D. CAMPBELL.

SLIDING DOOR LOCK.

APPLICATION FILED JUNE 6, 1911.

1,010,855. Patented Dec. 5, 1911.

Fig. 1.

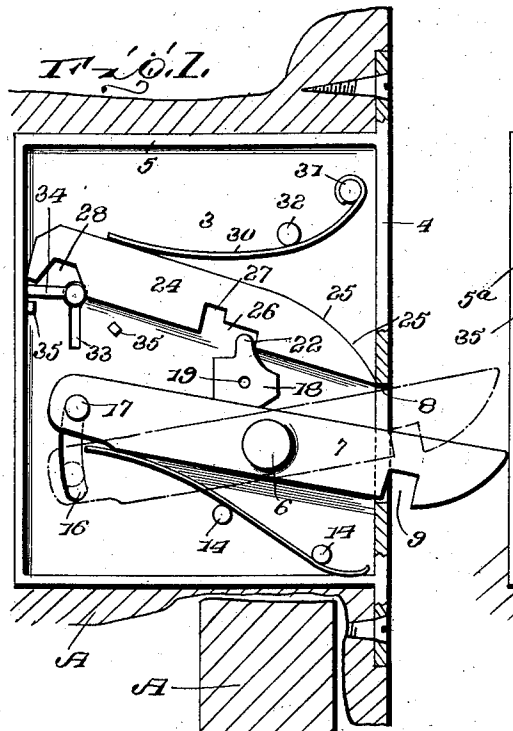


Fig. 2.

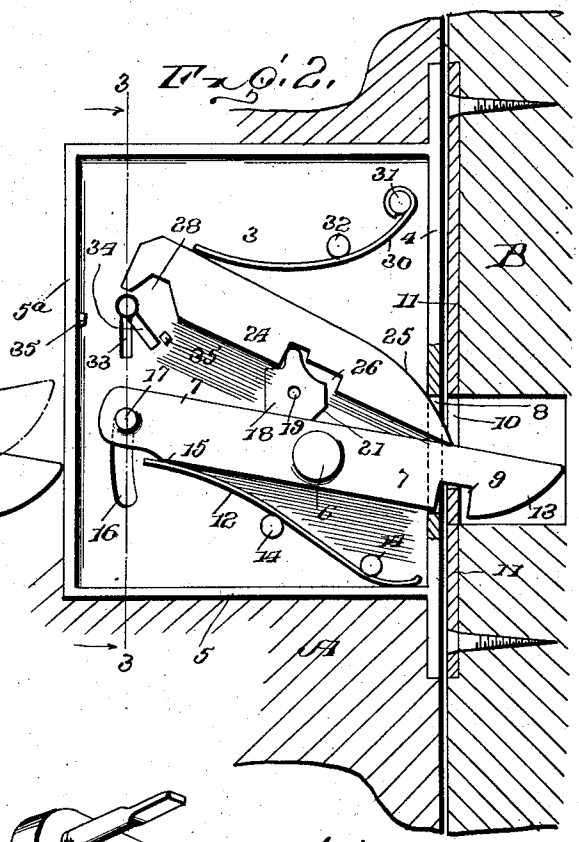


Fig. 3.

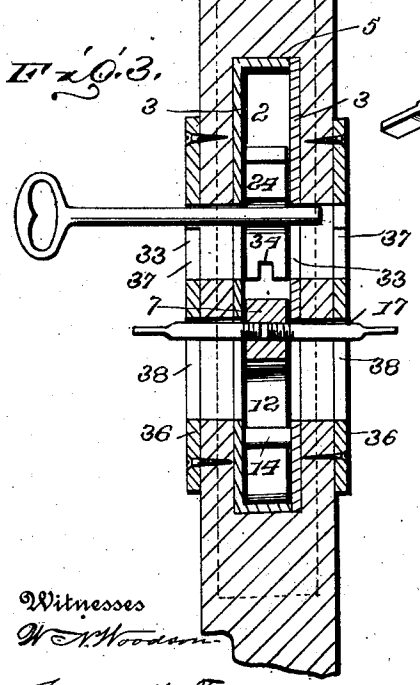


Fig. 4.

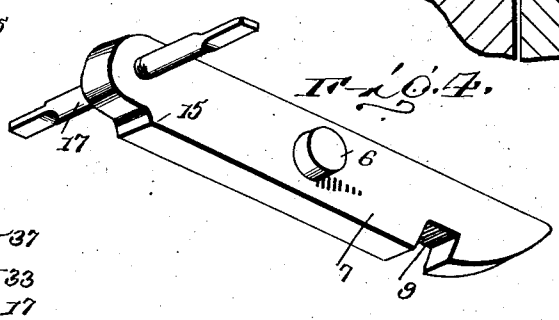
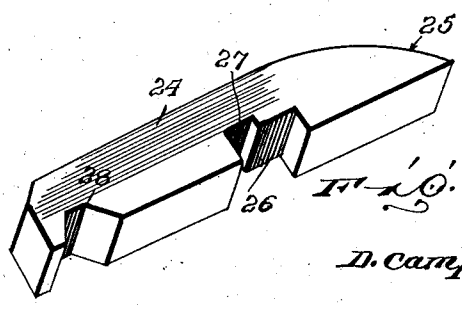


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

DUNCAN CAMPBELL, OF PENDLETON, OREGON.

SLIDING-DOOR LOCK.

1,010,855. Specification of Letters Patent. Patented Dec. 5, 1911.

Application filed June 6, 1911. Serial No. 631,634.

To all whom it may concern:

Be it known that I, DUNCAN CAMPBELL, citizen of the United States, residing at Pendleton, in the county of Umatilla and State of Oregon, have invented certain new and useful Improvements in Sliding-Door Locks, of which the following is a specification.

My invention relates to locks and latches and particularly to locks such as are used on sliding doors, the lock being set within a mortise on the edge of the door and engaging over a plate on the jamb or the opposed section of the door.

The primary object of the invention is the provision of a very simple, cheap and effective lock of this character in which the bolt may be actuated by hand, and in which means are provided for projecting a tumbler into engagement with the bolt for preventing the bolt from rising at its locking end.

Another object of the invention is to provide a bolt and to provide a lock in which a tumbler may be projected by means of a key into position between the bolt and the adjacent wall of the bolt opening so as to wedge the bolt in its locked position, the tumbler being so constructed that it cannot be forced back from the outside except by the use of a key.

My invention is illustrated in the accompanying drawings wherein:

Figure 1 is a side elevation of my improved lock, one side wall of the lock being removed. Fig. 2 is a like view to Fig. 1 but showing the parts in their locked position, the door engaging the door jamb. Fig. 3 is a section on the line 3—3 of Fig. 2. Fig. 4 is a perspective view of the bolt detached from the lock. Fig. 5 is a perspective view of the tumbler.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these figures, 2 designates a casing such as is usual in mortise locks, comprising the side plates 3, the face plate 4 and the end plates 5 which are constructed in any suitable manner. The side plates 3 are provided with alining openings to receive the trunnions or gudgeons 6 of a pivoted bolt or latch 7. One end of the bolt 7 projects out through an opening 8 in the face plate and is provided with a notch 9 which is adapted to engage over the wall of an opening 10 formed in a plate 11 attached to the jamb B of the door or to a section of a sliding door. A spring 12 acts to force the inner end of the bolt upward and the outer end downward. Preferably the outer end of the bolt is rounded or beveled as at 13 so that the bolt will be raised as the bolt strikes the edge of the opening 10 until the door is fully closed when the spring 12 will cause the bolt to latch over the wall of the opening 10. Preferably the spring 12 is supported between two posts 14 formed upon one of the side plates 2, the spring being inserted between these posts and bearing at its lower end against the end wall 5. The upper end of the spring projects rearward and engages the rear end of the bolt at 15.

The side plates 2 are each provided with an arcuate slot 16, and projecting laterally from the inner end of the bolt 7 are the pins 17 which extend through the slots 16. These pins may have any desired or convenient form and are intended to permit the latch to be depressed. As illustrated, the pins at their ends are flattened so as to provide convenient finger-holds. These pins may be unscrewed in order to permit the lock to pass into a door mortise.

Formed integral with or attached to one of the side plates 3 is the post 18 which is preferably formed with a screw hole 19 whereby the side plates may be connected to each other by a screw passing through one of the side plates and into the opening 19. The under face of the post 18 forms a stop against which the upper edge of the bolt 7 bears. The forward end of the under face of the post 18 is cut away as at 21 so as to permit the bolt to be raised to the position shown in Fig. 1. The upper face of the post is formed with an upwardly projecting lug 22 which is obtusely angled at its upper end.

The tumbler 24 is straight on its lower edge but the forward portion of the upper edge thereof is downwardly beveled or rounded as at 25. The under face of the tumbler is cut away as at 26 so as to form a longitudinally extending recess, the rear end of which is formed with a notch 27. Normally as shown in Fig. 1, the tumbler is supported so that the lug 22 on the post 18 engages with the forward end of the wall of the recess 26. At the rear end the tumbler 24 is cut away on its under side to provide an oppositely beveled recess 28, with the walls of which the key 29 engages. The

tumbler is of such length that when in the position shown in Fig. 1, the forward end of the tumbler will bear against the inside face of the plate 4 while the rear end of the tumbler will bear against the inside face of the plate 5a. A spring 30 acts to force the rear end of the tumbler downward against the wall 5a and the forward end of the tumbler upward against the inner face of the plate 4. This spring 30 is preferably wound at its upper end around a post 31 projecting from one of the plates 3 and preferably passed beneath a post 32, also projecting from one of the plates 3. The spring has frictional contact against the upper edge of the tumbler 24. The bit of the key may be of any desired shape and the key is insertible into the keyhole 33 formed in each of the side plates 3. This keyhole is located immediately above the arcuate slot 16. When the key is inserted through the keyhole and turned in a clockwise direction, the web of the key will engage in the recess 28 and lift the rear end of the tumbler. As the key is further moved, the web will engage the forward wall of the recess 28 and force the tumbler forward until it takes the position shown in Fig. 2, wherein the lug 22 projects into the recess 27, the forward end of the tumbler being projected through the opening 8 in the plate 4 and into wedging engagement between the upper end of the bolt opening 8 and the upper edge of the bolt. In this position it is impossible to raise the bolt as the upper rounded face 25 of the tumbler engages the upper end wall of the opening 8. It will be noted that the upper end wall of the opening 8 constitutes an abutment between which and the bolt the tumbler has a wedging engagement. It is impossible to force the bolt back by reason of the fact that the lug 22 projects into the notch 27. When it is desired to unlock the door, the key is inserted in the keyhole 33 and turned in a counterclockwise direction. The web of the key will engage the under face of the tumbler 24, thus initially lifting the rear end of the tumbler until the notch 27 is freed from its engagement with the lug. The key is continually turned until it engages the rear wall of the recess 28 and retracts the tumbler to its original position whereupon the spring 30 forces the rear end of the tumbler downward into engagement with the wall 5a, and the forward end of the tumbler upward into engagement with the inside face of the plate 4 at the upper end of the opening 8 as shown in Fig. 1.

While I have shown a very simple key for the purpose of unlocking this lock, it will be understood that the key and lock may be provided with wards of any desired character. I have shown for instance the web of the key as being formed with a ward opening 34 and the lock as being provided with wards 35, preventing the passage of any key not formed with the ward opening 34. I do not wish to limit myself to any particular means for warding this lock.

As before stated, the casing 2 is designed to be inserted in a mortise formed in the door A, and therefore it is necessary to provide escutcheons for the keyholes 33 and the slots 16. Such escutcheons are designated 36 and are shown in Fig. 3. The escutcheons comprise a plate having therein the keyhole slot 37 and an elliptical slot 38 through which the pin 17 projects. It is to be understood that there are two of these escutcheons, one on each side of the door and that the bolt may be operated from either side of the door, either by pressing down on the pins or thumb pieces 17 or by actuating the tumbler through the key. After the tumbler is retracted by means of the key, the bolt is to be operated by means of the thumb pieces.

What I claim is:

1. In a lock, a casing, a bolt in the casing, an abutment disposed adjacent to the bolt, and a key actuated tumbler longitudinally shiftable to carry one end thereof into wedging engagement between the bolt and said abutment to prevent the retraction of the bolt.

2. In a lock, a casing, a bolt pivoted within the casing and having its free end projecting out of the same, a key actuated tumbler having a wedge shaped end and longitudinally shiftable, and an abutment disposed near the free end of the bolt between which and the bolt the tumbler is shiftable to prevent a retraction of the bolt.

3. In a lock, a casing having a face plate provided with a bolt opening, a bolt pivoted within the casing and having one end thereof projecting through the bolt opening, and a pivotally mounted, longitudinally shiftable tumbler mounted within the casing, the upper face of the forward end of the tumbler being inclined, said tumbler being longitudinally shiftable to carry its forward end into wedging engagement between the bolt and the end wall of the bolt opening to prevent a retraction of the bolt.

4. In a lock, a casing having a face plate provided with a bolt opening, a bolt pivoted within the casing and projecting through the bolt opening, a spring raising the inner end of the bolt, actuating members attached to the rear end of the bolt and projecting through slots in the casing, and a pivotally supported and longitudinally movable tumbler disposed in the casing above the bolt and having the upper face of its forward end beveled, said tumbler being longitudinally shiftable to pro-

ject its forward end into wedging engagement between the upper face of the bolt and the upper end of the bolt opening.

5. In a lock, a casing having a face plate provided with a bolt opening, a bolt pivoted within the casing and projecting through the bolt opening, a post supported in the casing above the bolt and having an upwardly projecting lug, a key actuated tumbler supported on said post and having a longitudinally extending recess into which the lug on the post projects, the forward end of the tumbler being wedge shaped to engage between the bolt and the upper end of the bolt opening, and a spring acting to depress the inner end of the tumbler.

6. In a lock, a casing having a face plate provided with a bolt opening, a bolt pivoted within the casing and projecting through the bolt opening, a spring raising the rear end of the bolt, means whereby the rear end of the bolt may be manually depressed, a post disposed above the bolt and attached to the casing and having an upwardly projecting lug, a tumbler supported on said post and having a longitudinally extending recess on its under face, the inner end of the recess having a notch approximately the width of the lug on the post, the rear end of the tumbler being notched on its under face for engagement with a key, and a spring depressing the rear end of the tumbler.

7. In a lock, a casing having a face plate provided with a bolt opening, a bolt pivoted within the casing and projecting through the bolt opening, said bolt having a notch on its under side, pins on the inner end of the bolt projecting out of arcuate slots on the face plate, a spring for raising the rear end of the bolt, a post located above the bolt and having an upwardly projecting lug, a tumbler supported on said post and having a longitudinally extending recess into which the lug projects, the rear end of the recess being notched, the rear end of the tumbler being notched for engagement with a key, the forward end of the tumbler on its upper face being rounded to form a wedge shaped engaging end projecting into the bolt opening, a spring mounted in the casing and depressing the rear end of the tumbler, and wards disposed within the casing and engaging with the key.

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

DUNCAN CAMPBELL. [L. S.]

Witnesses:

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