C. E. C. EDEY.

LOCK.

APPLICATION FILED APR. 12, 1910.

1,007,649.

Patented Oct. 31, 1911.

4 SHEETS—SHEET 1.

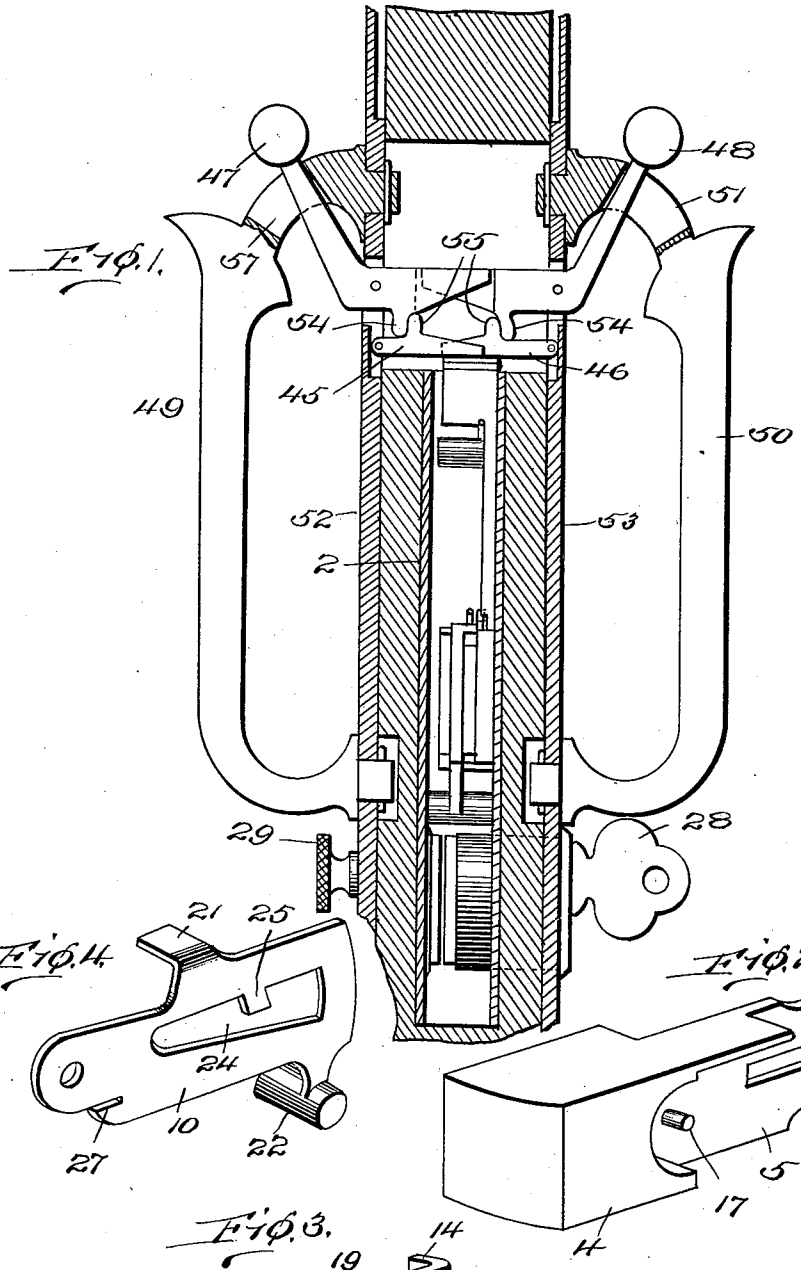

Fig. 1.

Fig. 4.

Fig. 2.

Fig. 3.

Witnesses

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4 SHEETS—SHEET 2.

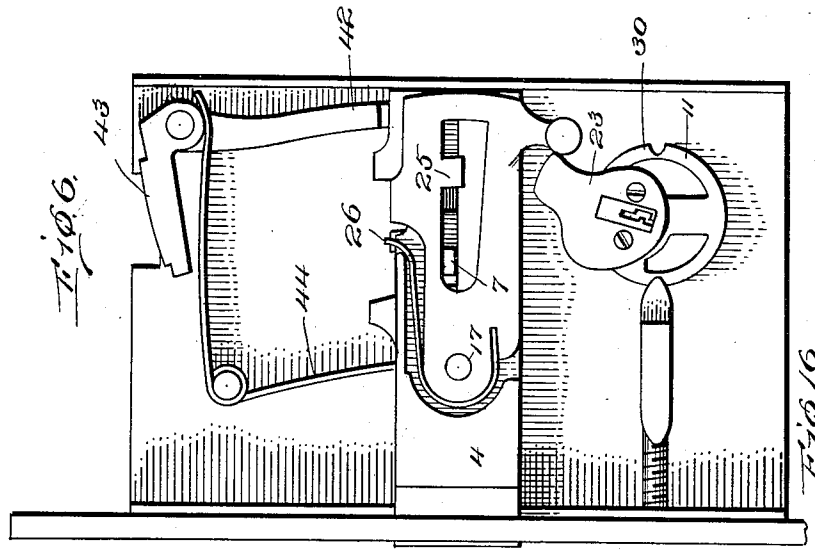

Fig. 6.

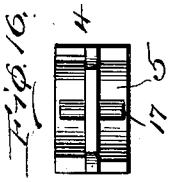

Fig. 16.

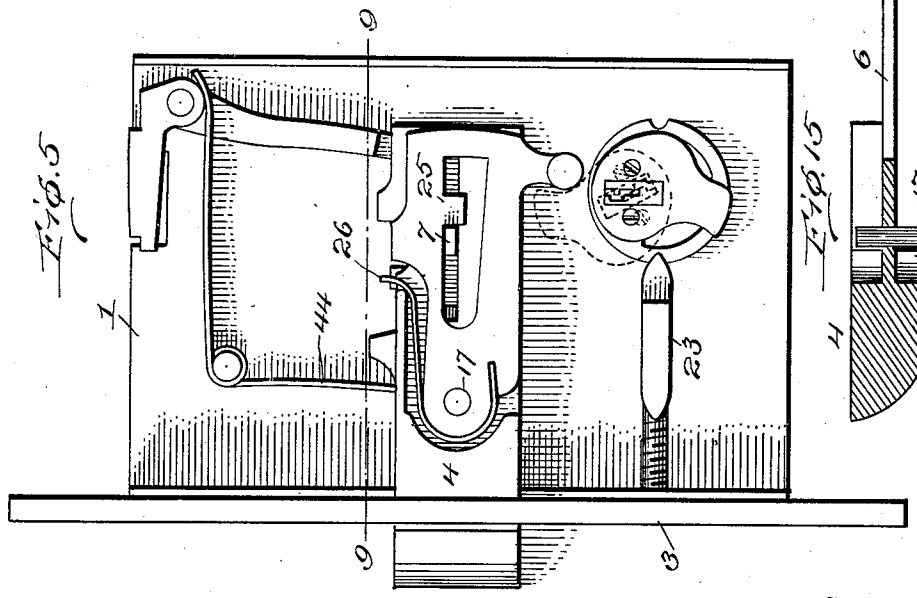

Fig. 5.

Fig. 15.

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4 SHEETS—SHEET 3.

Fig. 7.

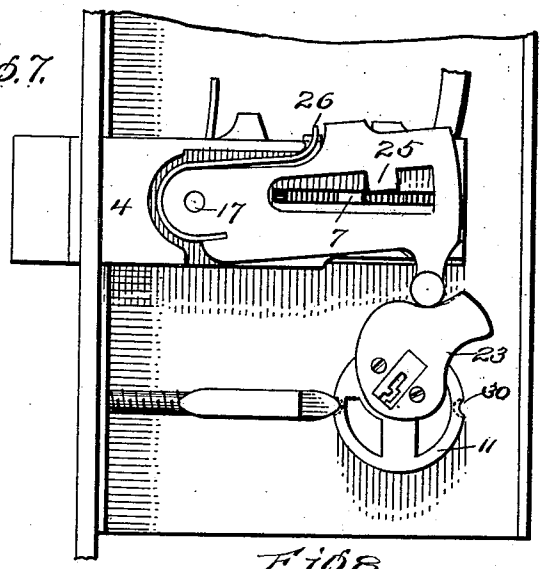


Fig. 8.

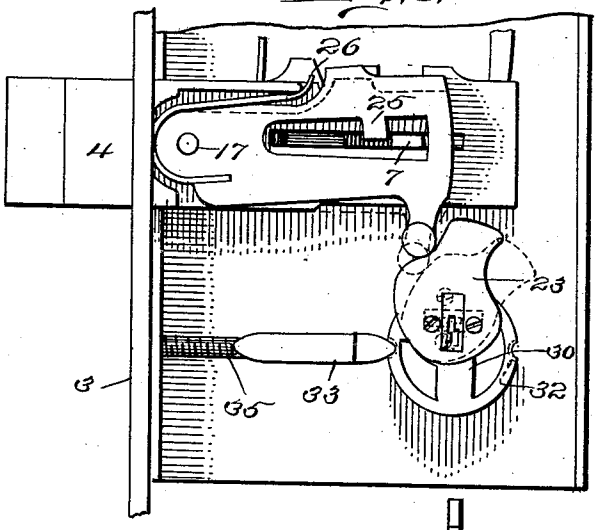
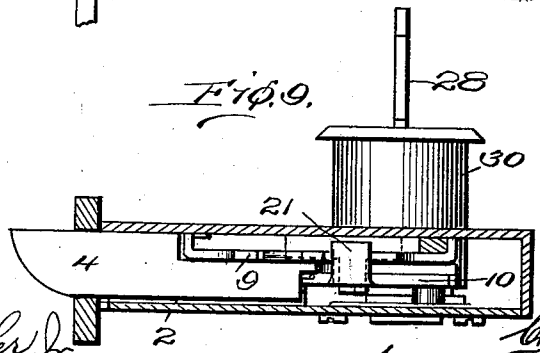


Fig. 9.



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4 SHEETS—SHEET 4.

Fig. 14.

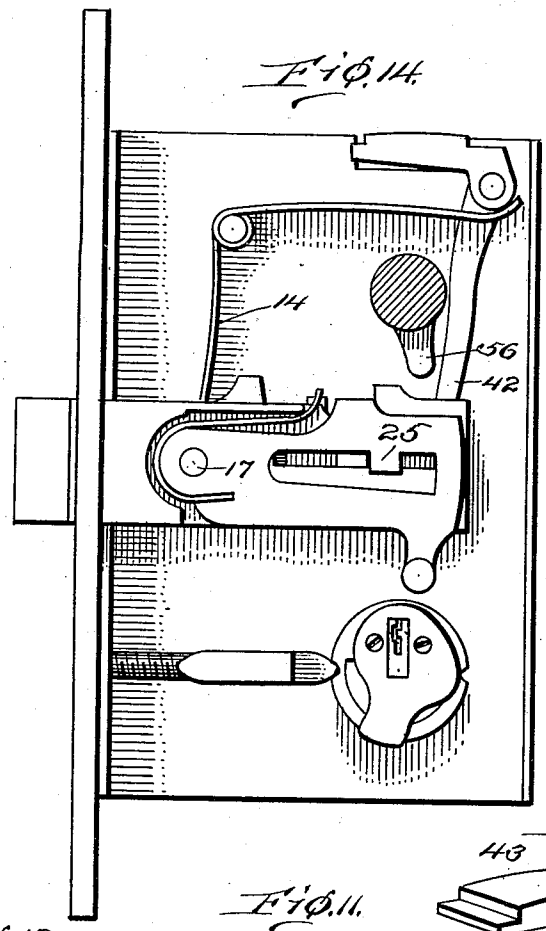


Fig. 10.

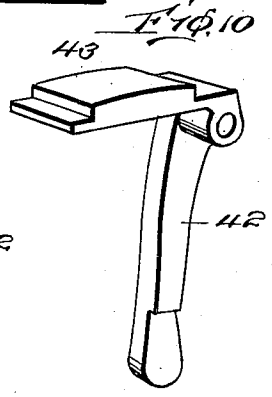


Fig. 11.

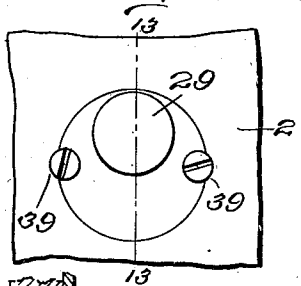


Fig. 12.

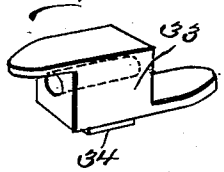
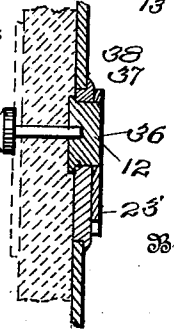


Fig. 13.



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UNITED STATES PATENT OFFICE.

CHARLES E. C. EDEY, OF TACOMA, WASHINGTON.

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1,007,649. Specification of Letters Patent. Patented Oct. 31, 1911.

Application filed April 12, 1910. Serial No. 555,058.

To all whom it may concern:

Be it known that I, CHARLES E. C. EDEY, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in locks.

The object in view is the provision of an improved bolt with an improved locking device for moving the same to a locked position.

A further object of the invention is the arrangement in a lock, of a reciprocating bolt adapted to be used as a latch when in one position, and as a locking bolt when thrown to another position.

A further object of the invention is the arrangement in a lock, of a bolt adapted to be used at one time as an ordinary latch, in combination with a lock designed to move the bolt to an outer locked position.

With these and other objects in view the invention comprises certain novel constructions, combinations, and arrangement of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 is a transverse sectional view through a door and lock embodying the invention. Fig. 2 is a perspective view of a bolt proper embodying certain features of the invention. Fig. 3 is a detail perspective view of a base tumbler. Fig. 4 is a detail perspective view of an auxiliary tumbler. Fig. 5 is a side view of the lock with the inner plate removed, the locking mechanism being shown in a position for causing the bolt to act as a latch. Fig. 6 is a view similar to Fig. 5, but showing the bolt retracted. Fig. 7 is a view similar to Fig. 5, but with the auxiliary lock beginning its locking movement. Fig. 8 is a view similar to Fig. 7, but with the bolt completely thrown by the auxiliary lock. Fig. 9 is a section through Fig. 5 on line 9—9. Fig. 10 is a detail perspective view of a lever mechanism for retracting the bolt when used as a latch. Fig. 11 is a fragmentary side view of the inner face plate showing the inner auxiliary locking device. Fig. 12 is a detail perspective view of a retaining member for the outer auxiliary locking device. Fig. 13 is a section through Fig. 11 on line 13—13. Fig. 14 is a view similar to Fig. 5, but showing the lock adapted to be used with an ordinary door knob and shaft. Fig. 15 is a longitudinal sectional view through the bolt shown in Fig. 2. Fig. 16 is a rear view of the bolt shown in Fig. 2.

In forming a lock embodying the invention the same is particularly adapted to what are known as mortise-locks. The lock is provided with a suitable housing and a bolt or latch which is designed to be reciprocated by latch mechanism for ordinary use in holding the door closed. When it is desired to prevent the door from being opened the bolt is thrown out an extra distance, and then cannot be withdrawn by the ordinary operating mechanism. In providing this structure a plurality of tumblers are provided, one of which is operated by the door knob or latch operating members, and the other is operated by one or more auxiliary locking devices operated preferably on the inside of the door by a thumb member, and on the outside of the door by a key. In this way the door may be positively locked and unlocked from the inside or the outside, the outside necessitating the use of a key.

In order that the invention may be more clearly understood an embodiment of the same is shown in the accompanying drawings, in which 1 indicates the housing for receiving the various parts of the lock mechanism, and 2 a cover for housing 1. Secured to housing 1 is a face plate 3, through which projects a bolt 4 designed to reciprocate in the usual manner of bolts. Bolt 4 is formed with cut out portions 5 and 8, and a slot 6. The slot 6 accommodates a guiding and locking pin 7 which is rigidly secured to housing 1. Mounted in cut out portion 8 is a base tumbler 9 which is utilized for moving the bolt 4 when the same is used as a latch. Mounted in cut out portion 5 is a locking tumbler 10 (Fig. 4) which is designed to be operated by an auxiliary lock 11, or an auxiliary latch mechanism 12 (Fig. 13). The base tumbler 9 is an oblong structure, and has arranged therein a slot 13 for accommodating pin 7. The tumbler 9 is formed with turned over ends 14 and 15, end 15 being divided or bifurcated for forming an opening or slot 16 for accommodating

pin 17. Slot 13 is longer than slot 6, and when the tumbler 9 is resting against pin 17 slot 6 overlaps slot 13 until slot 6 almost comes opposite turned over portion 14 of tumbler 9. These slots are arranged in this manner in order to permit an extra outward movement of bolt 4 for locking the same. Tumbler 9 is also formed with notches 18 and 19 having therebetween a lug 20. These notches are designed to accommodate an over-turned lug or stop 21 on tumbler 10. Tumbler 9 is mounted on one side of bolt 4, and tumbler 10 on the opposite side, tumbler 10 being positioned in cut out portion 5, and pivotally mounted on pin 17. Tumbler 10 is used for throwing bolt 4 to its outer or locked position, and is therefore formed with a cylindrical shaped extension 22 for being engaged by tumbler operating member 23. Tumbler 10 is also formed with a slot or notched out portion 24 into which extends a lug 25 and which is designed to accommodate pin 7. A spring 26 is provided for tumbler 10, and engages the same in a slot 27 for normally holding the upper edge of notched out portion 24 against pin 7. The notched out portion 24 is made sufficiently large for permitting a sufficient pivotal movement for allowing member 23 to raise tumbler 10 toward and force the same over pin 7 when bolt 4 is being forced to its outer or locked position. When it is designed to throw or move bolt 4 to its outer or locked position, member 23 is turned from the position shown in Fig. 5 to the position shown in Fig. 7. The movement is continued to the position shown in Fig. 8, and then the locking member is rotated backward, as indicated in dotted lines in Fig. 8, until the same reaches its original position. This movement of locking member 23 will first pivotally raise tumblers 10, then move the same longitudinally together with bolt 4, and finally permit lug 25 to drop in front of lug 7. When in this position the bolt is in its locked or in its extreme outer position, and cannot be withdrawn except by the operation of key 28 or thumb member 29 which act upon members 23 and 23′ (Fig. 13). Members 23 and 23′ are of identical construction, but member 23 is connected with a lock mechanism 30, preferably of the Yale type, while member 23′ is connected with latch mechanism 12. By using the lock mechanism 30 which is constructed with tumblers caused to be moved to an operative position when key 28 is inserted therein, member 23 can be moved only when the key is in place. In order to properly hold locking mechanism 30 in place the same is provided with any desired number of grooves 31 merging into sockets 32 which accommodate the pointed ends of a sliding stop 33. Stop 33 is formed with a depending member 34 which passes through a suitable slot in housing 1, and is permitted a longitudinal motion by reason of the length of the slot. A tension member 35 is provided which passes through the turned up edge of housing 1, and the face plate 3. Whenever it is desired to properly clamp locking mechanism 30 in position, screw 35 is rotated for forcing one of the points of member 33 into one of the slots 32. This will effectually lock locking mechanism 30 in position and against any rotary movement.

Locking mechanism 12 is provided with member 23′ which is rotatably mounted for acting in a similar manner to member 23. Member 23 is secured to a spool shaped retaining member 36 mounted in a rigidly positioned member 37 which is held to a plate or cover 2 by means of a flange 38 on one side, and screw heads 39 on the opposite side. Rigidly mounted in member 36 is a stud 40 to which is secured knob 29. The stud 40 is adapted to be of sufficient length for permitting knob 29 to be placed on the outside of the door after the escutcheon has been placed in position. Knob 29 is designed to be on the inside of the door in order that the lock may be easily locked or unlocked without the use of a key from that side. This will not interfere with the outside locking mechanism operated by key 28 as knob 29 and parts connected therewith are independent of lock 30, and associated parts.

When it is desired to operate bolt 4 as an ordinary latch, the same is moved by a lever 42 which engages turned over end 14 of tumbler 9. Lever 42 has an offset bearing portion 43 which when depressed moves lever 42 rearwardly, and consequently pulls upon tumbler 9 which conveys power to tumbler 10 through turned over portion 21. From tumbler 10 power is conveyed through pin 17 to bolt 4 whereby the bolt is withdrawn or moved inward. Upon the releasing of member 43, spring 44 will again force bolt 4 outward in the usual manner, and restore member 43 and lever 42 to their original position, as shown in Fig. 5. In order to permit lever 42 to operate bolt 4, turned over portion 21 of tumbler 10 must be positioned in notch 19 because when turned over portion 21 is positioned in notch 18 lug 25 is resting against lug or pin 7, and no rearward movement of bolt 4 can take place. In order that the bearing portion or member 43 may be properly depressed, pivotally mounted levers 45 and 46 are provided which are operated by thumb members 47 and 48. Thumb members 47 and 48 are guided in their movement by grips 49 and 50 as the same operate in slots 51 and 52 in the gripping members. The thumb members 47 and 48 are pivotally mounted, preferably in the escutcheons 52 and 53, and are arranged so that their ends are over-lapped for properly

guiding the inner portion thereof. Each of the members 47 and 48 are provided with a lug or lever member 54 which engage a lever or lug 55 on members 45 and 46. When the thumb member 48 is depressed, lever 46 will also be depressed for depressing member 43, power being conveyed through members 54 and 55.

When it is desired to use an ordinary knob and shaft instead of members 47 and 48, the knob shaft is provided with a lug 56, as shown in Fig. 14, for engaging lever 42. Whenever the knob is turned in one direction lever 42, of course, will be moved for retracting bolt 4, and when released the spring 44 will return the bolt to its original position, and also lug 46 to its original position. The only change necessary to substitute an ordinary knob and shaft for the gripping members 49 and 50 and thumb members 47 and 48 and associated parts is to provide the knob shaft with lug 46.

What I claim is:

1. In a lock, a reciprocating bolt formed with a cut out portion on each side thereof, and a slot running longitudinally of the bolt, a combined guiding member and stop extending through said slot for guiding said bolt in its reciprocatory movement, a base tumbler loosely positioned in one of said cut out portions and formed with a plurality of notches, and a slot running longitudinally thereof for accommodating said combined guiding member and stop, a locking member pivotally connected to said bolt and located in the other of said cut out portions, means engaging said base tumbler for moving the same longitudinally for withdrawing said bolt, means for normally holding said bolt in an outer position, said locking member being formed with a lug extending therefrom and designed to engage said guiding member and stop under certain circumstances, and means engaging said locking member for raising and moving the same longitudinally until said lug has passed said guiding member and stop for moving said bolt to an outer locked position, said lug pressing against said guiding member and stop and preventing the return of said bolt under the action of said base tumbler.

2. In a lock, a reciprocating bolt formed with a notched out portion on each side, and a slot extending longitudinally for part of the length of the bolt, a base tumbler mounted in one of said notched out portions, said base tumbler being formed with a longitudinal slot, an end notch, and a plurality of side notches arranged on one side, a locking tumbler mounted in the other of the notched out portions of the bolt, said locking tumbler being formed with an extension designed to fit into at different times the respective side notches in said base tumbler, a locking notch, and an operating extension, a stop for engaging the stop on said locking tumbler, and a rotating cam member arranged to engage said operating extension for lifting and moving the same in a forward direction, whereby said locking extension is lifted over said stop, and said bolt is moved to an outer position.

3. In a lock, a reciprocating bolt formed with a cut out portion on each side thereof, and a slot extending longitudinally of the bolt, a locking stop projecting through said slot for guiding the movement of said bolt, and for locking the same against rearward movement when the bolt is moved to its outer position, a base tumbler arranged in one of said cut out portions formed with a slot for accommodating said guiding slot, and a plurality of side notches, a locking tumbler arranged in the other of said cut out portions of the bolt, said locking tumbler being formed with an operating lug at one end, a locking extension designed to engage said guiding and locking stop, and an extension projecting at an angle to the general direction of said locking tumbler for fitting into the notches on said base tumbler, a cam shaped locking member engaging said operating lug for pivotally raising and moving longitudinally said locking tumbler, said movement causing the locking extension to be moved over to a position in front of said locking and guiding stop for preventing a reverse movement of said bolt until the locking lug has been lifted from in front of the guiding stop.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. C. EDEY.

Witnesses:

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G. DOWE MCQUESTEN.