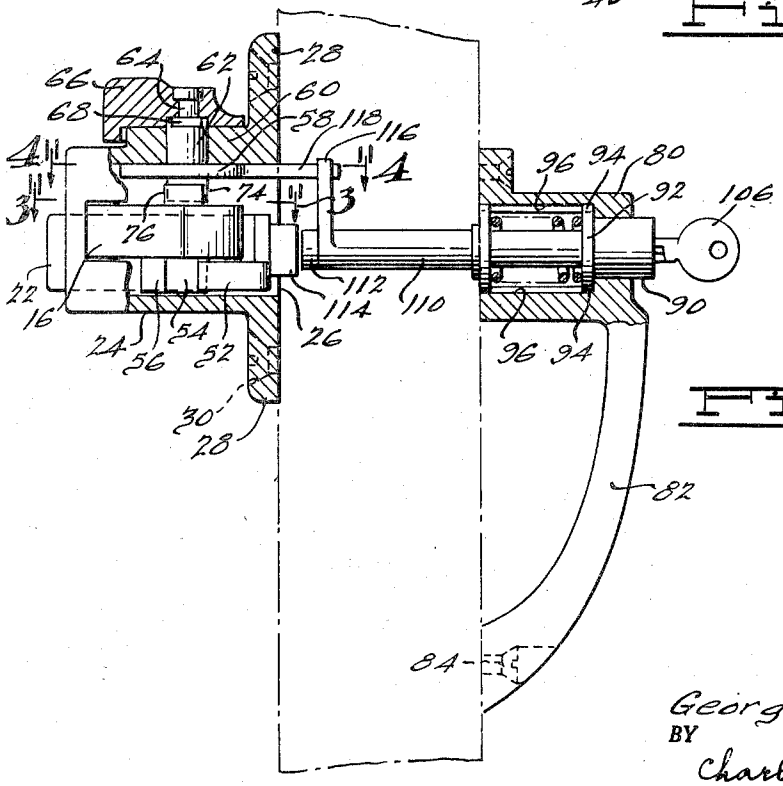


FIG. 2.

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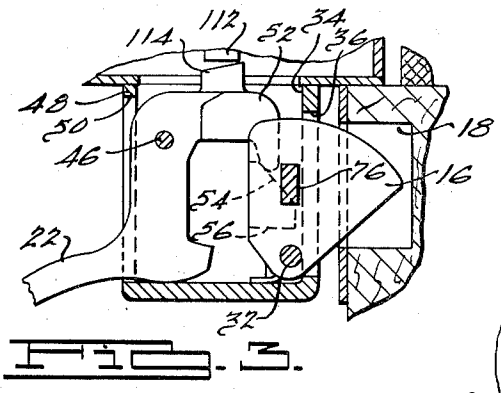


FIG. 3.

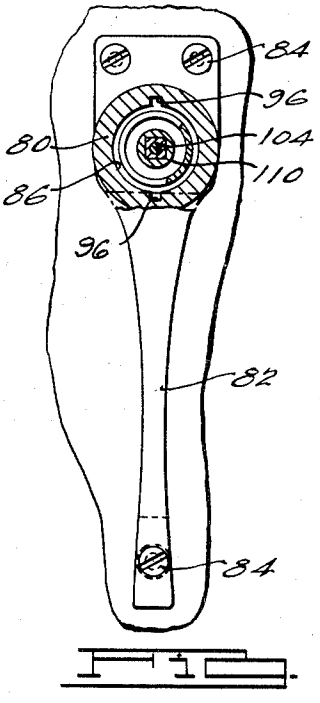


FIG. 5.

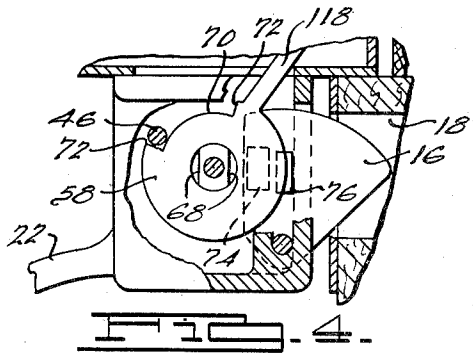


FIG. 4.

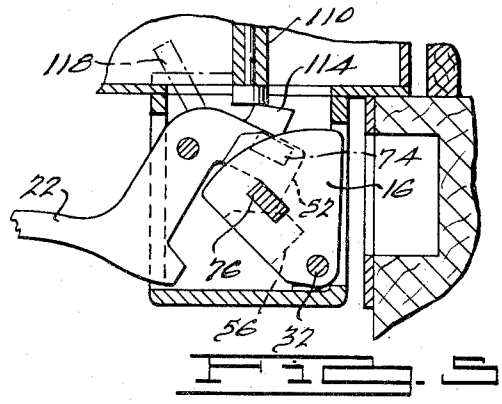


FIG. 6.

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DOOR LATCH AND LOCK

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Application June 10, 1954, Serial No. 435,813

11 Claims. (Cl. 70—150)

This invention relates to a door latch and lock construction and has particular reference to a door latch and lock adapted for use with metal storm doors, screen doors, or the like.

The door latch of the present invention is of the swinging latch bolt type and includes provisions whereby the latch bolt may be locked in its latched position from the inside of the door with which it is used, and may also be locked in its latched position from the outside by means of a key-operated cylinder lock.

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

A further object of the invention is to provide a latch mechanism for a storm door or the like which may be locked in its latched position from either side of the door.

Another object of the invention is to provide a door latch which is simple in construction and inexpensive 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 drawings, of which there are two sheets, which by way of illustration show 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 drawings:

Fig. 1 is a top plan view of my improved latch mechanism, with parts broken away, and showing the same applied to a sheet metal door, such as a screen door;

Fig. 2 is a side elevational view of the latch, with parts broken away, as viewed from the right hand end of the door in Fig. 1;

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

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

Fig. 5 is a sectional view similar to Fig. 3 and showing the latch in its unlocked and unlatched position; and

Fig. 6 is a sectional view taken on line 6—6 of Fig. 1.

Referring more particularly to Fig. 1, a metal door, such as a screen door or storm door illustrated at 10, is shown in its closed position from which it is adapted to swing outwardly in a counterclockwise direction as viewed in Fig. 1. A latch mechanism indicated at 12 is adapted to be mounted on the inner side 14 of the door 10 and includes a latch bolt 16 cooperable with a recess 18 formed in the door frame 20 to retain the door in its closed position. The latch bolt 16 may be swung into and out of the recess 18 by means of a pivoted operating handle 22.

The latch mechanism 12 comprises a casing of housing 24 having an open side 26 adapted to be seated against the inner side 14 of the door and flanges 28 adapted to receive screws 30 for securing the casing 24 to the door. The latch bolt 16 is pivotally mounted in the casing 24

on a pin 32 which is suitably journaled in the top and bottom walls of the casing 24. The side wall 34 of casing 24 is provided with an opening 36 through which the latch bolt 16 projects into the recess 18 when the bolt is in its latched position. The latch bolt 16 is provided with a horizontally disposed recess 38 and a spring 40 is wrapped around pin 32 and has one end reacting against the bottom wall 42 of recess 38 and its other end reacting against the end wall 44 of casing 24 to urge the latch bolt 16 to its latched position shown in Fig. 1.

The operating handle 22 in the form of a lever is pivoted within the casing 24 on a pin 46. The side wall 48 of the casing has an opening 50 through which the operating lever projects. The lever 22 has a hook-shaped end 52 reacting against a cam surface 54 formed on a lug 56 projecting from the lower side of latch bolt 16. Upon pivoting of handle 22 in a clockwise direction as viewed in the drawings, the end 52 of the lever will react against cam surface 54 to pivot the latch bolt 16 in a counterclockwise direction through the opening 36 in casing 24 to retract the latch bolt from the recess 18 and permit the door to be opened, as shown in Fig. 5.

A locking member in the form of a disc 58 is rotatably journaled in the top wall 60 of the casing 24 by means of a pin 62 integral with or secured to the disc 58 and projecting upwardly through the wall 60. The pin 62 has a reduced portion 64 at its upper end adapted to be received within an aperture in an operating member 66. The pin 62 is provided with flats 68 adapted to be received within a similarly shaped opening or recess in the under side of the operating member 66 so that the disc 58 is keyed to the operating member 66 and will be rotated upon rotation of the operating member in either direction. The operating member 66 may be secured to the reduced portion 64 of the pin 62 by means of a suitable screw.

As shown in Fig. 4, the disc 58 is provided with an arcuate notch 70 so as to define a pair of radial shoulders 72 adapted to engage the pin 46 to limit rotation of the disc 58 in either direction. The disc 58 is shown in its locking position in Fig. 4, from which it will be seen that an integral projection or lug 74 projecting downwardly from the under side of disc 58 is disposed in the path of movement of a lug 76 projecting upwardly from the upper surface of the latch bolt 16. When the disc 58 is in the position shown in Fig. 4, the latch bolt cannot be retracted into the casing by the operating lever 22 and the bolt is in its locked position. If the operating member 66 is swung in a counterclockwise direction as viewed in Figs. 1 and 4, the disc 58 will be rotated so that the projection 74 thereon is moved out of the path of movement of the lug 76 on the latch bolt 16 and the latch bolt may then be retracted by the operating lever as previously described.

A casing 80 having an integral handle portion 82 is mounted on the outer side of the door 10 by means of suitable screws 84. The casing 80 is provided with a recess 86 and a reduced aperture 88 aligned therewith. A sleeve 90 is slidably disposed in aperture 88 and has an enlarged collar 92 slidable within recess 86. The collar 92 has integral projections 94 received within keyways 96 formed in the recess 86 so that the sleeve 90 is axially slidable but non-rotatable. A ring 98 is disposed at the outer end of recess 86 and has a reduced collar portion projecting through an aperture in the outer side of the door 10. A spring 100 reacts against the ring 98 and sleeve 90 to urge the sleeve to its retracted position shown in Figs. 1 and 2.

The sleeve 90 is adapted to receive a cylinder lock indicated at 102. The lock 102 may be of conventional construction and the details thereof are not illustrated

herein. The lock includes a shaft **104** which is adapted to be rotated relative to the housing of the lock and the sleeve **90** by means of a conventional key **106**. A stem **108** is threadedly or otherwise secured to the end of the rotatable shaft **104** of the lock **102**. The stem **108** extends through a rod **110** which is provided with a square recess at its outer end to receive the squared end of lock shaft **104** and projects through the ring **98** into the space between the inner and outer sides of the door. The inner end of stem **108** is provided with a head **112** seated against the end of rod **110**. The operating lever **22** has an integral projection **114** projecting through the open side of the casing **24** so as to be engaged by the inner end of the stem **108** when the sleeve **90** is manually depressed, the lever **22** being pivoted upon depression of the sleeve **90** so as to swing the latch bolt **16** to its retracted position in the manner previously described. When the actuating button or sleeve **90** is released, the spring **100** will return the rod **110** and sleeve **90** to retracted position and the latch bolt will return to its extended position under the influence of spring **40**.

The inner end of the rod **110** is provided with an integral arm **116** disposed normal thereto and adapted to rotate with the rod upon actuation thereof by the key-operated lock mechanism **102**. The disc **58** is provided with an arm **118** projecting therefrom through the opening in the inner door panel adjacent the open side of the casing **24**. The arm **118** on the disc **58** is adapted to be engaged by arm **116** when the latter is rotated by means of the lock **102**, and actuation of the arm **116** is adapted to swing the arm **118** and the disc **58** to the unlocked position indicated in dot and dash lines in Fig. 5 in which the locking lug **74** on the disc **58** has been moved out of the path of movement of the projection **76** on the latch bolt **16**. The lock **102** is designed so that the arm **116** may be rotated in either direction. If the lock is operated to unlock the disc **58** by rotating the same in a counterclockwise direction as viewed in Fig. 4, the latch bolt may subsequently be locked by the locking disc **58** by rotating the arm **116** through the key-operated mechanism in a reverse direction through more than 360° to return the arm **118** projecting from the disc **58** to the position shown in Fig. 4. The latch bolt **16** may therefore be locked or unlocked from both the inner and outer sides of the door.

The latch bolt may be retained in its unlatched position shown in Fig. 5 by retracting the blot and then moving the locking disc **58** to its locking position in which the locking projection **74** thereof will be disposed in the path of movement of the lug **76** on the latch bolt to prevent the bolt from returning to its locking position.

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 adapted to swing into and out of said casing between unlatched and latched positions thereof, an actuating member engageable with said latch bolt for swinging said latch bolt to its unlatched position, spring means reacting between said casing and latch bolt and urging the latter to latched position, a locking member movably mounted in said casing and adapted to be moved into the path of movement of said latch bolt to lock said latch bolt in its latched position against movement by said actuating member, a slidable and rotatable plunger adapted to be mounted on the other side of the door, said plunger being manually depressible and operable upon depression thereof for moving said latch bolt to its unlatched position, said plunger upon rotation thereof being engageable with said locking member for moving the same to and from its locking position, and key-operated lock means associated with said plunger for locking the latter against rotation.

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 adapted to be swung into and out of said casing between unlatched and latched positions thereof, a lever pivoted in said casing and engageable with said latch bolt for swinging said latch bolt to its unlatched position, spring means reacting between said casing and latch bolt and urging the latter to latched position, a projection on said latch bolt, a locking member pivotally mounted in said casing and having a locking lug thereon adapted to be moved into the path of movement of said latch bolt projection in one position of said locking member to lock said latch bolt in either its latched or unlatched position, an operating member accessible exteriorly of said casing and connected to said locking member for moving the latter to locked or unlocked position, a slidable and rotatable actuating element adapted to be mounted on the other side of the door and engageable with said lever upon depression thereof for causing said lever to swing said latch bolt to its unlatched position, an arm projecting from said locking member, said actuating element having a projection thereon engageable with said arm upon rotation of said element for moving said locking member between its locked and unlocked positions.

3. In a door latch, a casing adapted to be mounted on one side of a door, a latch bolt mounted in said casing for swinging movement between unlatched and latched positions thereof, an actuating lever pivoted in said casing and engageable with said latch bolt for swinging said latch bolt to its unlatched position, spring means reacting between said casing and latch bolt and urging the latter to latched position, a projection on said latch bolt, a locking member movably mounted in said casing and having a locking lug thereon adapted to be moved into the path of movement of said latch bolt projection in one position of said locking member to lock said latch bolt in its latched position, an operating member accessible exteriorly of said casing and connected to said locking member for moving the latter to locked or unlocked position, an arm projecting from said locking member, an actuating element adapted to be mounted on the other side of the door and engageable with said arm for moving said locking member between locked and unlocked positions, said actuating element comprising a manually depressible plunger engageable with said actuating lever upon depression thereof for causing said lever to swing said latch bolt to its unlatched position.

4. A door latch according to claim 3 wherein said plunger is rotatable and including a key-operated lock for rotating said plunger to effect said movement of said locking member.

5. A door latch according to claim 3 wherein said actuating lever comprises a pivoted handle member.

6. Hardware for a door or the like comprising a latch bolt adapted for movement between unlatched and latched positions thereof, actuating means operable from one side of the door and engageable with said latch bolt for moving the same to its unlatched position, spring means urging said latch bolt to latched position, a locking member operable from said one side of the door and adapted to be moved into the path of movement of said latch bolt to lock said latch bolt in its latched position against movement by said actuating means, an actuating element adapted to be mounted on and operable from the other side of the door and engageable with said locking member for moving the same to both locked and unlocked positions, said actuating element including a slidable plunger adapted upon sliding movement thereof to engage said actuating means for causing the latter to effect movement of said latch bolt to its unlatched position.

7. Door hardware according to claim 6 including lock means associated with said actuating element for locking

the latter to prevent actuation of said locking member by said actuating element.

8. In a door latch including a casing adapted to be mounted on one side of a door, a latch bolt pivoted in said casing and adapted to swing into and out of said casing between unlatched and latched positions, an actuating member engageable with said latch bolt for swinging said latch bolt to its unlatched position, a locking member movable mounted on said casing and adapted to be moved into the path of movement of said latch bolt to lock said latch bolt in its latched position against movement by said actuating member, an actuating element adapted to be mounted on the other side of the door and manually operable for swinging said latch bolt to its unlatched position, said actuating element being engageable with said locking member to move the latter to its locking position.

9. A door latch according to claim 8 including key-operated lock means for preventing actuation of said locking member by said actuating element.

10. A door latch comprising a casing adapted to be mounted on one side of a door, a latch bolt pivoted in said casing and adapted to swing into and out of said casing between latched and unlatched positions, said latch bolt having an integral lug on one face thereof and a cam surface on said lug, an actuating lever pivoted in said casing on an axis parallel to the pivotal axis of said latch bolt, said lever having a handle portion projecting from said casing and an inner end portion engageable with said cam surface on said lug for rotating said latch bolt to unlatched position, spring means reacting between said casing and said latch bolt and urging the latter toward its latched position, an integral locking projection formed on the opposite face of said latch bolt, a locking element pivotally mounted on said casing and having an operating member accessible from the exterior of said casing and a locking lug movable into and out of the path of movement of said locking projection on said latch bolt when said latch bolt is in either latched or unlatched position to lock said latch bolt in either of said positions against movement by said lever, and a manually depressible plunger adapted to be slidably mounted on the opposite side of the door and engageable with said inner end of said lever for rotating said lever in a direction to cause the latter to rotate said latch bolt to unlatched position.

11. A door latch comprising a casing adapted to be mounted on one side of a door, a latch bolt pivoted in said casing and adapted to swing into and out of said casing between latched and unlatched positions, an actuating lever pivoted in said casing having a handle portion projecting from said casing and an inner end portion engageable with said latch bolt for rotating said latch bolt to unlatched position, spring means urging said latch bolt toward its latched position, a locking projection formed on said latch bolt, a locking element pivotally mounted on said casing and having an operating member accessible from the exterior of said casing, said locking element being movable into and out of the path of movement of said locking projection on said latch bolt to lock said latch bolt in said latched position against movement by said lever, and a manually depressible plunger adapted to be slidably mounted on the opposite side of the door and engageable upon depression thereof, with said lever for rotating said lever in a direction to cause the latter to rotate said latch bolt to unlatched position.

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