T. NEEL, W. E. WILLIAMS & F. W. OWESNEY.

LOCK.

APPLICATION FILED SEPT. 16, 1908.

917,109.

Patented Apr. 6, 1909.

2 SHEETS—SHEET 1.

Fig. 2.

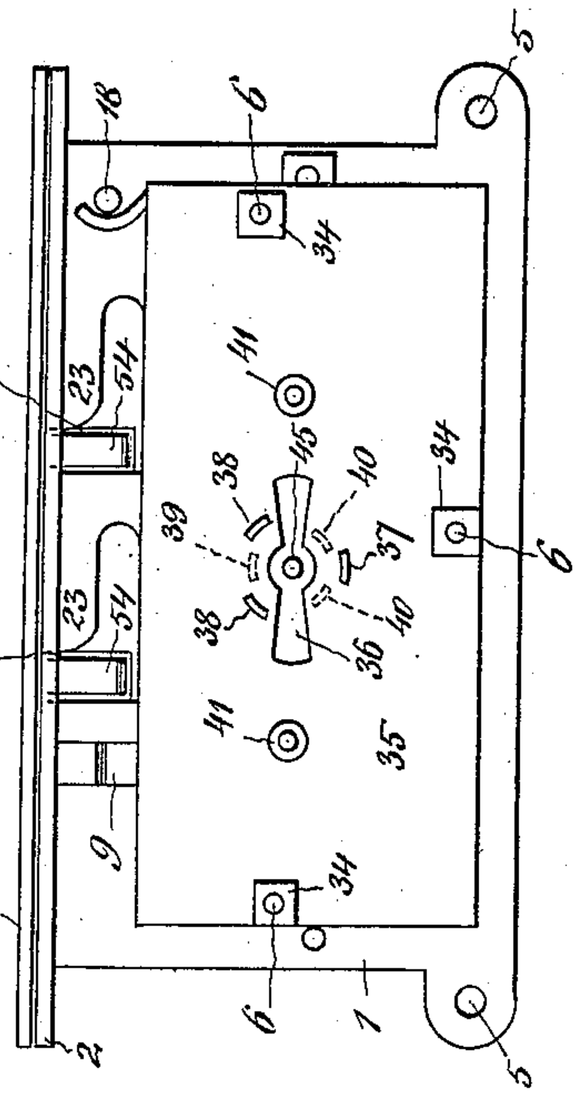

Fig. 6.

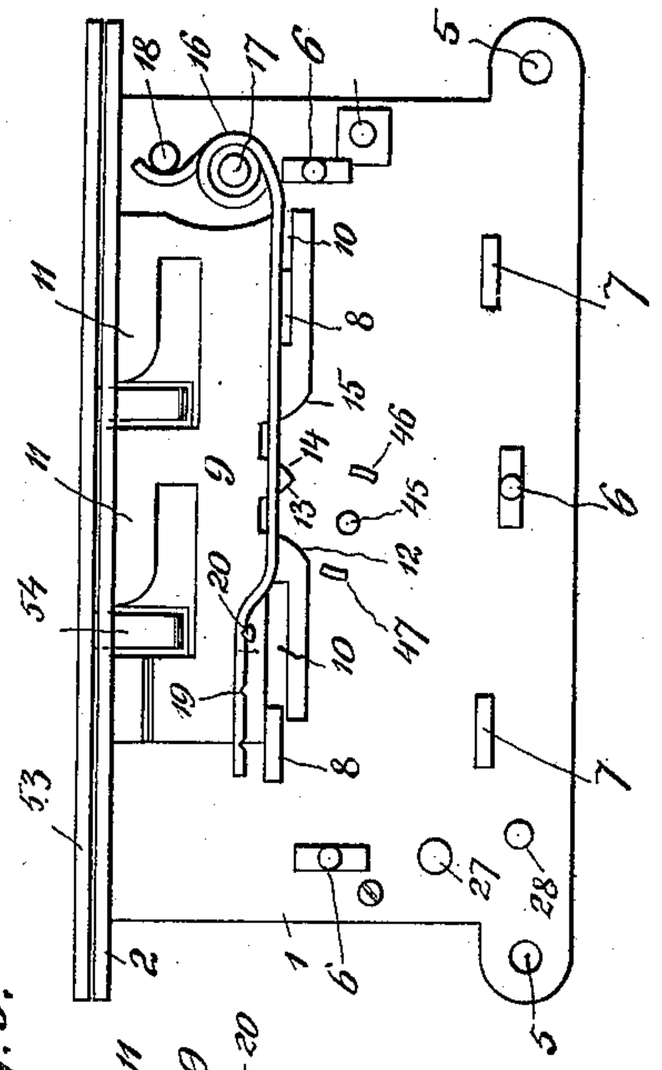

Fig. 5.

Fig. 1.

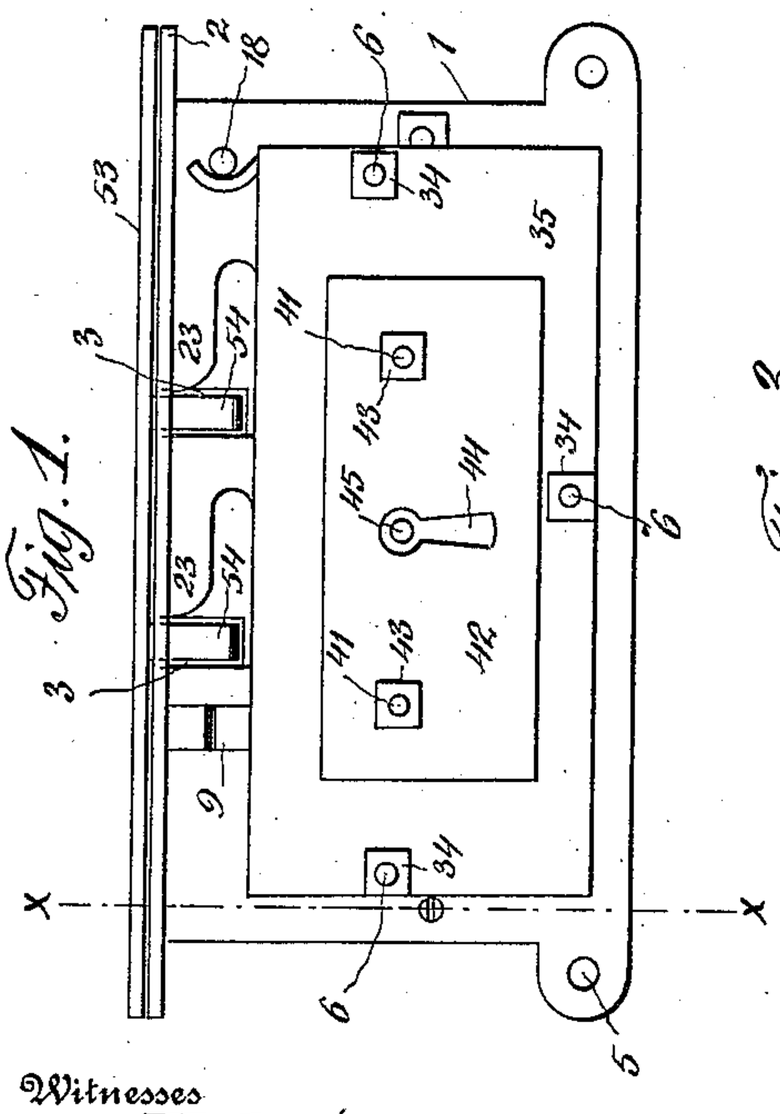

Fig. 3.

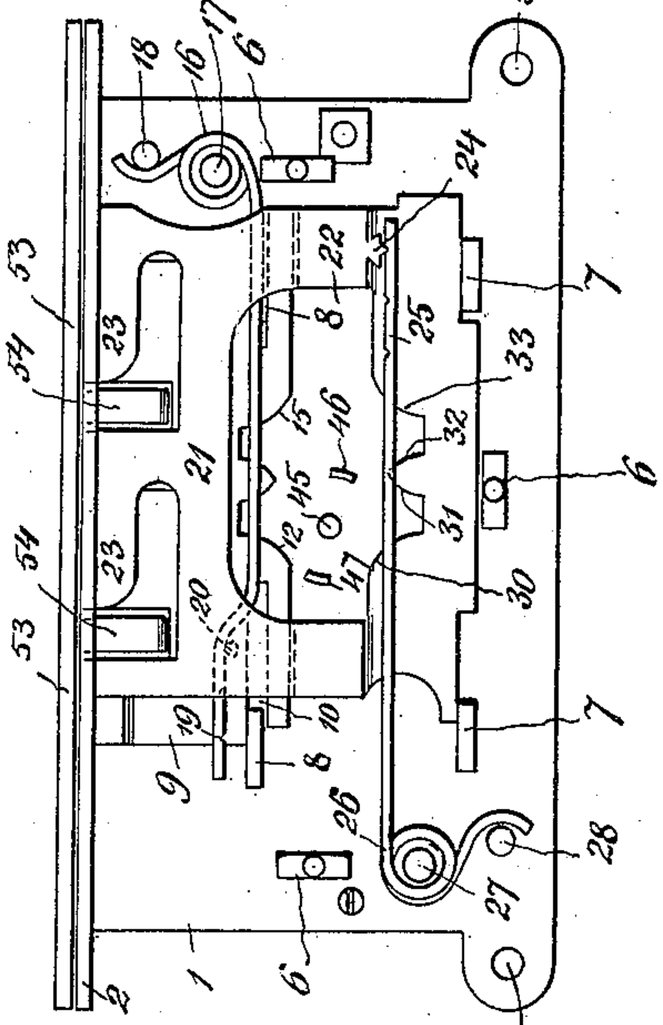

Fig. 4.

Witnesses

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2 SHEETS—SHEET 2.

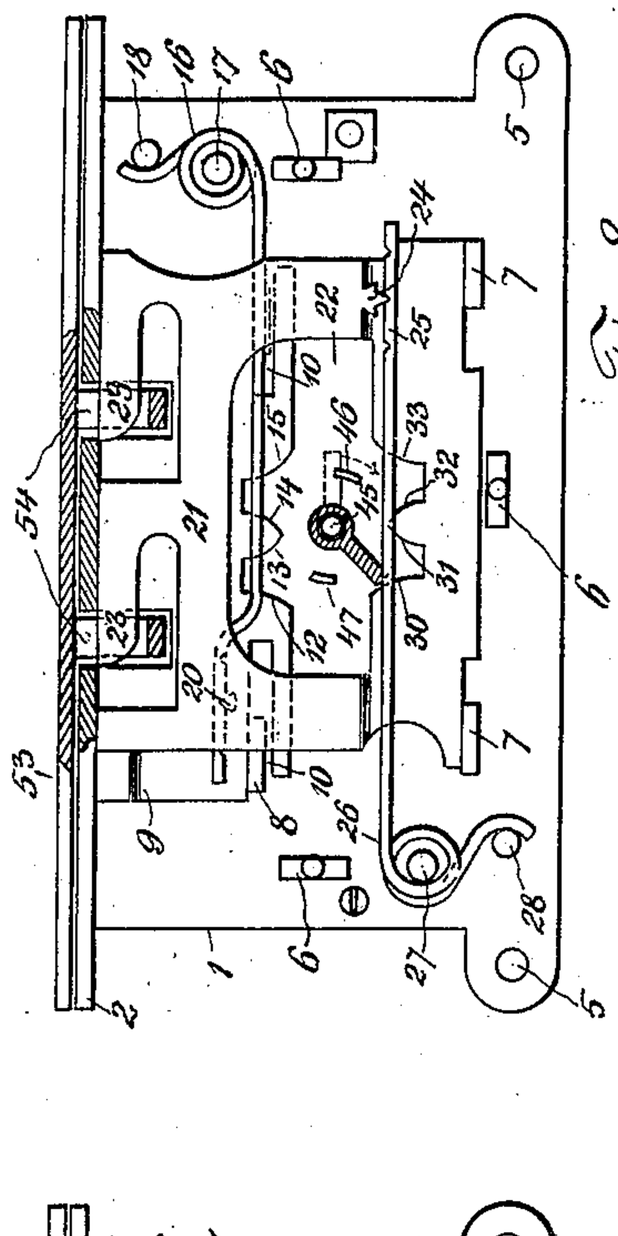

Fig. 8.

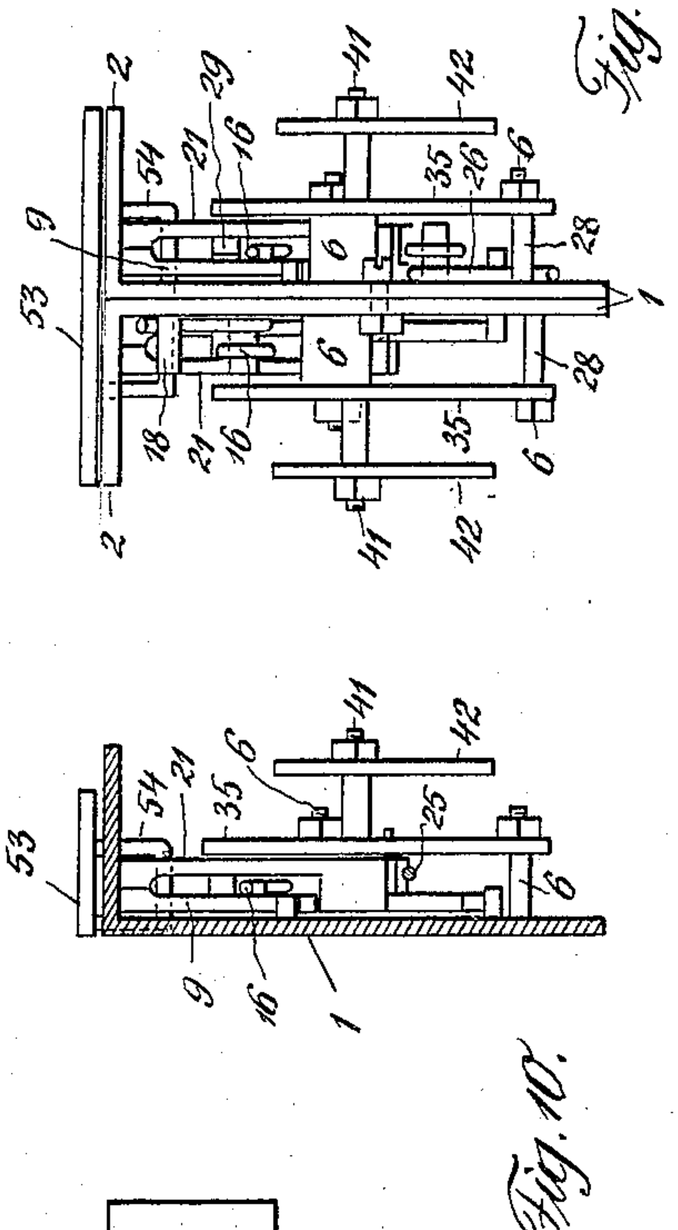

Fig. 11.

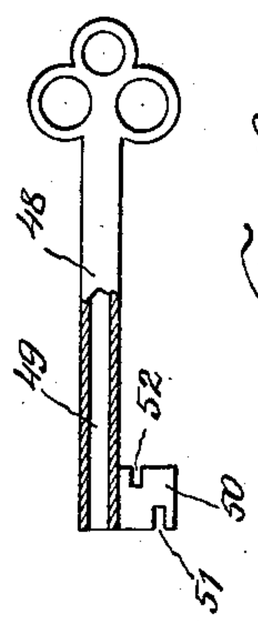

Fig. 12.

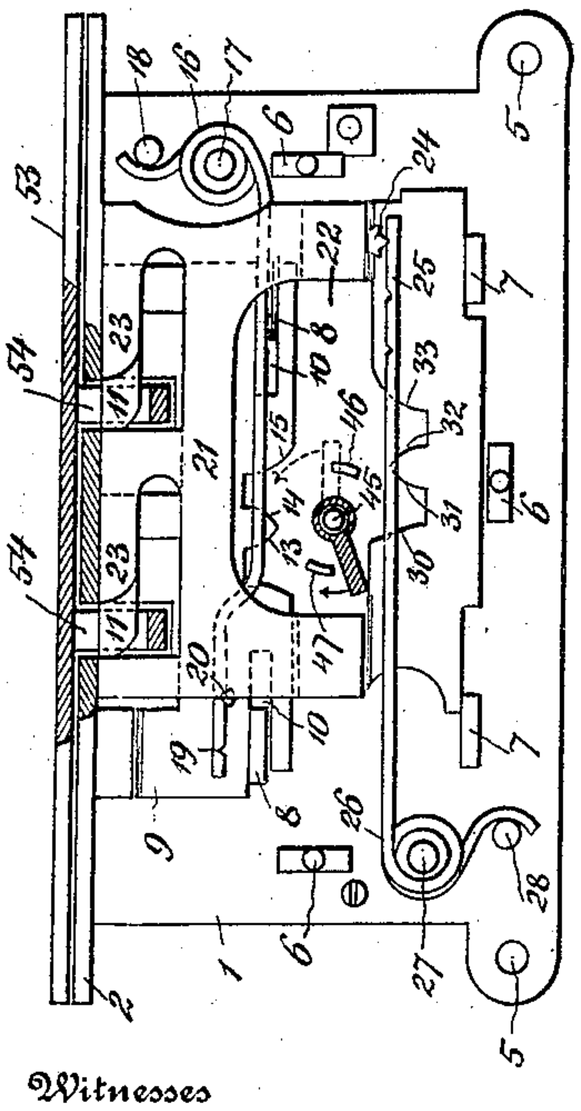

Fig. 7.

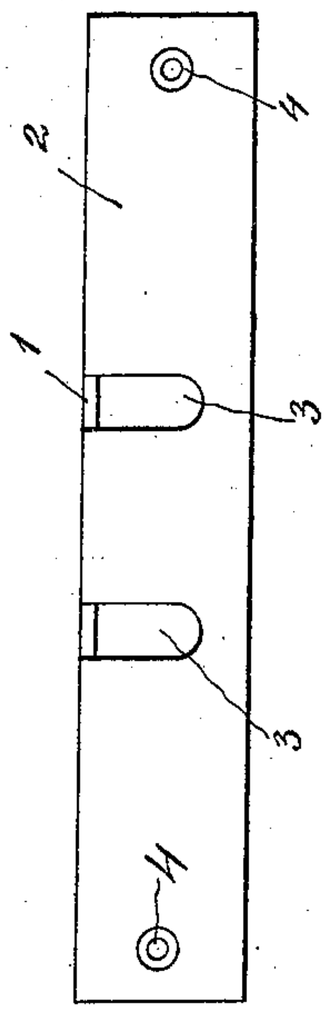

Fig. 9.

Fig. 10.

Witnesses

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UNITED STATES PATENT OFFICE.

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LOCK.

No. 917,109. Specification of Letters Patent. Patented April 6, 1909.

Application filed September 16, 1908. Serial No. 453,234.

To all whom it may concern:

Be it known that we, THOMAS NEEL, WILLIAM E. WILLIAMS, and FREDERICK W. OWESNEY, citizens of the United States of America, residing at Irondale, in the county of Jefferson and State of Ohio, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to locks, and the objects of our invention are first, to provide a lock that can be used in connection with trunks, valises, doors and similar structures, or as a padlock; second, to provide a lock that cannot be surreptitiously opened; third, to provide a double lock requiring separate key movements to lock and unlock the same; and fourth, to provide a durable lock that cannot be easily manipulated unless a person is familiar with the same.

The above objects are attained by a lock structure that will now be described, reference being had first to the drawings, wherein,

Figure 1 is a front elevation of our lock, Fig. 2 is a similar view with the key hole plate removed, Fig. 3 is a similar view with the ward plate and the key hole plate removed, Fig. 4 is an end view of the primary latch, Fig. 5 is an end view of the secondary latch, Fig. 6 is a front elevation of the lock with the key hole plate, ward plate and primary latch removed, Fig. 7 is a front elevation of the lock partly broken away and partly in section, illustrating the secondary latch in a shifted position, Fig. 8 is a similar view illustrating the primary latch in a shifted position, Fig. 9 is a plan of a single lock plate, Fig. 10 is a cross sectional view taken on the line *x*—*x* of Fig. 1, Fig. 11 is an end view of a double lock, and Fig. 12 is an elevation of a key partly broken away and partly in section.

In the accompanying drawings 1 designates a plate having a right angular extension 2 provided with slots 3 and screw openings 4, this extension serving functionally as an escutcheon plate when our lock is mounted in a door. The plate 1 is provided with apertured lugs 5, and with screw posts 6 and two sets of guide lugs 7 and 8.

Slidably mounted upon the guide lugs 8 is a secondary latch 9 having two end slots 10 for the guide lugs 8. The upper edge of the secondary latch is cut away to provide two longitudinally alining hooks 11, the distance between the points of said hooks corresponding to the distance between the slots 3 of the extension 2. The lower edge of the latch 9 is cut away to provide bearing surfaces 12, 13, 14 and 15, adapted to be engaged by a key in moving the latch. To hold the latch 9 in engagement with the plate 1 and normally in a fixed position, a coil spring 16 is inclosed, this spring being mounted upon a pin 17, carried by the plate 1. One end of the spring bears against a pin 18 carried by the plate 1, while the opposite end is bent and provided with notches 19 for engaging a triangular shaped lug 20, carried by the secondary latch 9.

Slidably mounted upon the plate 1 below the secondary latch 9 is a primary latch 21 having a central opening 22 to provide clearance for a key. The latch 21 rests upon the lugs 7 and upon the plate 1 and extends upwardly and rests against the secondary latch 9, and the upper edge of the primary latch 21 is cut away to provide two longitudinally alining hooks 23, similar to the hooks 11. One end of the primary latch is provided with a depending lug 24 adapted to be engaged by the notched end 25 of a coil spring 26 arranged upon a pin 27, carried by the plate 1. The opposite end of said spring bearing against a pin 28 carried by said plate. The primary latch is provided with a bearing 29 resting against the secondary latch. The primary latch at the lower edge of the opening 22 is cut away, to provide bearing surfaces 30, 31, 32 and 33.

Mounted upon the screw posts 6 and holding thereon by nuts 34 is a ward plate 35 having a central horizontal double key opening 36. Circumferentially arranged relative to said openings are segment shaped wards 37 and 38 upon the front side of the plate, while upon the rear side are arranged similar wards 39 and 40. The plate 35 is provided with screw posts 41 for a key hole plate 42 held in position by nuts 43. This key hole plate is provided with a vertical keyhole 44, the upper ends of which aline with the central portion of the key opening 36, and a pin

45, carried by the plate 1. Arranged upon the plate 1 adjacent to said pins are two wards 46 and 47.

Used in connection with the lock is a key 48 having a longitudinal bore 49 and a radially disposed bit 50 provided with slots 51 and 52.

The reference numeral 53 designates an escutcheon plate having depending loop shaped keepers 54, as shown in the drawings. My lock is employed for locking the plate 53 to the extension 2. This is accomplished in the following manner, the key 48 is inserted in the key hole 44 and in the key opening 36, with the bit 50 in a horizontal position at the right side of the pin 45, as shown in dotted lines on Fig. 7 of the drawings, by turning the key to the left or in the direction of the arrow (Fig. 7) the bit 50 impinges the bearing surfaces 12 of the secondary latch and moves said latch to the left, whereby the hooks 11 thereof will be moved into the depending keepers 54. A further movement of the bit 50 in the direction of the arrow causes the piece to impinge the lower edge of the opening 22 of the primary latch and said key can be moved no further in this direction. The bit 50 is then moved to a horizontal position, the key pulling outwardly to place the bit 50 between the ward plate 35 and the keyhole plate 42, at which time the bit 50 is swung from the left hand side of the pin to the right hand side thereof, and again pushed in between the ward plate 35 and the plate 1. Again swing the bit 50 in the direction of the arrow, said piece impinges the bearing surfaces 14 and moves the secondary latch its final step, to a locked position.

To place the primary latch in a locked position, the bit 50 is swung downwardly to the left to engage the bearing surface 30 of the primary latch and move said latch a short distance, whereby the hooks 23 thereof will extend into the keepers 54. Now if the key was further rotated, the bit 50 would strike the bearing surface 13 of the secondary latch and partially unlock the same, so in order to continue the operation of locking the lock, particularly the primary latch, the bit 50 is moved between the plates 35 and 42, the piece swung to the right side of the pin 45 and then swung downwardly to the left to engage the bearing surfaces 32, and move the primary latch its final step. To unlock the latches 9 and 21, the operation is reversed, and to prevent the lock from being picked, the wards 37 to 40 inclusive are provided, these wards being cleared by the slots 51 and 52 of the bit 50, the slot 51 receiving the wards 37, 38, 46 and 47, while the slot 52 receives the wards 39 and 40.

It will be observed that to manipulate our lock, requires an in and out movement of the key besides reverse movements within the lock for moving the latches in a desired direction. In providing two latches, which serve functionally as tumblers, we render the lock burglar proof, due to the fact that the latches can be moved in unison. If the key is not properly manipulated in the lock, one latch will be shifted to a locked position while the other latch is shifted to an unlocked position, and since it requires four movements of the key to completely unlock the latches, it is with considerable difficulty that a person provided with a key opens the lock, unless familiar with the manner of manipulating the key. It would be a comparatively easy operation if the latches could be observed, but when the lock is incased in a trunk, or door, it is impossible to determine when the lock is open, except by trying the trunk lid or the door.

In Fig. 11 of the drawings we have illustrated a double lock that can be used in connection with a door, one of the locks constituting an outside lock and the other an inside lock.

The lock can be incased in a suitable metallic casing (not shown) and secured to a door without embedding the same therein, a suitable provision being made for supporting the plate 53 and the keepers 54.

While in the drawings forming a part of this application there is illustrated the preferred embodiments of our invention, we would have it understood that the elements therein can be varied or changed, as to the shape, proportion and manner of assemblage, without departing from the scope of the invention.

Having now described our invention, what we claim as new, is;—

1. In a lock the combination with a plate having loop keepers, of a plate having a slotted extension to receive said keepers, a secondary latch slidably mounted upon said plate and having the lower edge thereof cut away to provide bearing surfaces, alining hooks carried by the upper edge of said latch for entering said keepers, a spring carried by said plate for normally holding said secondary latch in a fixed position, a primary latch slidably mounted upon said plate and extending over said secondary latch, said primary latch having a central opening formed therein with the lower edges of said opening provided with bearing surfaces, hooks carried by the upper edge of said primary latch for entering said keepers, a spring carried by said plate for normally holding said primary latch in a fixed position, a ward plate supported by said plate, said ward plate having a horizontal double key opening formed therein circumferentially arranged segment shaped wards carried by both sides of said ward plate, segment shaped wards carried by the first mentioned plate, a key hole plate supported by said ward plate, a key adapted to enter said

double key opening, and a bit carried by said key for engaging the bearing surfaces of said primary and secondary latches, said bit having slots formed therein to provide clearance for said wards.

2. In a lock, the combination with a plate having loop keepers, of a plate having a slotted extension to receive said keepers, a spring holding secondary latch slidably mounted upon said plate and having the lower edges thereof provided with bearing surfaces, hooks carried by the upper edges thereof for entering said keepers, a spring held primary latch slidably mounted upon said plate and extending over said secondary latch, said primary latch having a central opening formed therein providing bearing surfaces, hooks carried by the upper edge of said primary latch for entering said keepers, a ward plate supported by the first mentioned plate and having a double horizontal key opening formed therein, wards carried by said plate, wards carried by the first mentioned plate, a key adapted to enter said key opening, and a bit carried by said key for engaging the bearing surfaces of said latches for moving said latches, said bit having slots formed therein to clear said wards.

3. In a lock, the combination with a plate having loop keepers, of a plate having a slotted extension to receive said keepers, a secondary latch slidably mounted upon said plate and having the lower edges thereof provided with bearing surfaces, hooks carried by the upper edges thereof for entering said keepers, a primary latch slidably mounted upon said plate and extending over said secondary latch, said primary latch having a central opening formed therein providing bearing surfaces, hooks carried by the upper edge of said primary latch for entering said keepers, a ward plate supported by the first mentioned plate and having a double horizontal key opening formed therein, wards carried by said plate, wards carried by the first mentioned plate, a key adapted to enter said key opening, and a bit carried by said key for engaging the bearing surfaces of said latches for moving said latches, said bit having slots formed therein to clear said wards.

4. In a lock the combination with a plate having loop keepers, of a plate having slotted extensions adapted to receive said keepers, latches slidably mounted upon said plate, hooks carried by the upper edges of said latches for entering said keepers, said latches having the edges thereof cut away to provide bearing surfaces, a ward plate supported by the first mentioned plate, said ward plate having a key opening formed therein, wards carried by said plate adjacent to said opening, a key adapted to enter said opening, and a bit carried by said key for engaging the bearing surfaces of said latches, said bit having slots formed therein to clear said wards.

5. In a lock, the combination with a plate having keepers, of a plate having a slotted extension to receive said keepers, latches slidably mounted upon said plate and adapted to be moved into engagement with said keepers, a ward plate carried by the first mentioned plate, said ward plate having a key opening formed therein, a key adapted to be inserted in said opening for moving said latches, means in connection with said key and said latches for unlocking one latch and locking the other of said latches by a complete rotation of said key, and means in connection with said key and said latches for necessitating a partial withdrawal of said key and rotations in opposite directions for unlocking said latches.

In testimony whereof we affix our signatures in the presence of two witnesses.

THOMAS NEEL.
WILLIAM E. WILLIAMS.
FREDERICK W. OWESNEY.

Witnesses:
F. S. WADE,
L. A. BLACK.