C. E. C. EDEY.

LOCKING MECHANISM.

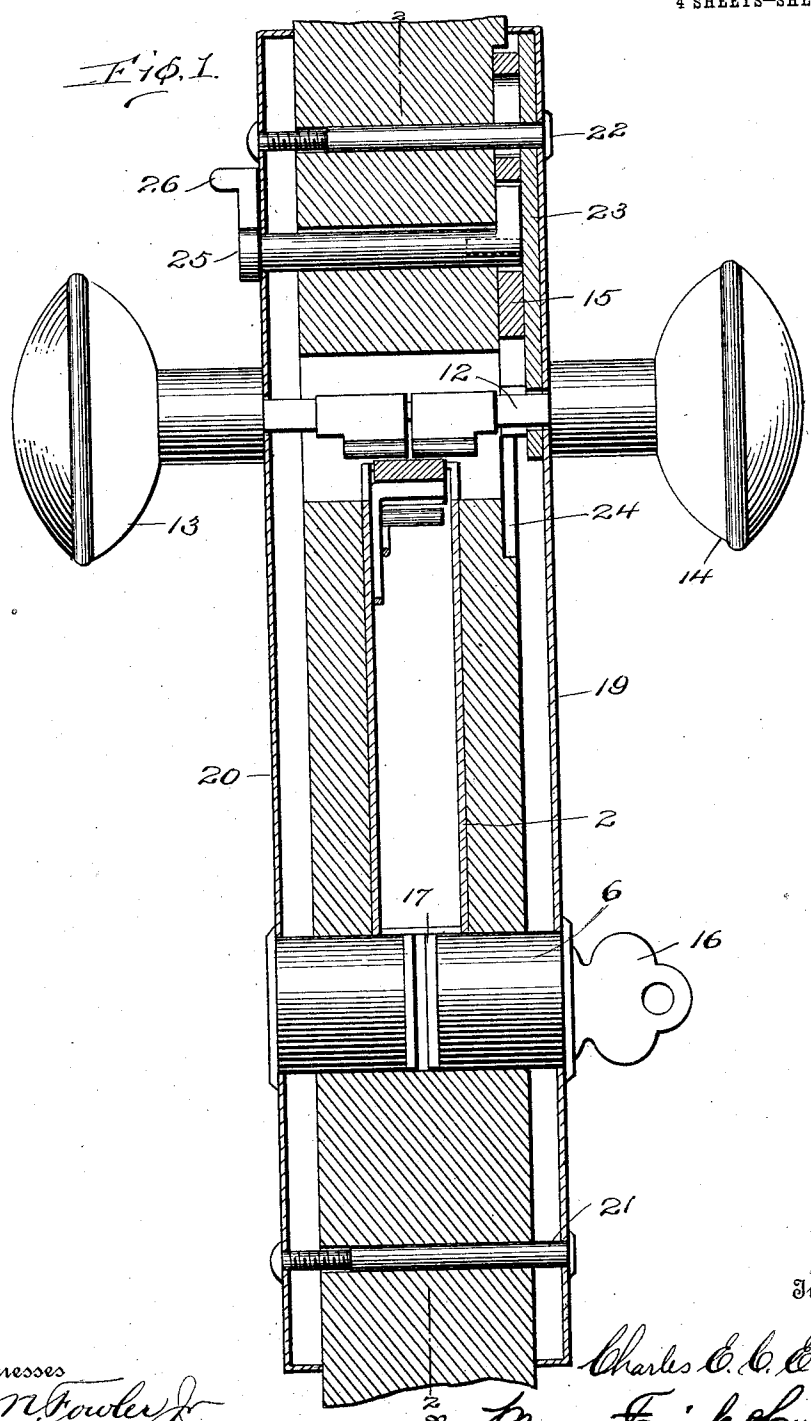
APPLICATION FILED JUNE 13, 1910.

1,049,828.

Patented Jan. 7, 1913.

4 SHEETS—SHEET 1.

Fig. 1.



Inventor.

Witnesses

J. M. Fowler Jr.

A. L. Kitchin.

Charles E. C. Edey

By Mason Fenwick & Lawrence,

Attorneys

C. E. C. EDEY.

LOCKING MECHANISM.

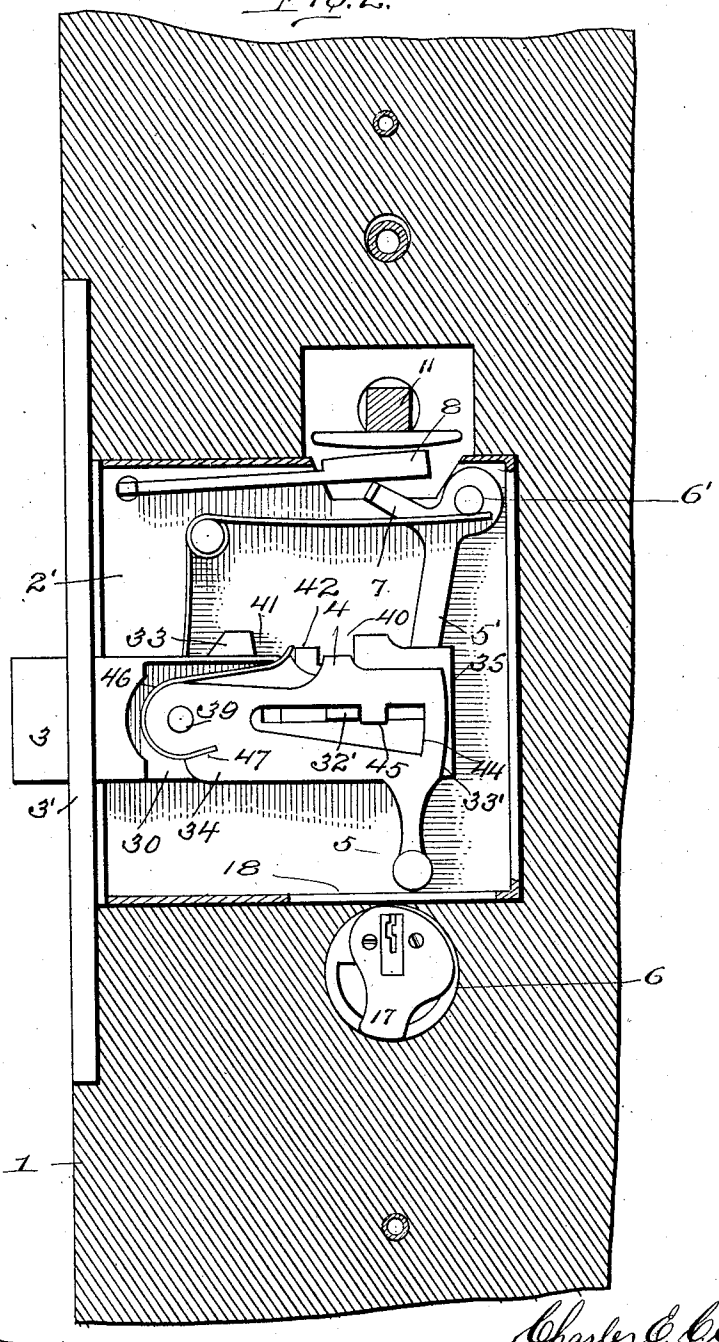
APPLICATION FILED JUNE 13, 1910.

1,049,828.

Patented Jan. 7, 1913.

4 SHEETS—SHEET 2.

Fig. 2.



Witnesses

J. M. Fowler Jr.

A. L. Kitchin.

Inventor

Charles E. C. Edey.

By Mason Fenwick & Lawrence,

his Attorneys

C. E. C. EDEY.

LOCKING MECHANISM.

APPLICATION FILED JUNE 13, 1910.

1,049,828.

Patented Jan. 7, 1913.

4 SHEETS—SHEET 3.

Fig. 3.

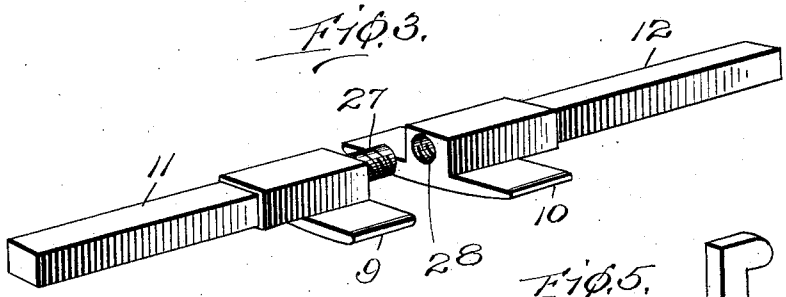


Fig. 5.

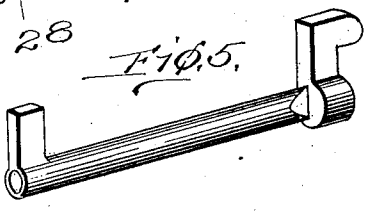
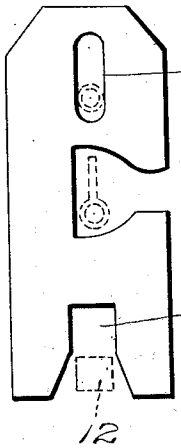


Fig. 4.



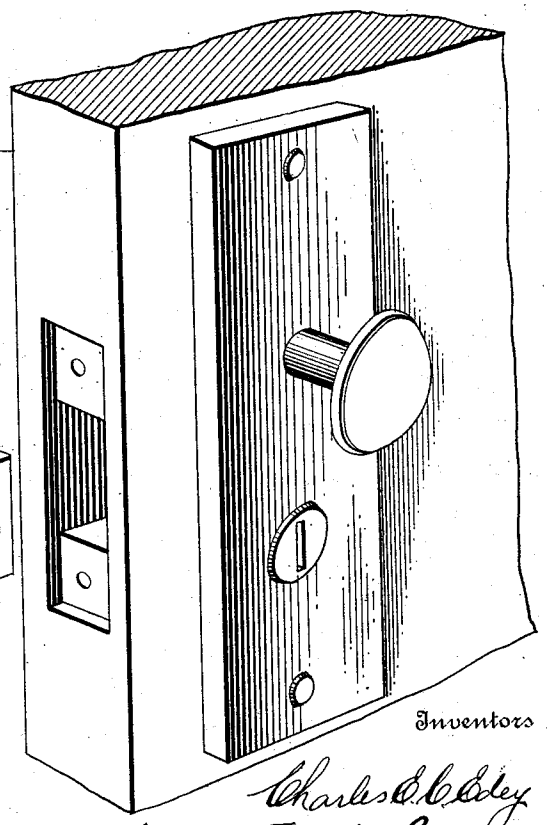
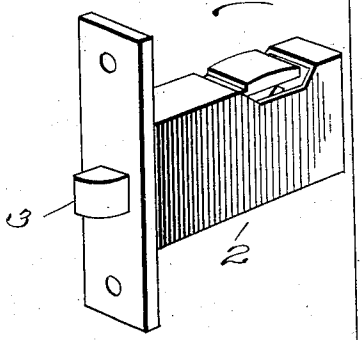


Fig. 6.



Witnesses

J. M. Fowler Jr.

A. S. Kitchin

Inventors

Charles E. C. Edey

By Mason Fenwick & Lawrence,

his Attorneys

C. E. C. EDEY.

LOCKING MECHANISM.

APPLICATION FILED JUNE 13, 1910.

1,049,828.

Patented Jan. 7, 1913.

4 SHEETS—SHEET 4.

Fig. 7.

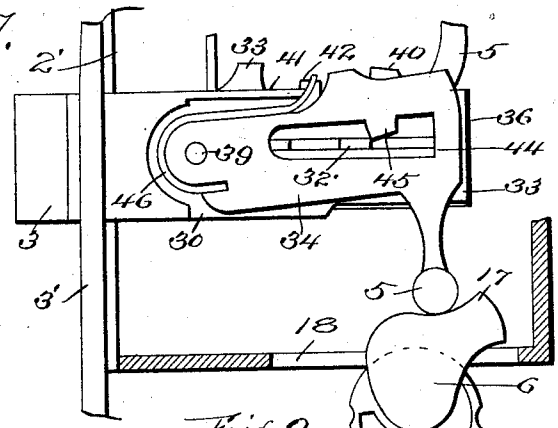


Fig. 8.

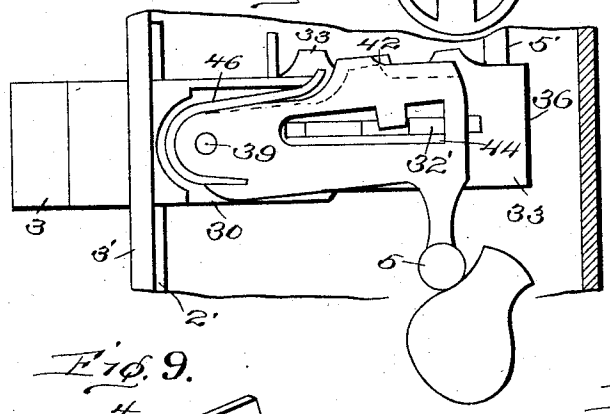


Fig. 9.

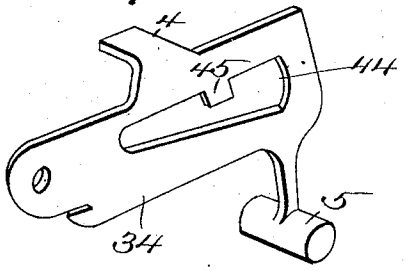


Fig. 11.

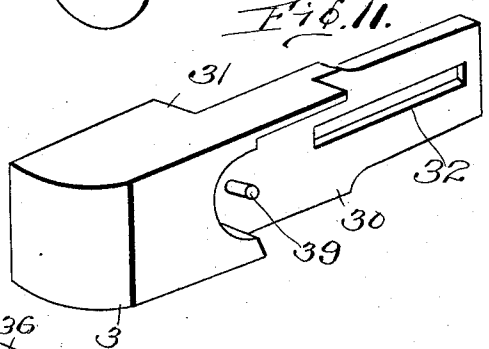
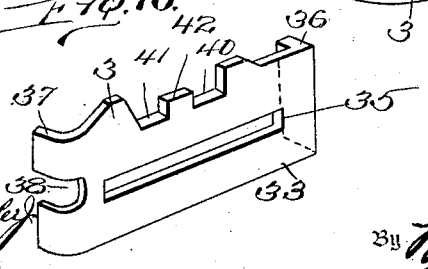


Fig. 10.



Witnesses

J. M. Fowler

A. F. Kitchin

Inventor

Charles E. C. Edey

By Mason Fenwick & Lawrence.

his Attorneys

UNITED STATES PATENT OFFICE.

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

LOCKING MECHANISM.

1,049,828. Specification of Letters Patent. Patented Jan. 7, 1913.

Application filed June 13, 1910. Serial No. 566,642.

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 Locking Mechanism; 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, and has for an object the arrangement and combination of locking means which will permit the lock proper to be removed bodily without the removal of the knob or an auxiliary locking member.

Another object of the invention is the arrangement in a lock, of a locking device formed with an operating member extending slightly therefrom, for engaging a knob arrangement having operating levers for operating the bolt or latch when the lock is in position, but permitting a free removal of the lock proper independent of the knob construction.

A still further object of the invention is the arrangement in a lock, of a reciprocating latch member arranged to be moved in one direction for engaging the knob shaft for preventing the rotation of the knob and moved in the opposite direction for releasing the knob shaft and permitting the free rotation thereof for actuating the bolt of the lock.

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 vertical sectional view through a door and lock showing one embodiment of the invention. Fig. 2 is a sectional view through Fig. 1, approximately on line 2—2. Fig. 3 is a detail perspective view of the knob shaft. Fig. 4 is a front view of the knob shaft locking device. Fig. 5 is an operating member for operating the device shown in Fig. 4. Fig. 6 is a perspective view of the lock arranged with the knob and surrounding parts applied to a door with the locking device proper shown removed. Fig. 7 is a fragmentary sectional view similar to Fig. 2, showing the locking tumbler partially moved. Fig. 8 is a view similar to Fig. 7, showing the locking tumbler moved to its forward position. Fig. 9 is a perspective view of the locking tumbler. Fig. 10 is a perspective view of the base tumbler. Fig. 11 is an enlarged perspective view of the bolt.

In constructing a lock embodying the invention the same is arranged with a locking mechanism proper arranged to be applied and removed from a door without interfering with the co-acting knob shaft which is used for operating the locking mechanism proper. The locking mechanism proper is also designed to be removed without interfering with one or more locking members designed to be operated by suitable keys. In arranging the knobs and knob shafts the outside knob is associated with a sliding locking bar which is operated by a lever mechanism from the inside of the door for locking the knob shaft connected to the outside knob against rotation or for permitting a free rotation thereof according to the position of the sliding member. When the knob shaft connected to the outside knob is locked against rotation the locking mechanism proper cannot be operated by the outside knob but may be freely operated by the auxiliary lock associated with the locking mechanism proper.

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 a door of any desired kind in which is fitted a mortise lock 2 arranged with a reciprocating bolt 3. The bolt 3 is controlled by locking mechanism 4 which has projecting therefrom an extension 5 for being operated by the auxiliary lock 6. The locking mechanism 4 may be also operated by a lever 5′ which is pivotally mounted at 6′ and has an arm or extension 7 designed to be operated by a pivotally mounted lever 8. Lever 8 is arranged to be engaged by cam members 9 and 10 arranged on parts 11 and 12 of the knob shaft which carries knobs 13 and 14, knob 14 being an outer knob and designed to be locked against movement by a reciprocating locking member 15 whenever it is desired to lock the door against being opened from the outside. However, whenever it is desired to withdraw bolt 3 from the outside and knob 14 is locked against rotation a key 16 may be fitted into lock 6 and operate for rotating cam 17, which cam engages lug or extension

5 for withdrawing bolt 3. A lock, similar to lock 6, may be fitted to operate from the inside of the door if desired.

It will be noted that the entire lock 6 is arranged outside of the locking member or mechanism 2 but cam 17 may freely pass through a slot 18 in the housing of the locking member 2 for freely engaging extension 5. This will permit a free operation of the bolt 3 by the lock 6 but will not prevent the removal of the locking mechanism 2.

Bolt 3 is arranged in housing 2′ and projects through a face plate 3′. The face plate 3′ acts as a guide for permitting the proper reciprocation of the bolt in the usual manner. Bolt 3 is formed with cut out portions 30 and 31, and a longitudinal slot 32. The slot 32 accommodates a guiding and locking pin 32′, which is rigidly secured to housing 2′. Mounted in cut out portion 31 is a base tumbler 33 which is utilized for moving the bolt 3 when the same is used as a latch. Mounted in cut out portion 30 is a locking tumbler 34 which is designed to be operated by auxiliary lock 6. Base tumbler 33 is an oblong structure, and has arranged therein a slot 35 for accommodating locking pin 32′. The tumbler 33 is formed with turned over ends 36 and 37, end 37 being divided or bifurcated for forming an opening or slot 38 for accommodating pin 39. Slot 35 is longer than slot 32, and when the tumbler 33 is resting against pin 32′ slot 32 overlaps slot 35 until slot 32 almost comes opposite turned over portion 36 of tumbler 33. These slots are arranged in this manner in order to permit an extra outward movement of bolt 3 for locking the same. Tumbler 33 is also formed with notches 40 and 41 having therebetween a lug 42. These notches are designed to accommodate a turned over lug or stop 4 on tumbler 34. Tumbler 33 is mounted on one side of bolt 3, and tumbler 34 on the opposite side, tumbler 34 being positioned in cut out portion 30 and pivotally mounted on pin 39. Tumbler 34 is used for throwing bolt 3 to its outer or locked position, and is therefore formed with the extension 5 for being engaged by the cam 17. Tumbler 34 is also formed with a slot or notched out portion 44 into which extends a lug 45, and which is designed to accommodate pin 32′. A spring 46 is provided for tumbler 34, and engages the same in a slot 47 for normally holding the upper edge of notched out portion 44 against pin 32′. The notched out portion 44 is made sufficiently large for permitting a sufficient pivotal movement for allowing member or extension 5 to raise tumbler 34 upward and force the same over pin 32′ when bolt 3 is being forced to its outer or locked position. The movement of extension 5 when locking bolt 3 will first be such as to pivotally raise tumbler 34, then move the same longitudinally, together with bolt 3, and finally permit lug 45 to drop in front of pin or lug 32′. When in this position the bolt is in its locked or extreme outer position, and cannot be withdrawn except by the operation of the key and cam 17. When it is desired to operate bolt 3 as an ordinary latch the same is moved by lever 5′, which engages turned over end 36 of tumbler 33. Lever 5′ can only be moved when the lug 45 of tumbler 34 has been moved to a position back of pin or lug 32′ by means of cam 17. Lever 5′ has a projection 7 against which lever 8 presses, and which when depressed moves lever 5′ rearwardly, and consequently pulls upon tumbler 33, which conveys power to tumbler 34 through turned over portion 4. From tumbler 34 power is conveyed through pin 39 to bolt 3, whereby the bolt is withdrawn and moved inward. Upon the releasing of member 7 the spring will automatically throw the bolt 3 to its outer position in the usual manner. By this construction and arrangement the bolt 3 may be operated freely as a latch for the knobs, and may be locked against operation from the outside by the sliding member 15. Also the auxiliary lock affords means for positively locking the bolt or moving the bolt to such a position that the same can not be withdrawn by the knobs under any circumstance, the auxiliary locking member and the knob mechanism being arranged independent of the locking mechanism 2 so as to permit the free withdrawal of the locking mechanism 2 whenever desired.

A pair of escutcheons 19 and 20 are provided through which extend the locking shaft and the lock 6. These are held in place by suitable clamping members 21 and 22 which have smooth heads for the outside of the door and kerfed heads for the inside of the door, and comprise a threaded sleeve and a threaded screw fitting into the sleeve for firmly clamping and holding in position the escutcheons.

Arranged within escutcheon 19 is a plate 23 used for assisting in supporting part 12 of the knob shaft, and also assisting in guiding the reciprocating locking member 15 which fits partially into a notch 24 formed in door 1.

The reciprocating locking member 15 (Figs. 1 and 4) is moved by a lever or key member 25 which passes through door 1 and escutcheon 20 and has secured thereto an operating thumb member 26′. When member 25 is turned in one direction the squared notch 26 is raised above part 12 of the knob shaft so as to permit a free rotation of the knob shaft. When member 25 is turned in the opposite direction the sliding member 15 is forced downward until portion 12 of the knob shaft is located in

notch 26′ which will effectually prevent any rotation of knob 14, and consequently any operation of bolt 3 from the outside by the knob. Portions 11 and 12 of the knob shaft are pivotally connected together by portion 11 having a threaded extension 27 fitting into a threaded aperture 28 of portion 12. This will permit a free pivotal movement of both parts of the knob shaft, but will hold the knob shaft in alinement and the cams 9 and 10 in proper position for operating lever 8. In order to cause a proper reciprocatory movement of member 15 a slot 29 is formed therein through which member 22 passes for properly guiding the reciprocating member in its movement. By this construction and arrangement it will be observed that after the entire lock has been placed in position the locking mechanism 2 or locking device proper may be removed bodily without interfering with the escutcheons, knobs and associated parts and the lock 6.

What I claim is:

A lock and latch comprising in combination, a casing, a retractile bolt slidable therein, said bolt being recessed and having a longitudinal slot formed therein, a lug carried by the casing and passing through the slotted portion of said bolt, a tumbler pivoted to said bolt and having an offset from the upper edge thereof, a recessed portion to receive the lug extending from the casing and a lug formed by the recessed portion to engage the lug carried by the casing, and a further lug extending from the lower edge of said tumbler, a slidable member between said bolt and casing having an elongated recess formed therein to receive the lug carried by the casing, said slidable member being notched along its upper edge, a cam face formed by one of said notches, the ends of said slidable member being bent from the plane of the major portion, the offset portion from the upper edge of the tumbler engaging one or another of the notches formed in the slidable member in certain positions thereof, means carried by said casing having a portion thereof extending behind the slidable member and against one of the bent ends thereof, and means independent of said casing for engaging the depending lug from the tumbler so as to raise said tumbler and slide the same, and further means independent of the casing for actuating the means within the casing for sliding said slidable member which through the tumbler slides the bolt.

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

CHARLES E. C. EDEY.

Witnesses:

THOMAS MATTISON,

G. DOWE MCQUESTEN.