

Feb. 28, 1928.

M. ADAMSON

1,660,904

DOOR LOCK

Filed Jan. 10, 1927

2 Sheets-Sheet 1

FIG. 1.

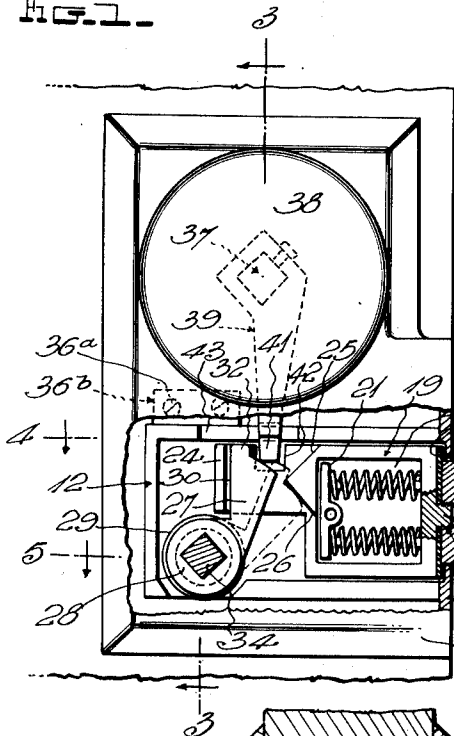


FIG. 2.

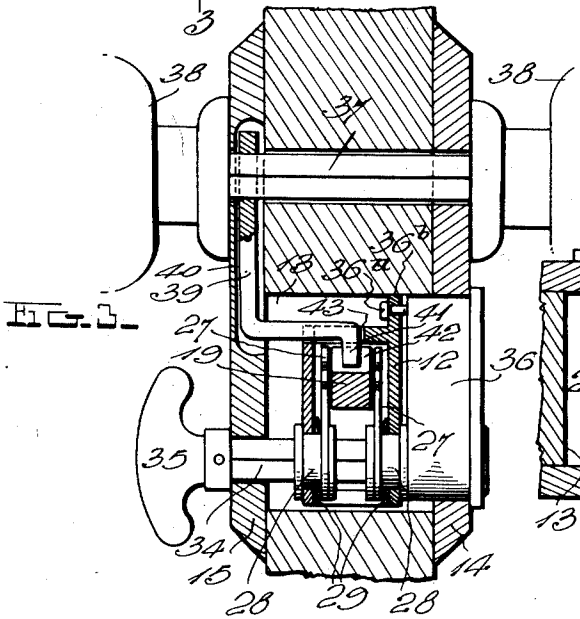
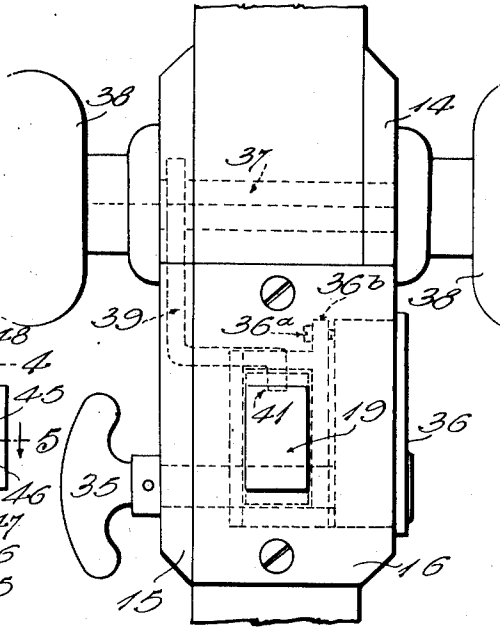
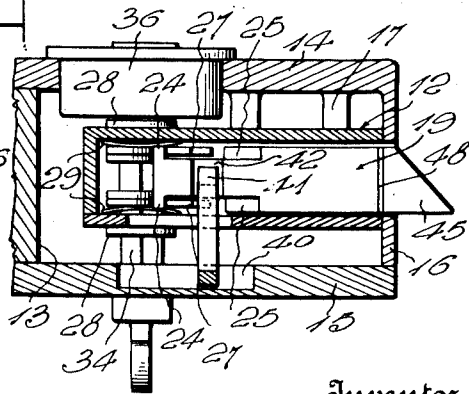


FIG. 4.



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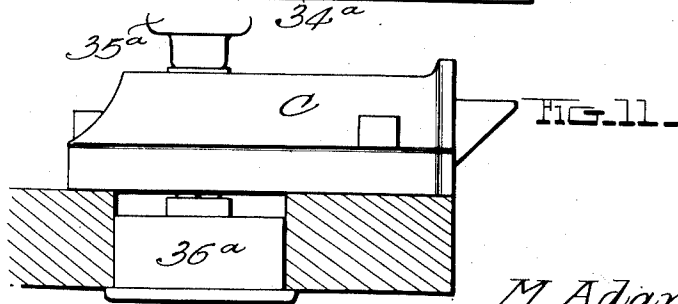
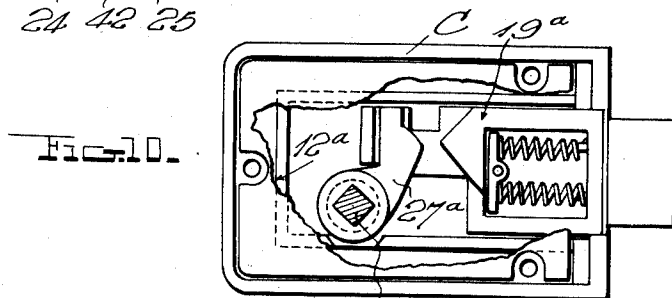
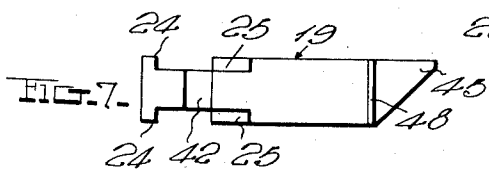
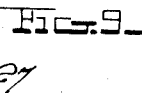
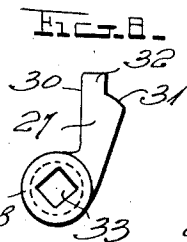
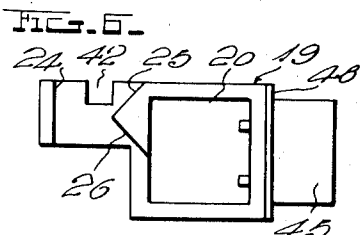
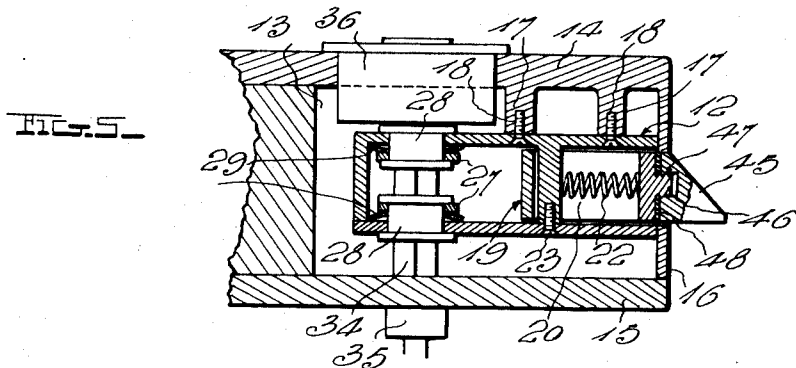
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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DOOR LOCK.

Application filed January 10, 1927. Serial No. 160,243.

The invention relates to improvements in door locks of the sliding bolt type, and it is the principal object of such invention, to provide a new and improved construction and relation of bolt and retracting arm therefor, in which said arm is movable to a position at which it dead-locks the bolt in projected position, thus obviating the necessity of using complicated arrangements of tumblers or the like for this purpose.

Another object is to make unique provision whereby the bolt may be retracted by turning a knob shaft at the exterior of the casing which contains said bolt, such retraction under the influence of the knob shaft however, being prevented as long as the above-named arm is in bolt-locking position.

A still further aim is to provide a construction and relation of bolt and arm, above referred to, which is applicable to numerous types of locks.

Yet another object is to provide the bolt with a reversible beveled nose which may be held with its bevel facing in either direction, by unique means.

With the foregoing and minor objects in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Fig. 1 is a side elevation partly broken away and in section, showing one form of the lock applied to a door.

Fig. 2 is an edge view of the parts shown in Fig. 1.

Figs. 3, 4 and 5 are sectional views on the correspondingly numbered lines of Fig. 1.

Figs. 6 and 7 are respectively a side elevation and a top plan view of the bolt.

Figs. 8 and 9 are respectively a side elevation and an edge view of the combined retracting and locking arm for the bolt.

Fig. 10 is an inner side elevation partly broken away and in section, illustrating the manner in which the bolt and arm may be used in connection with another form of lock.

Fig. 11 is a plan view showing the lock of Fig. 10 applied to a door, the latter being in horizontal section.

The form of construction illustrated in Figs. 1 to 9 will first be described. In these

views, 12 designates a suitable casing adapted to be inset in a notch 13 in the edge of a door. Escutcheon plates 14 and 15 and a face plate 16 are provided to close the sides of this notch, and the casing 12 may well be secured to studs 17 of the escutcheon plate 14, by screws 18. If desired, this casing 12 may also be secured to the face plate 16 and it will be understood that the particular securing means which I have shown, is not essential.

A slidable bolt 19 is mounted in the casing 12 and is provided with a recess 20 to receive a spring seat 21 and springs 22 which normally project said bolt. The spring seat 21 is preferably integral with the side of the casing 12, toward the escutcheon plate 14, and the opposite side of said casing may well be secured in place by a screw 23 threaded into said seat.

The inner end of the bolt 19 is reduced in horizontal width and is provided with laterally projecting vertical shoulders 24. The opposite sides of the bolt are also formed with upper and lower shoulders 25 and 26 disposed in inclined planes and spaced longitudinally of the bolt from the shoulders 24, said upper and lower shoulders 25 and 26 converging toward said shoulders 24. Two arms 27 are disposed at the sides of the bolt 19, between the shoulders 24 and the shoulders 25—26. In the present showing, these arms are provided with hubs 28 swiveled in openings in opposite vertical sides of the casing 12, and spring washers 29 are associated with said hubs and casing sides in a manner to frictionally hold the arms 27 in one position or another. Each of these arms is provided with a straight edge 30 for cooperation with the contiguous shoulder 24 for the purpose of retracting the bolt 19 when the arm is swung in one direction. When the arm is swung in the other direction, the free end 31 of arm 27 is adapted to abut the lower shoulder 26 as shown in dotted lines in Fig. 1, dead-locking the bolt in projected position. When the arm 27 is swung in this manner, a projecting stop 32 on its free end, strikes the upper shoulder 25 and limits the movement of the arm.

The hubs 28 are provided with openings 33 through which a shaft 34 passes, the end

of this shaft for disposition at the inner side of the door, being provided with an appropriate knob 35, while the other end of said shaft is suitably connected with a lock cylinder assembly 36. The outer stationary part of this assembly may well be secured by screws 36^a to a flange 36^b projecting upwardly from the casing 12.

Above the casing 12 and associated parts, I have shown a knob shaft 37 passing through openings in the escutcheon plates 14 and 15 and provided with ordinary knobs 38. Secured to this shaft, an angular, bolt-retracting arm 39, has been shown. The vertical portion of this arm is received in a recess 40 in the inner side of one of the escutcheon plates, and the horizontally directed lower portion of the arm passes into the recess 13 and turns downwardly at 41, into a notch 42 in the upper edge of the bolt 19, the casing 12 being suitably apertured at 43 to permit passage of the arm from the exterior to the interior of said casing.

When the arms 27 stand as seen in full lines in Fig. 1, either of the knobs 38 may be turned to cause shaft 37 to swing the arm 39 for the purpose of retracting the bolt 19. However, when the arms 27 are in the position shown in dotted lines in Fig. 1, both the bolt and the knobs are locked against movement, and until said arms are released from the shoulders 26, either by turning the knob 36 from the inside of the door or by key-operating the assemblage 36 from the outer side thereof, the knobs cannot be rotated and the bolt 19 consequently cannot be retracted. When the arms 27 are released from the shoulders 26 and assume the full line position shown in Fig. 1, their carrying shaft 34 may be further turned either by the assemblage 36 or the knob 35, to retract the bolt 19 without the necessity of turning either of the knobs 38. However, when the bolt stands unlocked, it is more convenient merely to retract it by operation of the knobs.

Bolt 19 is provided with a reversible, beveled nose 45 and novel provision is made for holding this nose with its bevel facing in either direction. 46 designates a threaded stud integral with the outer end of the body portion of the bolt and received in a threaded socket 47 in the nose 45. 48 designates a washer clamped between the bolt body and the nose 45, the bevel of said nose then facing in one direction. When this nose is detached from the major portion of the bolt, the washer 48 is removed and said nose again threaded upon the stud 46, it may be turned another half revolution to dispose its bevel in the opposite direction. Thus, the bolt is readily convertible for right and left hand doors.

The bolt 19 and the arms 27 are not re-

stricted to use with the particular casing details so far referred to, nor to a mortise lock, nor to a lock having knobs at the inner and outer sides of the door. These parts 19-27 may be used in a great number of different kinds of locks.

If desired, the portions of the lock, below the knobs 38 of Figs. 1 and 2, exclusive of the portion of the arm 41 below these knobs, may be embodied in a mortise lock whose sole controlling means will then be formed by the knob 35 and the assemblage 36.

In Figs. 10 and 11, I have illustrated the fact that the arms 27^a, bolt 19^a, shaft 34^a, knob 35^a and cylinder assembly 36^a, may be used with an ordinary type of casing C to be secured to the inner side of a door, said parts 27^a, 19^a, 34^a, 35^a and 36^a, being practically identical with the parts 27, 19, 34, 35 and 36, previously described. The bolt 19^a and the arms 27^a may well be housed within a casing 12^a suitably mounted in the casing C.

From the foregoing taken in connection with the accompanying drawings, it will be seen that I have produced a lock possessing a number of novel and advantageous features, and while these features may be embodied in the forms herein disclosed, it will be understood that variations may be made within the scope of the invention as claimed.

I claim:

1. In a lock, a bolt having a laterally projecting shoulder at its inner end, and upper and lower lateral shoulders spaced longitudinally from the first named shoulder, said upper and lower shoulders being disposed in inclined planes and converging toward said first named shoulder, and a manually moved arm pivoted for swinging longitudinally of the bolt, said arm having one longitudinal edge engageable with the first named shoulder for retracting the bolt when the arm is swung in one direction, the free end of said arm being adapted to abut the aforesaid lower shoulder when the arm is swung in the other direction and having a projecting stop which then engages the aforesaid upper shoulder to limit the movement of the arm in said other direction.

2. In a mortise lock, a casing containing a bolt and locking means therefor, an escutcheon plate for application to the door, a knob shaft passing through said escutcheon plate in spaced relation with the casing, and a bolt-retracting arm secured to said knob shaft and operatively connected with the bolt, said escutcheon plate being recessed at its inner side for the reception of said arm.

3. In a lock, a bolt having a laterally projecting shoulder at its inner end, a bolt-receiving and bolt-locking arm pivoted for swinging longitudinally of the bolt and having a longitudinal edge engageable with said

shoulder for retracting the bolt when the arm is swung in one direction, a second lateral shoulder on the bolt spaced longitudinally from the first named shoulder and
5 abutted by the free end of said arm when the latter is swung toward the outer end of the bolt, a projecting stop on said free end of said arm, and a third lateral shoulder on the bolt against which said stop lies when said arm is swung into contact with 10 said second shoulder.

In testimony whereof I have hereunto affixed my signature.

MAX ADAMSON.