

Sept. 17, 1946.

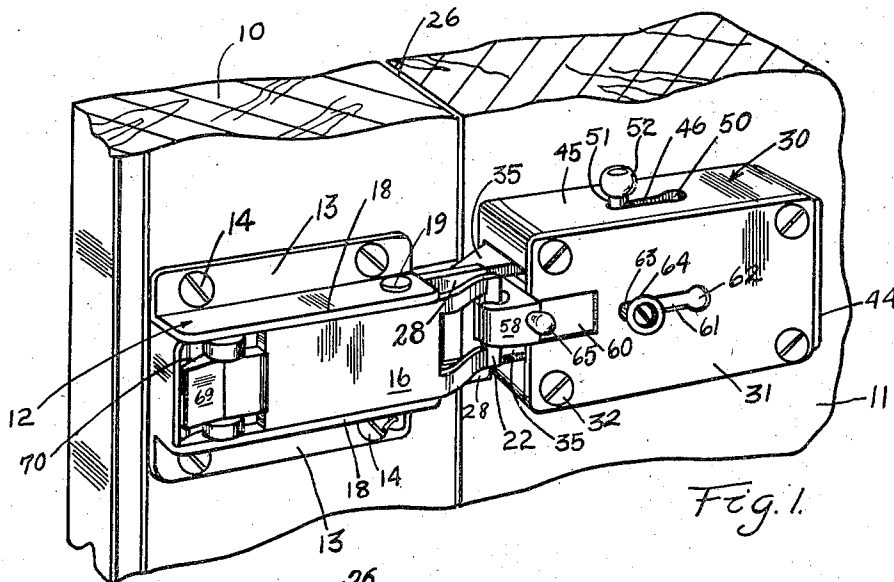
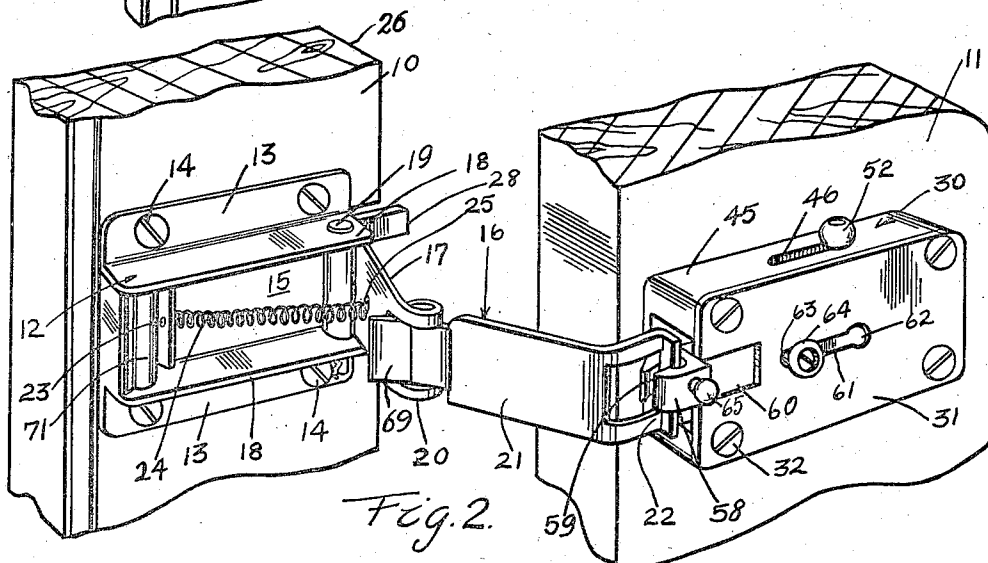
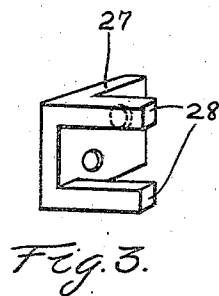
1. PAUL

2,407,900

COMBINATION LOCK AND LATCH FOR DOORS

Filed Jan. 10, 1946

2 Sheets-Sheet 1



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Sept. 17, 1946.

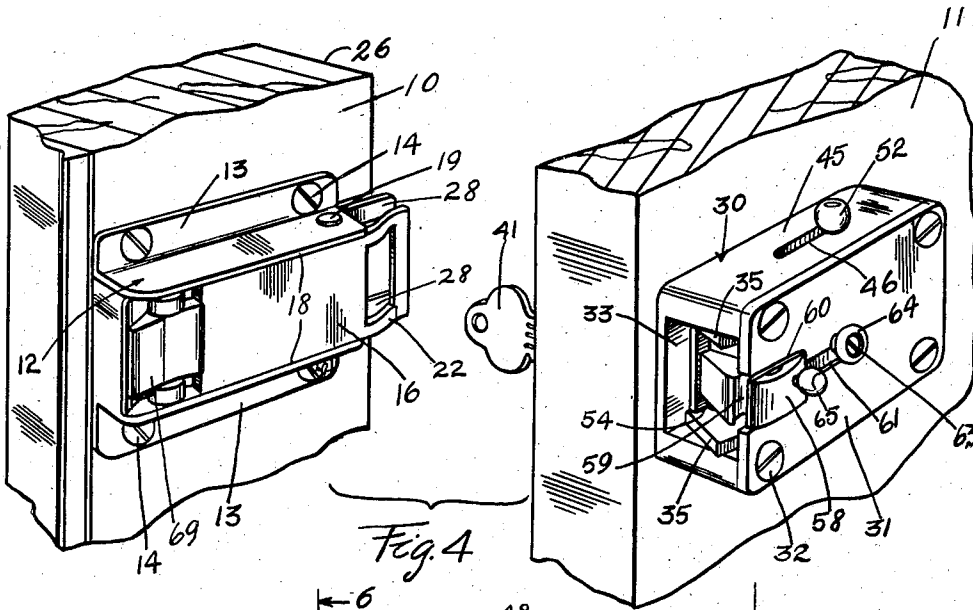
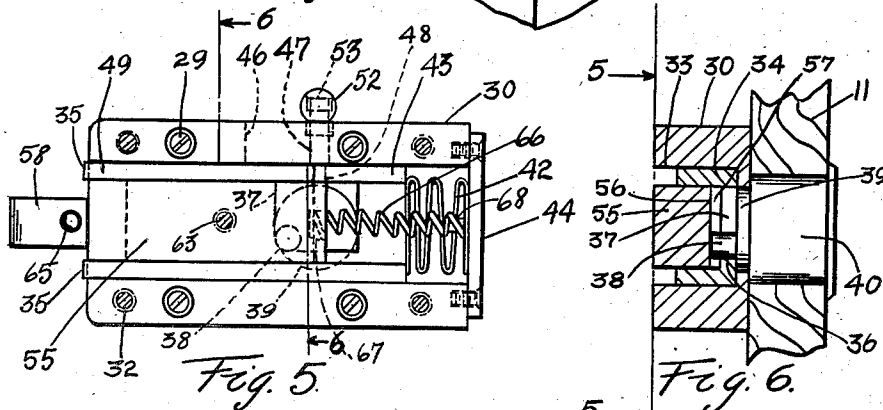
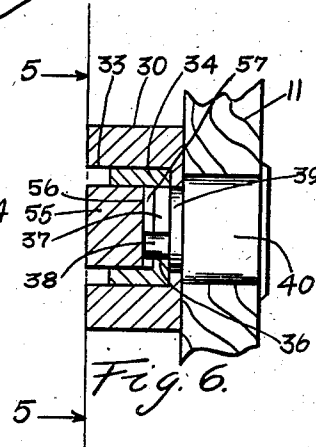
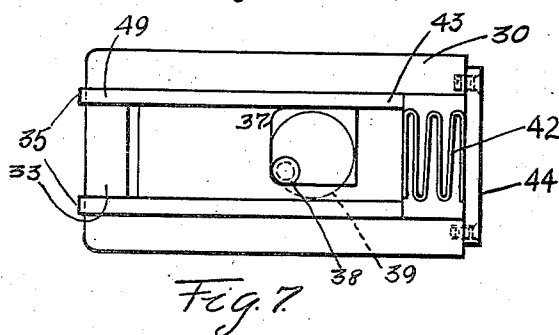
I. PAUL

2,407,900

COMBINATION LOCK AND LATCH FOR DOORS

Filed Jan. 10, 1946

2 Sheets-Sheet 2



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COMBINATION LOCK AND LATCH FOR DOORS

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6 Claims. (Cl. 70-93)

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This invention relates to a combination lock and latch for a door and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

It is an object of this invention to provide a combination lock and latch for a door in which the combination lock and latch has provision for locking the door to a door jamb and for latching the door to the jamb whereby, when the lock is in an unlocked position with respect to the jamb, movement of the door to open position will be limited by the latch, thereby enabling one to observe from the inside of a room with which the door is associated, who is present on the opposite side of the door.

A still further and equally important object of the invention is the provision of a combination lock and latch for a door whereby should the lock be actuated by an unauthorized person to open the door, the latch will be effective to prevent opening of the door to the extent of permitting the admission of the person who has thus unlocked the door.

Yet another object of the invention is the provision of a combination lock and latch for a door wherein the lock and latch comprise a lock bolt and a latch bolt, respectively, which are independently slidable with respect to each other and with respect to the door with which they are associated.

Another and equally important object of the invention is the provision of a combination lock and latch for a door wherein the latch comprises parts foldable upon each other and upon a door jamb with which associated, thereby providing a latch arm which, when not in use, may occupy the minimum space.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a fragmentary perspective view of a door jamb and a door showing my combination lock and latch associated therewith and in locked and latched position;

Fig. 2 is a fragmentary perspective view of the door jamb and door illustrated in Fig. 1, showing the lock in disassociated position with respect to its keeper plate, but showing the door in a

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limited open position under the control of the latch mechanism embodied in the invention;

Fig. 3 is a perspective view of a suggested form of keeper plate embodied in the invention;

Fig. 4 is a fragmentary perspective view of the door jamb and door as shown in Fig. 2, but showing the lock and the latch mechanism in unlocked and unlatched condition, respectively;

Fig. 5 is a plan view taken substantially on line 5-5 of Fig. 6;

Fig. 6 is a sectional detail view taken substantially on line 6-6 of Fig. 5;

Fig. 7 is a plan view similar to Fig. 5 showing the latch mechanism removed.

The several objects of this invention are accomplished by the preferred form of construction illustrated in the accompanying drawings. In these drawings the door jamb is indicated at 10. This door jamb may be of any approved style or construction and has associated therewith a swinging door 11 also of any approved style or design.

Attached to the door jamb 10 is a casing 12, having lateral flanges 13 connected to the door jamb 10 by suitable screws 14. This casing provides a channel 15 in which there is adapted to be confined a latch arm 16. This latch arm 16 comprises a link 17 pivotally connected to the side walls 18 of the casing 12 as at 19. This latch arm 16 also includes a link 21 pivotally connected as at 20 to the outer end portion of the link 17. The link 21 provides a keeper head 22. Secured to the casing 12 as at 23 is one end portion of a spring 24, the opposite end portion of the spring being connected as at 25 to the link 17. The arrangement is such that when the arm 16 is in unlatched position, the link 21 will be folded upon the link 17 and both links in this folded position with respect to each other will be retained by the spring 24 in the channel 15 of the casing 12.

Secured to the edge 26 of the door jamb 10 is a keeper plate 27 having spaced arms 28 which serve as lock arms, for reasons and in a manner hereinafter set forth.

Secured to the door 11 by means of screws 29 is a casing 30 having a removable cover plate 31, the cover being attached to the casing 30 by means of screws 32. This casing 30 provides a channel 33 and in this channel 33 is slidably arranged a lock bolt 34 having a lock head 35 adapted to have locked engagement with the lock arms 28 when the door 11 is in closed position with respect to the door jamb 10 as shown in Fig. 1.

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This lock bolt 34 in the bottom wall 36 thereof is provided with an opening 37, and operable in this opening 37 is a pin 38 carried by a rotatable disc 39. This disc 39 is secured to a tumbler barrel (not shown) of a key-actuated lock 40 mounted in the door 11 in any approved manner as shown in Fig. 6, the key of the lock 40 being indicated at 41 (Fig. 4).

The lock bolt 34 is projected into locked engagement with respect to the lock arms 28 by means of an expansion spring 42 arranged in the channel 33 between the end 43 of the lock bolt and the end wall 44 of the casing.

In the top wall 45 of the casing 30 is an elongated slot 46 and projecting in this slot 46 is a pin 47, the end 48 of which is connected to a side wall 49 of the lock bolt 34. This elongated slot 46 terminates into an enlarged opening 50 adapted to receive the shank 51 of a finger button 52 slidably positioned on the pin 47 and retained thereon by an enlarged head 53 formed as an integral part of the pin 47. The arrangement is such that by moving the finger button 52 outwardly relative to the pin 47, the shank 51 will be moved from position in the opening 50, thus permitting the lock bolt 34 to be projected outwardly under action of the spring 42 when the disc 39 is rotated by rotation of the key 41. When the shank 51 is positioned in the opening 50, the finger button 52 serves to releasably lock the lock bolt 34 in its inner position with respect to the casing 30. The lock bolt 34 provides a channel 54, and slidably mounted in this channel 54 is a latch bolt 55, the said latch bolt having on its inner surface 56 a recessed portion 57 for the operation of the pin 38 in its actuation upon the lock bolt 34.

This latch bolt 55 provides a latch head 58 bifurcated as at 59. The latch bolt 55 is slidable relative to the casing 30, independent of the sliding movement of the lock bolt 34. In the cover plate 31 is provided a cut-out portion 60 for the reception of the latch head 58 when retracted from latched position with respect to the latch arm 16. Formed in the cover plate 31 is an elongated slot 61 terminating into an enlarged opening 62. This slot 61 and opening 62 are similar to the slot 46 and opening 50. The latch bolt 55 carries a pin 63 having a finger button 64 thereon substantially similar in construction to the finger button 52 and functioning for the same purpose, that is, for releasably latching the latch bolt 55 in a retracted position when the shank of the finger button 64 is projected in the opening 62 of the cover plate 31. The retraction of the latch bolt 55 is facilitated by means of a finger button 65 (Fig. 4) secured to the latch head 58.

The latch bolt 55 is projected into latched position by means of an expansion spring 63, one end of which is confined in a socket 67 formed in the latch bolt 55 and the other embracing a pin 68 carried by the wall 44 of the casing 30.

When in latched position, the bifurcated portion 59 of the latch head 58 is adapted to receive the keeper head 22 in the manner shown in Fig. 2.

In use, from the inside of the door 11 the door may be locked and latched to the jamb 10. This is accomplished by projecting the lock bolt 34 into locked engagement with the lock arms 28 and by projecting the latch head 58 into latched engagement with respect to the keeper head 22. In this condition, if, for some reason, the lock bolt 34 is retracted from locked engagement with respect to the lock arms 28, the latch arm 16 will serve to limit the opening movement of the door, and this

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movement of the door is not sufficient to permit one to gain entrance to a position inside of the door. When the lock bolt 34 is not in locked position with respect to the lock arms 28, the door 11, when in closed position with respect to the jamb 10, may have the latch head 58 in latched engagement with the keeper head 22, in which condition, if attempt is made to open the door, the latch arm 16 will unfold itself to the position shown in Fig. 2, in which position the door 11 is permitted to swing open only a limited distance.

When neither the latch bolt or lock bolt are in projected position with respect to the casing 30, they may be releasably latched in retracted position with respect to the casing 30 by means of the finger buttons 52 and 64.

When the latch arm 16 is not in a distended position by reason of its latched engagement with the latch head 58, the spring 24 will retract the latch arm 16 within the channel 15, and this is accomplished by providing on the link 21, adjacent the pivot 20, a cam 69, the beveled surface 70 of which will strike against a transverse pin 71 positioned at one end of the channel 15. When this cam 69 engages the pin 71, the link 21 will be pivoted about the pivot 20 in a direction upon the link 17. This operation takes place when the link 17 is returned to within the channel 15, under the action of the spring 24. By this arrangement, whenever the latch arm 16 is not in latched engagement with the latch head 58, it will be retracted into the channel 15 into a position where it will not come in contact with a person opening the door or passing through the door opening, with the result that injury to a person or his clothing, which person would otherwise engage a projected latch arm, is reduced to a minimum.

From the foregoing description, it is apparent I accomplish the several objects of my invention by a construction which is simple in operation and construction and economical in cost and one which will be highly efficient for the intended purpose.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In combination, a body attached to a door and providing a key-actuated slidable lock bolt and a slidable latch bolt, a keeper plate attached to a door jamb with which the door is swingingly associated and adapted to cooperate with the lock bolt for locking the door to the jamb, and a latch arm comprising sections adapted to be folded upon themselves and pivotally carried by the jamb and adapted to cooperate with the latch bolt to limit the opening of the door relative to the jamb when the lock bolt and keeper plate are disassociated with respect to each other.

2. In combination, a body attached to a door and providing a key-actuated slidable lock bolt and a slidable latch bolt, a keeper plate attached to a door jamb with which the door is swingingly associated and adapted to cooperate with the lock bolt for locking the door to the jamb, a latch

arm comprising sections adapted to be folded

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upon themselves and pivotally carried by the jamb and adapted to cooperate with the latch bolt to limit the opening of the door relative to the jamb when the lock bolt and keeper plate are disassociated with respect to each other, and means releasably latching the latch bolt to the body with the latch bolt in an unlatched relation with respect to the latch arm.

3. In combination, a body attached to a door and providing a key-actuated slidable lock bolt and a slidable latch bolt independently slidable with respect to each other and with respect to said body, a keeper plate attached to a door jamb with which the door is swingingly associated and adapted to cooperate with the lock bolt for locking the door to the jamb, and a latch arm comprising sections adapted to be folded upon themselves and pivotally carried by the jamb and adapted to cooperate with the latch bolt to limit the opening of the door relative to the jamb when the lock bolt and keeper plate are disassociated with respect to each other.

4. In combination, a body attached to a door and providing a key-actuated slidable lock bolt and a slidable latch bolt independently slidable with respect to each other and with respect to said body, a keeper plate attached to a door jamb with which the door is swingingly associated and adapted to cooperate with the lock bolt for locking the door to the jamb, a latch arm comprising sections adapted to be folded upon themselves and pivotally carried by the jamb and adapted to cooperate with the latch bolt to limit the opening of the door relative to the jamb when the lock bolt and keeper plate are disassociated with respect to each other, and means releasably latching the latch bolt to the body with the latch bolt in an unlatched relation with respect to the latch arm.

5. A combination lock and latch for a door comprising a casing attached to the door, a latch bolt slidably arranged in the casing and having a bifurcated latch head, a lock bolt slidably arranged in the casing and having a lock head, a keeper plate attached to a jamb with which said

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door is swingingly associated and adapted to cooperate with the lock head for locking the door to the jamb, a casing attached to said jamb, a latch arm comprising two parts pivotally connected together and foldable upon each other within said casing attached to said jamb, means for pivotally connecting one of said parts to said last-named casing, the other of said parts having a keeper head adapted to cooperate with said bifurcated latch head to move said latch arm parts in distended position with respect to each other and with respect to the casing attached to the jamb, to limit opening movement of said door relative to said jamb when said lock bolt is disassociated with said keeper plate.

6. A combination lock and latch for a door comprising a casing attached to the door, a latch bolt slidably arranged in the casing and having a bifurcated latch head, a lock bolt slidably arranged in the casing and having a lock head, a keeper plate attached to a jamb with which said door is swingingly associated and adapted to cooperate with the lock head for locking the door to the jamb, a casing attached to said jamb, a latch arm comprising two parts pivotally connected together and foldable upon each other within said casing attached to said jamb, means for pivotally connecting one of said parts to said last-named casing, the other of said parts having a keeper head adapted to cooperate with said bifurcated latch head to move said latch arm parts in distended position with respect to each other and with respect to the casing attached to the jamb, to limit opening movement of said door relative to said jamb when said lock bolt is disassociated with said keeper plate, means for releasably latching said lock bolt in unlocked relation with respect to the casing attached to the door when said lock bolt is in unlocked position with respect to said keeper plate, and means for releasably latching said latch bolt to the casing attached to said door when said latch head is in unlatched position with respect to said latch arm.

IRVING PAUL.