Oct. 7, 1947. J. A. WALLER 2,428,401

LOCK CONSTRUCTION FOR DOOR STRUCTURES AND THE LIKE

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Fig. 1.

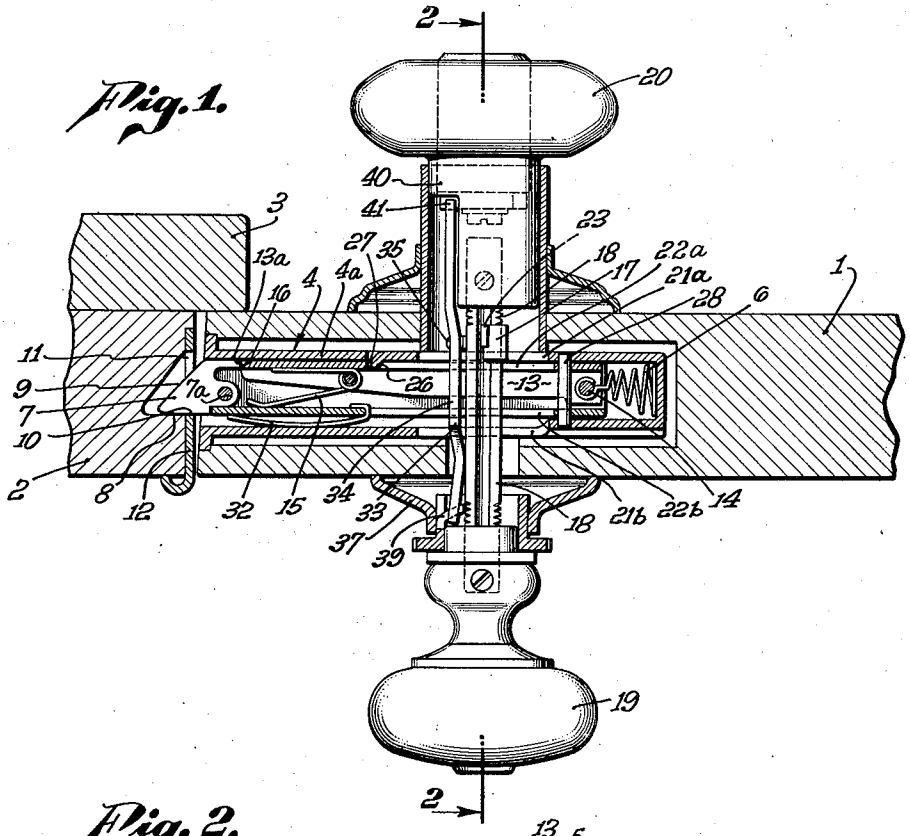
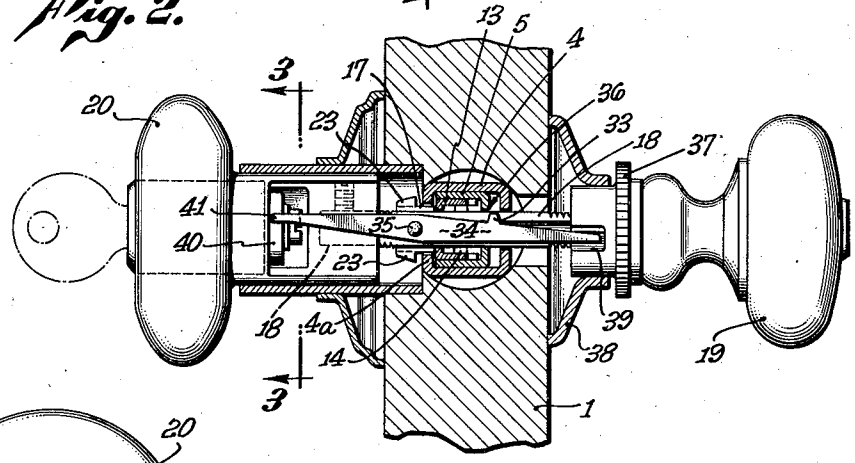


Fig. 2.



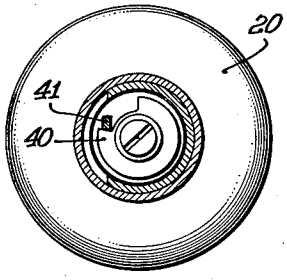


Fig. 3.

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Fig. 4.

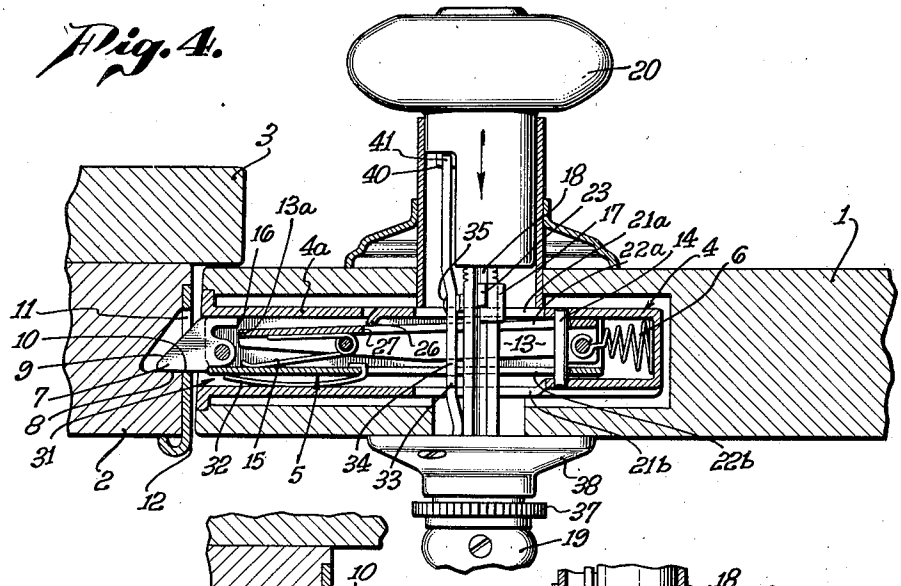


Fig. 6.

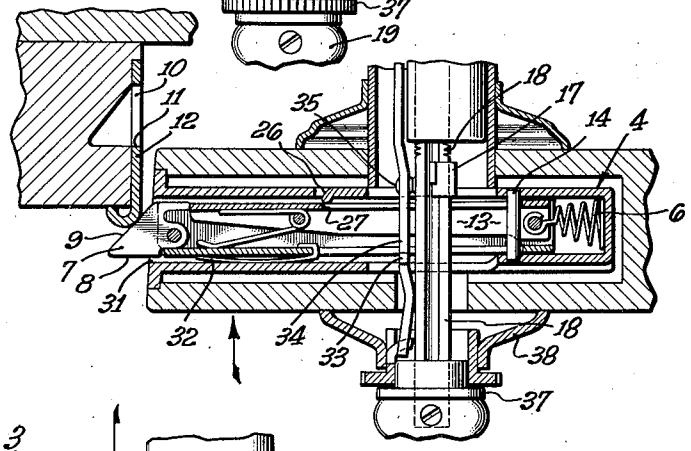
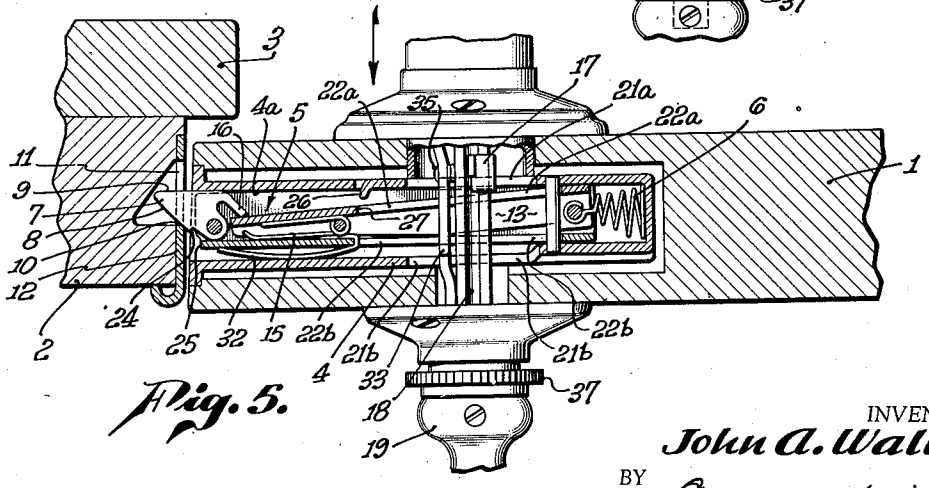


Fig. 5.



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Fig. 7.

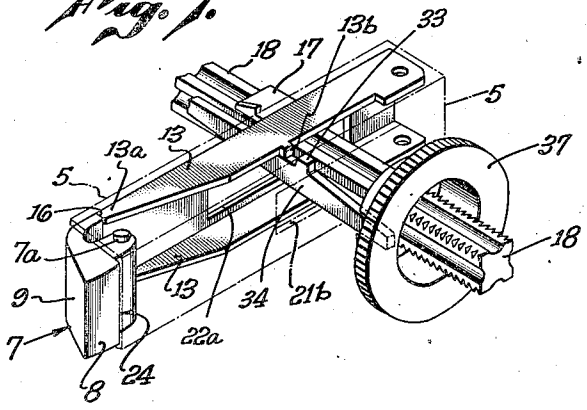


Fig. 8.

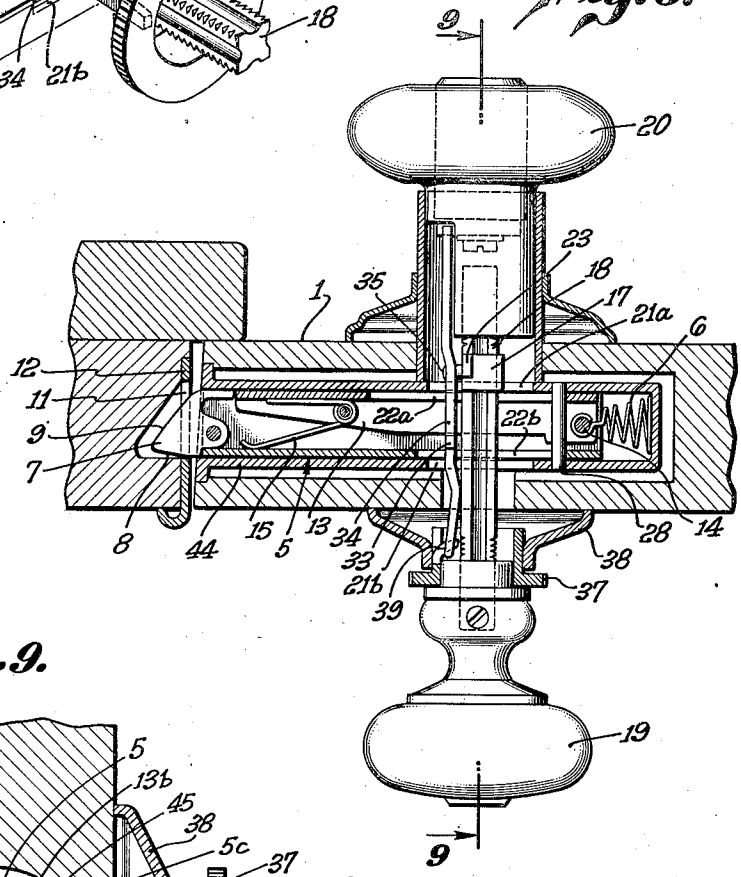
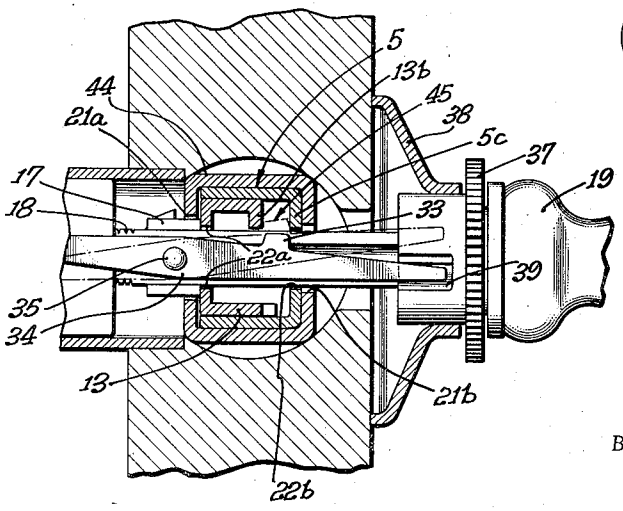


Fig. 9.



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Fig. 10.

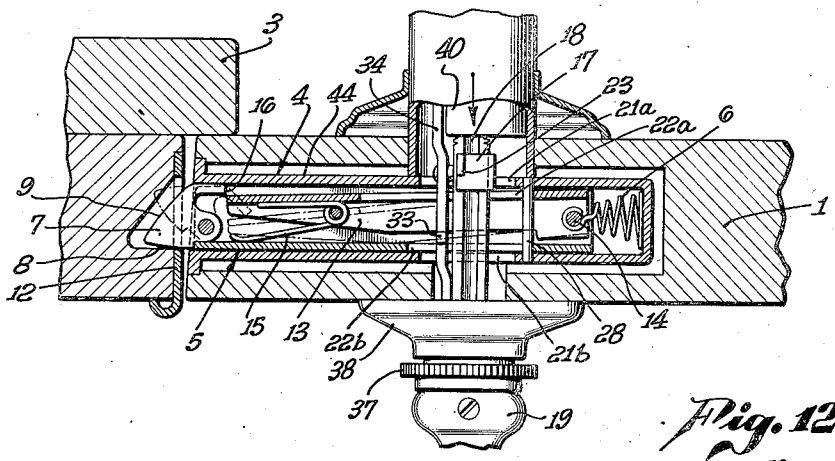


Fig. 11.

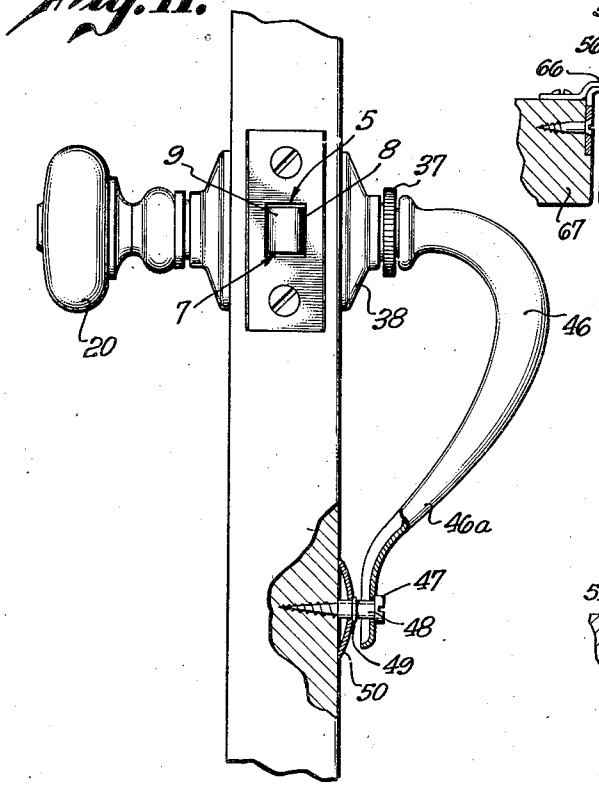


Fig. 12.

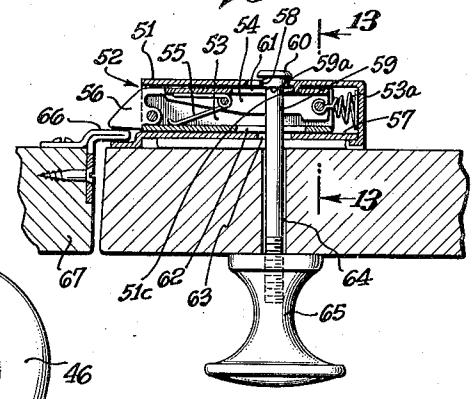
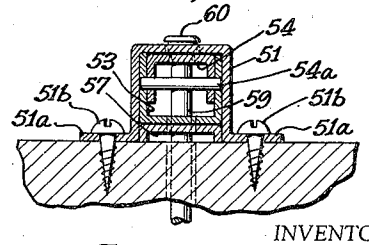


Fig. 13.



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2,428,401

UNITED STATES PATENT OFFICE

2,428,401

LOCK CONSTRUCTION FOR DOOR STRUCTURES AND THE LIKE

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Application October 31, 1945, Serial No. 625,737

8 Claims. (Cl. 292—192)

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This invention relates to locks and more particularly to locks of the latch type normally used on doors and the like, and has for its principal object to provide a simple, cheaply constructed and efficient lock which is adapted to be unlatched by a relatively minor movement of the associated handle or knob, as by an axial thrust or pull upon the latch knob spindle.

I am familiar with the fact that numerous forms of thrust-operated door locks have been heretofore suggested, wherein a thrust or pull upon the knob spindle serves to withdraw the bolt for unlatching the lock, i. e., where the forces required to withdraw the latch from engagement with the striker plate are obtained through this axial movement rather than through the rotative movement customarily employed in door locks of this general type, and this invention is distinguished therefrom in that the movement required according to the present concept is merely such as to render the latch means ineffective, independent of actual withdrawal of the latch from the striker plate, so that the door or the like may then be opened.

One of the particular objects of the invention is to provide a door latch construction having a slidable bolt member carrying a pivoted latch member which is adapted to cooperate with the conventional striker plate on the relatively fixed portion of the door assembly, and means normally fixing said pivoted latch portion against pivotal movement, together with means for releasing the latch member and allowing the same to pivot when it is desired to open the door.

Another object of the invention is to provide a latch construction which is not subject to "picking."

A further object of the invention is to provide a very compact lock construction which may be installed in a door member without the use of special tools and without requiring a high degree of skill.

The lock construction of this invention comprises, essentially, an elongated bolt structure carrying a pivoted latch member at its outer end and adapted to be disposed in a door stile in the conventional manner, together with a latch-release member forming a part of the bolt structure and adapted to cause the pivoted latch member to be restrained in a normal position corresponding to a conventional latch type of structure when the latch-release member is located in a normal position, such latch-release member being mounted for movement in response to the lock actuating means (such as the lock

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handle or knob) and adapted upon such movement to release the latch member and permit same to pivotally retract from engagement with the striker plate which is employed in the conventional relationship.

According to a preferred embodiment of the invention the elongated bolt member is slidably mounted within an elongated housing and adapted both for longitudinal forward and rearward movement with respect to the housing after the manner of the conventional sliding bolt in a lock construction, and for a lateral sliding movement of limited extent in a direction transverse to the length of the bolt member. Cooperating shoulder means are provided on the bolt member and the housing to cause the bolt member to persist in a forward or locked position, in which the latch is positively engaged within the opening in the striker plate so that the door cannot be opened and so that the latch can not be "picked" through the expedient of slipping an instrument past the door stop and between the edge of the door stile and the door jamb, and forcing the latch inwardly by pressure along the conventional inclined end surface of the latch. When the door is intended to be opened, it is merely necessary to operate the latch-release member, thus permitting the pivoted latch portion to retract to a disengaging position, after which the door may be opened in the conventional manner. In such a construction, the striker plate will be so arranged that the amount of lateral sliding movement permitted of the bolt structure when the door is latched is restricted to an amount less than that necessary to disengage the cooperating shoulder means which cause the bolt to persist in a locking position, the full lateral sliding movement of the bolt being utilized only in the closing operation of the door as particularly brought out hereinafter.

The above and other objects and features of this invention will be brought out in the ensuing description of certain preferred embodiments thereof which are particularly illustrated in the accompanying drawings, in which:

Fig. 1 is a longitudinal section through a door construction embodying a "non-pickable" lock according to the present concept;

Fig. 2 is a transverse section thereof taken on line 2—2 in Fig. 1;

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

Fig. 4 is a view corresponding to Fig. 1 illustrating the relative position of the bolt structure

upon initiation of an opening movement for the door;

Fig. 5 is a view corresponding to Fig. 4 showing the door in a more advanced stage of the opening movement;

Fig. 6 is a view corresponding to Figs. 4 and 5, showing the relationship of the parts which is established during a closing operation;

Fig. 7 is an isometric perspective of a bolt construction according to this invention, of the type useful for interior doors where the "non-pickable" feature is not required;

Fig. 8 is a view corresponding to Fig. 4, illustrating a construction where a bolt of the type of Fig. 7 is applied;

Fig. 9 is a fragmentary sectional view as taken on line 9—9 in Fig. 8;

Fig. 10 illustrates the embodiment shown in Figs. 7–9, in a view corresponding to Fig. 4;

Fig. 11 is an edge view of a door incorporating a lock construction according to this invention, illustrating the use of a modified form of handle in place of a conventional knob;

Fig. 12 is a view corresponding to Figs. 1 and 8, illustrating a form of lock construction which would be suitable for use on cupboard doors and the like; and

Fig. 13 is a transverse sectional view as taken on line 13—13 in Fig. 12.

Referring to Figs. 1 through 6 of the drawings, a door stile is fragmentarily illustrated at 1, together with an associated door jamb 2 provided with a door stop 3. Within the door stile 1 the lock construction of the present invention is incorporated, and may comprise a tubular elongated bolt housing 4 carrying a sliding bolt 5, provided at its forward end with a pivoted latch member 7 provided with two adjacent relatively inclined cam surfaces 8 and 9, the cam surface 8 comprising the "locking" surface for the normal position of the latch member on the bolt 5 and the cam surface 9 comprising the cam surface which is utilized to retract or withdraw the bolt 5 into the housing 4 during the closing operation. The bolt 5 is provided with means for engaging the pivotally mounted latch member 7 to normally retain this latch member in the position shown in Fig. 1, wherein the rearwardly disposed locking cam face 8 is disposed in position to engage the forwardly directed edge 10 of the opening 11 in a striker plate 12 mounted upon the door jamb 2. This last-named means is mounted so as to be movable with respect to the main bolt structure so that it may be moved out of this position retaining the latch member in full line location shown in Fig. 1 and allow the same to pivot clockwise about its pivot point 7a and thereby release itself from engagement with the striker plate. For this purpose such means may comprise a pivotally mounted latch-release member 13, which is preferably pivotally mounted on the bolt 5 adjacent the rearward end thereof, as at 14, and is normally adapted to lie along the forward side ("forward" in the sense of the direction of movement of the door 1 in the closing operation) of the bolt 5, and is preferably biased toward this normal position through the agency of a spring 15 or the like. In this normal position the forward end 13a of the latch-release member 13 is caused to bear against a shoulder member 16 on the latch 7.

The sliding bolt member 5 may conveniently be formed of U or channel shape, laid on its side as may be seen in Fig. 2, and the latch-release member 13 may be formed as a channel member of opposite hand fitting within the leg or flange portions of the bolt 5. In order to release the pivoted latch 7 from engagement with the striker plate, it is merely necessary to disengage the latch-release member from the latch member, as by disengaging the cooperating shoulders 13a and 16 on the respective members. This is conveniently done by a rearward (downward in Fig. 1) lateral movement of the left-hand end of the latch-release member 13, as by the pivotal movement about the axis defined at 14, in any convenient manner. As an example of a suitable means of disengaging the latch-release member from the latch I have shown an actuating foot 17 mounted upon a spindle 18 connected to the interior and exterior lock-operating knobs 19 and 20. The spindle 18 is adapted to extend through the bolt assembly as through a slot 21a in the forward wall 4a of the housing 4, an elongated slot 22a in the forward wall of the latch-release member 13, an elongated slot 22b in the rearward wall of the bolt 5, and a slot 21b in the rearward wall of the housing 4, the forward slot 21a in the housing 4 being larger in its transverse dimension than the slot 22a in the member 13 to permit the actuating foot 17 to extend through the slot 21a and into engagement with the forwardly directed wall or web portion of the web member 13 at the transverse edges of the slot 21a. The actuating foot 17 may be provided with transversely extending ears or dogs 23 adapted to engage the forward wall of the bolt housing 4 to limit the amount of axial movement of the spindle 18, if desired.

In the opening movement of the door, assuming the door lock and assembly to be in the condition illustrated in Fig. 1, the operator pulls rearwardly on the knob 19 or pushes upon the exterior knob 20 as in the direction of the arrow in Fig. 4, thereby pushing upon the spindle 18 and forcing the actuating foot 17 against the forward wall of the latch-release member 13, moving it to the position shown in Fig. 4, against the biasing action of the spring 15. By this movement of the latch-release member, the shoulder 13a at the left-hand end of the latch-release member is removed from engagement with the shoulder 16 on the latch member 7, and further effort on the door knob tending to move the door rearwardly toward an open position causes the forwardly directed edge 10 of the striker plate 12 to push against the locking face 8 of the latch member 7 and rotate the latch member clockwise toward the position thereof shown in Fig. 5. In this latter position, the locking face 8 of the latch member 7 is located in a rearwardly inclined position so that further effort in opening the door results in a camming action upon the latch member which tends to force the bolt 5 rearwardly within the housing 4, against the biasing action of a bolt spring 6, until the bolt is sufficiently retracted that the outer end of the latch 7 passes out of the opening 11 in the striker plate 12, whereupon the door may readily be opened. As soon as the latch member 7 is withdrawn from contact with the striker plate 12, the bolt assembly resumes the position of Fig. 1 within the bolt housing under the influence of the springs 6 and 15, the latch member 7 being preferably so constructed in this connection that the portion thereof defining the shoulder 16 acts as cam means which will follow the outer end of the latch-release member 13 and force the same towards the position of Fig. 6, whereby upon release of the latch member by the striker plate the spring

15 will rotate the latch member 7 counter-clockwise to its original position through the intermediate latch-release member. In order to locate the latch member 7 in the position of Fig. 1 when the door is brought to open position, I preferably provide cooperating shoulder means 24 and 25 on the latch member and the adjacent portion of the bolt member 5 to prevent counter-clockwise rotation of the latch member beyond this desired position. These cooperating shoulder means are more particularly illustrated and identified in Fig. 5.

The particular embodiment of the invention illustrated in Figs. 1 through 6 is of the "non-pickable" type, and this feature is realized by the provision of cooperating shoulder means upon the bolt housing and the bolt to cause the bolt and the latch assembly to persist in the position of Fig. 1 until these cooperating shoulder means are disengaged. These cooperating shoulder means may be provided in any desired location to attain the required results, and I have illustrated an example of such shoulder means as comprising a lug 26 adapted to enter the slot 22*a* in the member 13 and to engage the left-hand or forward end 27 of said slot when the latch-release member is in its forward position of Fig. 1. The outermost or most forward position of the latch 7 and bolt member 5 is determined by a pin 28 secured to the housing 4 and extending through the slot 22*a* in the latch member 13 and the slot 22*b* in the rearward wall or web portion of the channel shaped bolt 5, against which the bolt structure may ride under the biasing action of the spring 6. With the lock structure in the position shown in Fig. 1, in the event that a person should insert a picking tool through the space between the striker plate 12 and the edge of the door, in an attempt to crowd the latch and bolt to the right to release the latch from the striker plate, the slot end 27 will come into engagement with the lug 26 and effectively prevent the lock from being picked. When the latch-release member 13, which forms a part of the bolt 5, is moved into the position of Fig. 4 through the action of the spindle 18 and the actuating foot 17, the cooperating shoulder members defined by the portions 26 and 27 are brought out of engagement position, as shown in Fig. 4, thus eliminating restraint upon the inward movement of the bolt assembly.

As brought out above, when the door is open so as to remove the latch member 7 from engagement with the striker plate 12, the bolt assembly assumes the position of Fig. 1 with respect to the bolt housing 4, and in order to provide for retraction of the bolt assembly within the housing to permit the closing operation of the door to be carried out, I adapt the forward end of the bolt member 5 for a limited lateral movement away from the forward wall 4*a* of the bolt housing 4 to an amount sufficient to clear the cooperating shoulder means 26—27. This is illustrated more particularly in Fig. 6 in connection with the position of the parts which are adopted as the door is brought toward closing position, as by expanding the bolt housing 4 at the forward end to provide a space 31 at the rearward side of the bolt housing into which the bolt 4 may be moved. A biasing spring 32 is provided to normally bias the bolt 5 against the forward wall 4*a* of the housing. In the closing operation, when the forward face 9 of the latch 7 is brought against the rearward edge of the striker plate 12, the first result is to cause a rearward relative

movement of the bolt assembly with respect to the housing 4, into the position of Fig. 6, at which time the end 27 of the slot 22*a* is brought past the edge of the lug 26, after which further pressure upon the door will cause the bolt assembly to be retracted within the bolt housing against the action of the spring 6 as a result of the camming action of the striker plate upon the face 9 of the latch 7. After the latch has been brought in opposition to the opening 11 of the striker plate 12, the latch will be pushed through the opening 11 by the spring 6, the biasing spring 32 being of sufficient strength to cause the bolt 5 to be forced against the forward wall 4*a* of the bolt housing when the bolt has been fully retracted and the inclined face 9 of the latch member 7 has been brought out of engagement with the striker plate. Doors are normally set so that there is about $\frac{1}{32}$'' play in the door, that is, that the distance between the forward edge 10 of the opening in the striker plate is spaced about $\frac{1}{32}$'' farther from the door stop 3 than the corresponding position of the locking face 8 of the latch from the forward face of the door. This minor difference in spacing is illustrated in Fig. 1 and is apparent from Fig. 4. The amount of interlock between the cooperating shoulder means 26 and 27, and the amount of lateral movement permitted of the bolt 5 within the housing 4 is preferably materially in excess of this normal clearance of $\frac{1}{32}$'', so that it would be impossible for a prowler or the like to urge the door forwardly an amount sufficient to enable the insertion of a picking tool into contact with the inclined face 9 and crowd the bolt 5 rearwardly an amount sufficient to clear the cooperating shoulder means 26 and 27 before the locking face 8 of the latch member engages the forward edge of the opening in the striker plate, as will be apparent to those skilled in the art.

Suitable locking means may be provided for preventing unauthorized opening of the door, and this may conveniently be attained through the agency of a locking lug 33 which is interposed between the bolt 5 and the housing 4 in such manner as to prevent relative movement between these parts sufficient to clear the cooperating shoulder means 26—27 or to release the pivoted latch member 7. This locking lug 33 may conveniently be provided upon a locking lever 34 pivotally mounted on the spindle 18 as at 35. Suitable means are provided for rotating the locking lever 34 so as to move the locking lug 33 into and out of position between the bolt 5 and the housing 4, i. e., into and out of the space 36 indicated in Fig. 2, such as locking ring 37 rotatably mounted within an escutcheon plate or the like 38 and adapted to engage a rearwardly projecting end portion of the locking lever 34, as at 39, adjacent the interior knob 19, and a conventional key or cylinder lock structure at the exterior knob 20 provided with an actuating member 40 adapted to engage a forwardly directed portion of the lever 34, as at 41.

In Figs. 7 through 10, I have provided a modified form of lock construction suitable for use in an interior door wherein no provision is made for preventing the lock from being picked. In this illustration, the respective parts which are common to the first-described form of the invention are identified by similar reference numerals, the main difference in the two structures being that in the instant form of device the bolt 5 is not adapted for lateral sliding movement and the bolt housing 44 is for this reason made rather

compact so as to constrain the bolt 4 to mere longitudinal movement. In order to illustrate the application of a lock to this form of the device the lock arrangement of Figs. 1 through 6 has been shown, the only change over the construction of Figs. 1 through 6 which is required by the different construction of the bolt housing 44 is that the locking lug 33 on the locking lever 34 is caused to be disposed between the rearward edge of the latch release member 13 and the forward edge of the rearward wall of the bolt member 5, as at 45 in Fig. 9, as will be apparent. A lug portion 13b may be struck downwardly from the upper flange of the latch-release member 13 to provide the desired locking engagement against the lug 33 for this purpose.

Fig. 10 illustrates the movement of the latch-release member 13 to a position such as to release the engagement between the shoulder 13a on the latch-release member and the shoulder 16 on the latch 7, and the rotated position of the latch 7 out of the normal latching position is indicated in dot-dash lines in this figure, together with a dot-dash indication of the moved position of the latch member 13.

It will be appreciated that the movement of the latch member to this dot-dash indicated position actually takes place during the opening movement of the door, as a result of the pressure applied upon the face 8 of the latch member by the forward edge 10 of the striker plate, rather than before relative movement has taken place between the door 1 and the door jamb 2, as might be inferred from the showing of Fig. 10.

Fig. 11 illustrates an edge view of a door incorporating a lock construction according to this invention, in which the interior door knob has been replaced by a handle member 46, which would be threadedly disposed upon the interiorly projecting spindle 18 of either of the above constructions and the handle carried downwardly to provide a depending portion 46a which is loosely attached to the door in any suitable manner. In the specific construction illustrated in Fig. 11 the attachment of the depending end of the handle 46 is provided through the agency of a screw 47 extending through an opening in the handle and through a small ferrule sleeve 48 provided with a projecting shoulder 49 adapted to retain a trim disc 50 in place against the door 1. It will be appreciated that for interior doors, the lock construction represented by the arm 34 and lock ring 37, for example, may be omitted.

In Figs. 12 and 13 I have illustrated a modified construction adapted more particularly for use on light structures such as cupboard doors and the like, which may comprise a bolt housing 51 of generally U-cross section provided with attaching ears 51a whereby the housing may be attached to the door structure through screws or the like 51b, the bolt housing being provided with an open end 52 corresponding to the bolt structure provided in the showing of Figs. 1 through 10. A bolt 53 is slidably disposed within the housing 51, and is provided with a latch-release member 54 pivotally mounted on the bolt member 53 as at 54a and provided with a biasing spring 55 corresponding to the spring 15 above. At the forward end of the bolt 53, I provide a pivoted latch member 56 corresponding to the latch member 7 above. The inner edge of the bolt housing 51 is closed through the agency of a frictionally located closing plate 57. The outer wall of the housing 51 is provided with an opening 58 through which an actuating bolt 59 extends, a head 60 being provided on the outer end of the bolt 59 to limit the total movement of the bolt with respect to the structure. A suitable slot 61 is provided in the latch-release member 54, corresponding to the slot 22a in the above described structure, against the edges of which a shoulder 59a of the bolt head 60 is adapted to bear in the operation of the structure. A corresponding slot 62 is provided in the inner wall of the bolt 53, and an opening 63 is provided in the closing plate 57 through which the bolt 59 extends, said bolt being further extended through a hole 64 in the door and an actuating knob is provided on the projecting end of the bolt. A lug 51c may be struck out of the outer wall of the housing 51 in position to engage the rearward end of the slot 61 in the latch-release member 54, to limit forward longitudinal movement of the bolt 53 past the desired predetermined position necessary for cooperation between the pivoted latch 56 and the associated striker plate 66 provided on the door jamb 67. A biasing spring 53a is provided, corresponding to the spring 6 above, to maintain the bolt member 53 in a forwardly urged position.

The operation of the type of lock shown in Figs. 12 and 13 is comparable to that provided in the prior described forms of the device in that a pull upon the actuating knob 65 will cause the shoulders 59a on the bolt head 60 to engage the pivoted latch member 54, withdrawing it from engagement with pivoted latch member 56 and allowing the latter to be rotated clockwise by engagement with the striker plate 66. Upon rotation of the pivoted latch member 56 to a clockwise position, the bolt 53 will be forced rearwardly within the bolt housing 51, allowing the tip of the latch member 56 to be drawn past the striker plate 66.

The above embodiments of this invention are to be considered as illustrative only, and I do not choose to be limited to the specific details herein set forth, but rather to the scope of the subjoined claims.

I claim:

1. In a lock construction for door structures and the like, a bolt construction which comprises: an elongated bolt housing having an open end; an elongated bolt member slidably mounted in said housing for longitudinal movement, said bolt member being also adapted for lateral sliding movement at the end thereof adjacent said open end of said housing; spring means biasing said end of said bolt member toward one side of said housing into a locking position; spring means biasing said bolt member longitudinally in a forward direction toward said open end of said housing; limit stop means on said housing adapted to engage said bolt member and constrain the same against forward movement beyond a pre-determined position; cooperating shoulder means on said housing and on a portion of said bolt member adapted for engagement with one another when said bolt member is in said locking position, and adapted to be disengaged upon movement of said bolt member laterally out of said locking position, said cooperating shoulder means being positioned to restrain said bolt member against substantial longitudinal rearward movement away from said predetermined position when said bolt member is in said locking position; a latch member pivotally mounted on said bolt member at said end thereof adjacent said open end of said housing and normally projecting through said open end, the axis of pivotal movement of said latch member being substantially normal to the direction of lateral sliding movement of said bolt member and

transverse to the length of said bolt member; shoulder means on said latch member; shoulder means on said bolt member adapted to engage said latch member shoulder means and constrain said latch member against pivotal movement in one direction and thereby define a first pivotal position for said latch member; a latch-release member pivotally mounted on said bolt member and forming a portion thereof; a second shoulder means on said latch member; shoulder means on said latch-release member adapted to engage said second shoulder means in one position of said latch-release member and constrain said latch member against pivotal movement in the other direction out of said first pivotal position, said latch-release member being pivotally movable to a second position such that the shoulder means on said latch-release member is located out of engagement with the second shoulder means on said latch member; spring means biasing said latch-release member toward said one position; and said latch member being provided with two adjacent relatively inclined cam surfaces respectively arranged so that one of said cam surfaces is disposed in an inclined position extending rearwardly toward said one side of said housing when said latch member is disposed in said first pivotal position, and the other of said cam surfaces is disposed in an inclined position extending rearwardly away from said one side of said housing when said latch member is moved in said other direction into a second pivotal position.

2. The construction set forth in claim 1, in which the shoulder means on said bolt member forming a part of said cooperating shoulder means is provided on said latch-release member, whereby upon movement of said latch-release member out of said one position said cooperating shoulder means are brought out of engagement with one another.

3. A construction as set forth in claim 1, said latch member being provided with a cam surface adapted to engage said latch-release member and cause movement thereof beyond said second position away from said first position of said latch-release member upon movement of said latch member out of said first pivotal position toward the second pivotal position thereof.

4. In a lock construction for door structures and the like, a bolt construction which comprises: an elongated bolt housing having an open end; an elongated bolt member slidably mounted in said housing for longitudinal forward and rearward movement, said bolt member being also adapted for lateral movement at the forward end thereof adjacent said open end of said housing; spring means biasing said bolt member toward one side of said housing at said forward end; spring means biasing said bolt member forwardly; stop means on said housing adapted for engagement with said bolt member and limit the forward movement thereof past a predetermined position; stop means on said housing adapted to engage a portion of said bolt member and constrain the same against substantial rearward movement away from said predetermined position, said portion of said bolt means being mounted for movement with respect to the main body of said bolt member to disengage from said second-named stop means whereby said bolt member is released from said last-named stop means and capable of substantial rearward movement while persisting in position at said one side of said housing; a latch member pivotally mounted on said bolt member at the forward end thereof and extending through said open end of said housing when said bolt member is in said predetermined position; cooperating shoulder means on said latch-member and on said movable portion of said bolt member adapted to interengage with one another when said second-named stop means and said movable portion are engaged with one another, to constrain said latch member against pivotal movement in one direction, and to disengage upon movement of said movable portion to a position such as to disengage said second-named stop means; and spring means normally biasing said movable portion toward said one side of said housing.

5. In a lock construction for door structures and the like, a bolt construction which comprises: an elongated bolt housing having an open end; an elongated bolt member slidably mounted within said bolt housing for longitudinal forward and rearward movement and for lateral movement toward and away from one side of said housing at the forward end thereof adjacent said open end; spring means baising said bolt member toward said one side of said housing; spring means biasing said bolt member forwardly; stop means on said housing adapted to engage said bolt member and limit the forward movement of said bolt member to a predetermined forward position; cooperating detent means on said bolt housing and said bolt member to limit the rearward movement of said bolt member away from said predetermined position when said bolt member is in position at said one side of said housing; a latch member pivotally mounted on said bolt member at the forward end thereof and normally projecting through said open end of said housing; a movable latch-release member on said bolt member and provided with shoulder means adapted to engage said latch member to constrain the same against pivotal movement in one direction when said latch-release member is in a normal position, said latch-release member being movable out of said normal position to release said engagement; and means biasing said latch-release member toward said normal position.

6. A lock construction for door structures and the like, which comprises: an elongated bolt housing having an open end; an elongated bolt member slidably mounted in said housing for longitudinal movement, said bolt member being also adapted for lateral sliding movement at the end thereof adjacent said open end of said housing; spring means biasing said end of said bolt member toward one side of said housing into a locking position; spring means biasing said bolt member longitudinally in a forward direction toward said open end of said housing; limit stop means on said housing adapted to engage said bolt member and constrain the same against forward movement beyond a predetermined position; cooperating shoulder means on said housing and on a portion of said bolt member adapted for engagement with one another when said bolt member is in said locking position, and adapted to be disengaged upon movement of said bolt member laterally out of said locking position, said cooperating shoulder means being positioned to restrain said bolt member against substantially longitudinal rearward movement away from said predetermined position when said bolt member is in said locking position; a latch member pivotally mounted on said bolt member at said end thereof adjacent said open end of said housing and normally projecting through said open end, the axis of pivotal movement of said latch member being substantially normal to the direction of lateral sliding move-

ment of said bolt member and transverse to the length of said bolt member; shoulder means on said latch member; shoulder means on said bolt member adapted to engage said latch member shoulder means and constrain said latch member against pivotal movement in one direction and thereby define a first pivotal position for said latch member; a latch-release member pivotally mounted on said bolt member and forming a portion thereof; a second shoulder means on said latch member; shoulder means on said latch-release member adapted to engage said second shoulder means in one position of said latch-release member and constrain said latch member against pivotal movement in the other direction out of said first pivotal position, said latch-release member being pivotally movable to a second position such that the shoulder means on said latch-release member is located out of engagement with the second shoulder means on said latch member; manually operable means extending externally of the bolt and bolt housing structure and adapted for engagement with said latch-release member to move the same out of said one position in response to a thrust on said means in the direction of opening movement of the door structure with which said bolt member is associated; spring means biasing said latch-release member toward said one position; and said latch member being provided with two adjacent relatively inclined cam surfaces adapted to cooperate with a striker plate associated with said door structure and respectively arranged so that one of said cam surfaces is disposed in an inclined position extending rearwardly toward said one side of said housing when said latch member is disposed in said first pivotal position, and the other of said cam surfaces is disposed in an inclined position extending rearwardly away from said one side of said housing when said latch member is moved in said other direction into a second pivotal position.

7. A lock construction for door structures and the like, which comprises: an elongated bolt housing mounted on a movable door and having one end opening through the door stile at the edge of such door, a bolt member slidably mounted in said housing for longitudinal movement in forward and rearward directions with respect to such open end of said housing, said bolt member being also adapted for limited lateral sliding movement in the direction of opening movement of said door at the forward open end of said bolt housing; spring means biasing said bolt member into a locking position against one side of said bolt housing in the direction of forward movement of said door during a door-closing operation; spring means biasing said bolt member forwardly within said housing; stop means on said housing cooperating with said bolt member to limit the forward movement thereof to a predetermined forward position; cooperating shoulder means on said housing and said bolt member adapted for engagement with one another when said bolt member is in said locking position and constrain said bolt member against substantial rearward movement away from said predetermined forward position, said cooperating shoulder means being adapted to be brought out of engagement upon lateral movement of said bolt member out of said locking position; a latch member pivotally mounted on said bolt member at the forward end thereof and normally projecting through the open end of said housing, the axis of pivotal movement of said latch member being disposed substantially normal to the direction of movement of said door and to the direction of sliding movement of said bolt member; shoulder means on said latch member; shoulder means on said bolt member adapted to engage said latch-member shoulder means and constrain said latch member against pivotal movement in one direction and thereby define a first pivotal position of said latch member; a latch-release member pivotally mounted on said bolt member and forming a position thereof; a second shoulder means on said latch member; shoulder means on said latch-release member adapted to engage said second shoulder means in one position of said latch-release member and constrain said latch member against pivotal movement in the other direction out of said first pivotal position of said latch member, said latch-release member being pivotally movable to a second position to cause disengagement thereof from said second shoulder means on said latch member; spring means biasing said latch-release member toward said one position; manually operable means carried by said door and mounted for movement in the direction of rearward movement of said door during a door-opening operation, said last-named means cooperating with said latch-release member to cause movement thereof out of said one position upon movement of said means; said latch member being provided with two relatively inclined forwardly projecting cam surfaces respectively arranged so that one of said cam surfaces is disposed in an inclined position extending rearwardly with respect to said bolt member toward said one side of said housing and the other of said cam surfaces is disposed substantially parallel to said bolt member, when said latch member is in said first pivotal position, and the movement of said latch member in said other direction out of said first pivotal position being such as to cause said other cam surface to be disposed in an inclined position extending rearwardly with respect to said bolt member toward the side of said bolt housing opposite said one side, whereby said relatively inclined cam surfaces are respectively adapted to cooperatively engage a striker plate associated with the door structure in the closing and opening movements of said door and effect rearward movement of said bolt member.

8. A lock construction as set forth in claim 7, said latch-release member being movable with said bolt member during said limited transverse movement of said bolt member, and being adapted for movement out of said one position independent of such limited lateral movement, and the shoulder means on said bolt member which forms a part of said cooperating shoulder means being provided on said latch-release member, whereby disengagement of said cooperating shoulder means is obtained upon movement of said latch-release member out of said one position.

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