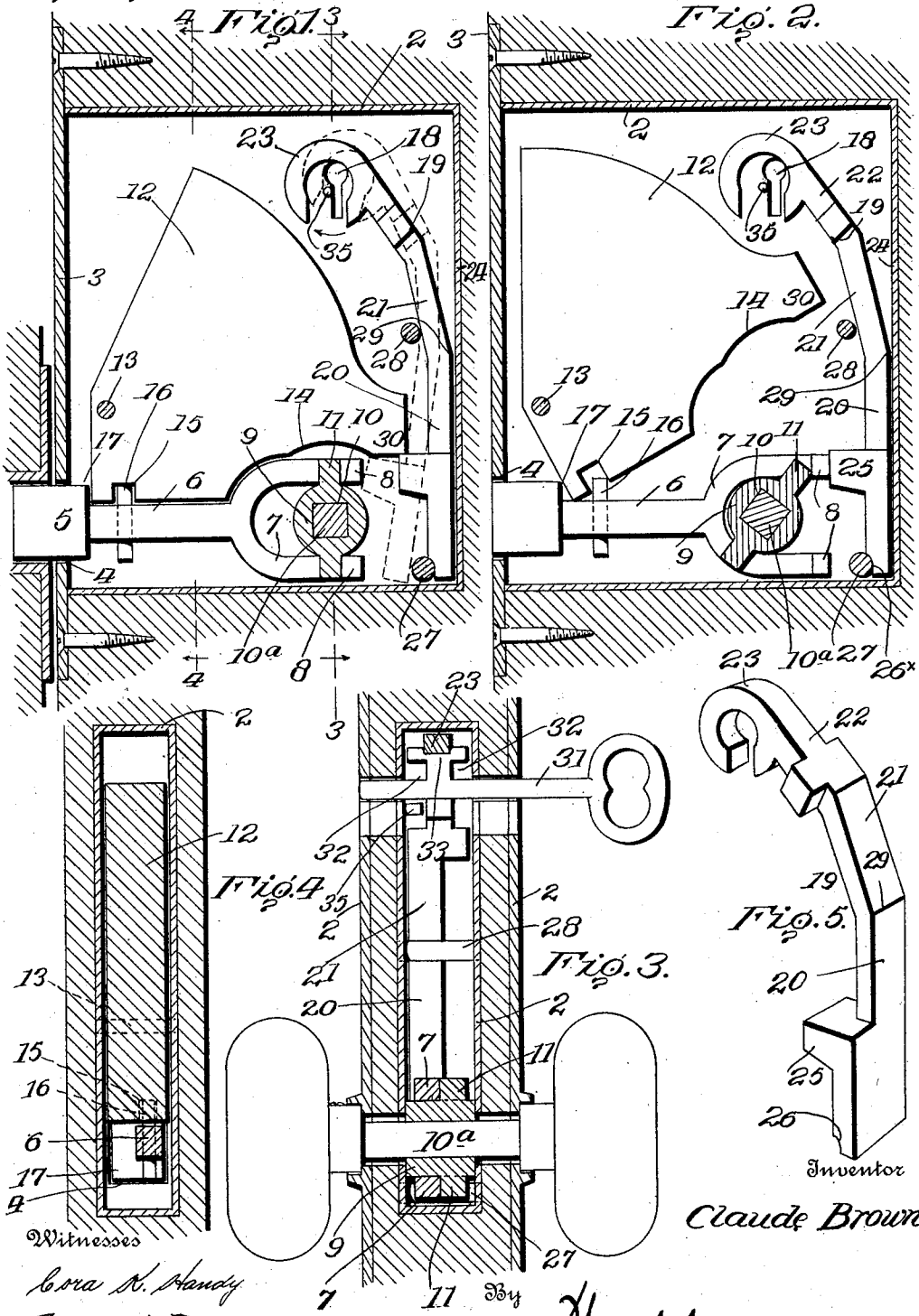


C. BROWN.
 SPRINGLESS DOOR LOCK.
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1,037,588.

Patented Sept. 3, 1912.



Witnesses
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UNITED STATES PATENT OFFICE.

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SPRINGLESS DOOR-LOCK.

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To all whom it may concern:

Be it known that I, CLAUDE BROWN, citizen of the United States, residing at Attica, in the county of Fountain and State of Indiana, have invented certain new and useful Improvements in Springless Door-Locks, of which the following is a specification.

My invention relates to mortise locks and the primary object of my improvement is the provision of a simple, cheap and durable lock of this character in which a weight is used for projecting the bolt instead of a spring. Springs are weak and vary in tension one spring from another, and as they are used lose their tension, whereas a weight exerts a certain power at all times and does not vary no matter how long the weight may be in use.

A further object is to provide means for positively locking the bolt in its projected position by the provision of a member movable by means of a key into or out of locking engagement with the rear end of the bolt, and which when in locked position is interposed between the bolt and an abutment, positively preventing the rearward movement of the bolt until said locking member is actuated by the key.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings wherein:

Figure 1 is a vertical sectional view of a mortise lock casing with my improved mechanism disposed therein. Fig 2 is a like view to Fig. 1 showing the parts in a different position. Fig. 3 is a vertical transverse section on the line 3—3 of Fig. 1. Fig. 4 is a vertical transverse section on the line 4—4 of Fig. 1. Fig. 5 is a perspective view of the tumbler.

Referring to the drawings, 2 designates the casing of the lock, 3 the face plate thereof having the bolt opening 4. The bolt 5 is suitably supported for a sliding movement in the lower portion of the casing so that it may be projected through the bolt opening or withdrawn so that the forward end of the bolt is flush with the face plate 3. This bolt 5 is formed with a shank 6 enlarged at its rear end so as to form a U-shaped yoke 7, each arm of the yoke at its inner end being formed with a laterally projecting lug 8.

Disposed between the arms of the yoke 7

is a cylindrical actuating member 9 having a polygonal passage 10 extending longitudinally through it to receive the shank 10^a of a knob whereby the bolt may be projected or retracted. The cylindrical actuating member 9 is provided with the oppositely projecting lugs 11 which engage with the lugs 8. When the member 9 is so disposed that the lugs 11 are in a vertical position, the bolt will be projected. When the member 9 is turned to the position shown in Fig. 2, the bolt will be retracted.

Pivotally mounted within the casing 2 above the shank of the bolt 5 is a weight 12. This weight has approximately the form of a segment of a circle and is pivoted near its outer margin as at 13. The lower margin of the weight is cut away as at 14 so as to accommodate the yoke 7, and the lower edge of the weight near its forward end is formed with a recess 15 designed to receive a pin or lug 16 projecting upward from the shank 6 of the bolt 5. It will be seen that the forward edge of the weight 12 at its lower end engages with a shoulder 17 formed by the enlarged head 5 of the bolt. When the bolt is moved to the position shown in Fig. 2, as by turning the member 9, the weight will be turned upon its pivot 13 and lifted to the position shown in Fig. 2. When the knob connected to the member 9 is released, the weight will descend and the forward edge of the weight engaging with the head 5 of the bolt will force the bolt out in the position shown in Fig. 1. The bolt is thus projected not by a spring but by the weight 12.

The side plate of the lock is provided with a keyhole 18.

Mounted in the rear of the casing 2 is a tumbler 19. This tumbler has a broadly angular form and consists of the straight portion 20, an angularly bent portion 21 and an angularly bent portion 22. At the upper end of the angularly bent portion 22 the tumbler is curved in an approximate semicircle to form a barrel 23. The lower portion 20 of the tumbler normally bears against and slides upon the rear plate 24 of the casing. The portion 20 of the tumbler is formed at its middle with an outwardly projecting lug 25 and the lower extremity of the tumbler on its inner face is formed with a slightly circular recess 26.

Passing through the lower portion of the casing and adjacent the rear edge thereof

and approximately opposite to the lower arm of the yoke 7 is a transversely extending pin 27 forming an abutment. This pin is spaced from the rear plate 24 of the casing a distance just equal to the width of the lower end of the tumbler at the notch or recess 26 so that when the tumbler is in the position shown in Fig. 2, it will be interposed between the abutment 27 and the rear plate of the casing. Also extending through the casing at about the middle thereof and adjacent to the rear plate 24 is a guide pin 28 against which the forward edge of the tumbler bears and slides. When the key is inserted in the key opening 18 and turned, it will engage with the upper end of the tumbler and as the key is turned the upper end of the tumbler will be raised and forced rearward. Upon turning the key the first movement will be to raise the tumbler and the lower end will be withdrawn from behind the abutment 27. As the key continues its movement in the direction of the arrow, Fig. 1, the upper end of the tumbler will be forced rearward, thus rocking the tumbler upon the fulcrum point 29. As the key descends in its turning movement, the tumbler will be lowered so that its lower end will be brought into position between the abutment 27 and the rear end of the yoke 7 as shown in dotted lines in Fig. 1. In this position, the lug or shoulder 25 on the forward face of the tumbler will engage with the rear end of the upper arm of the yoke 7. In this position the tumbler will positively prevent any retraction of the bolt and will lock the bolt in its projected position until the tumbler is withdrawn from its engagement and returned to the position shown in Fig. 2 by a reverse motion of the key to that previously described.

It is to be noted that the weight 12 at its rear end is formed with an extension 30 which when the weight is lowered engages against the upper face of the shoulder 25 and assists in holding the tumbler in its lowered and projected position, that is, the position shown in dotted lines in Fig. 1.

While I may use any suitable means for warding the lock and any suitable key, I have shown for illustration a key 31, the bit of which is formed with the oppositely disposed lateral notches 32, and the edge of which is formed with the medially disposed notch 33. The hooked or terminal end 23 of the tumbler is of a size permitting it to enter the notch 33 as shown in Fig. 3. I have likewise provided a ward 35 which projects from the casing and is in alinement with one of the notches 32 when the key is in place. It will be seen that this will prevent the operation of the lock by a key not notched to provide for passing the ward 35. It will also be seen that the notch or recess 33 in the edge of the key bit will en-

gage with the rib 34 so that as the key is turned the tumbler will not slip out of engagement with the key.

The practical operation of my invention will be obvious from what has gone before. Under normal circumstances and when the bolt is not locked, the parts are in the position shown in full lines in Fig. 1. Under these circumstances the knob may be turned to retract the bolt 5, and as the knob is turned the weight will be lifted. When the knob is released, the weight will force the bolt out. When it is desired to lock the door, the key is so turned as to lift the tumbler 19, lock it upon the fulcrum 29 and depress it to the dotted line position, Fig. 1, the bolt being of course projected by the weight 12. When it is desired to unlock the door, the key is reversely turned to lift the tumbler out of its position in front of the abutment 27, then rock the tumbler upon its fulcrum point and depress it behind the abutment 27.

My invention is simple, can be applied to a large number of different forms of lock, will not readily get out of order, and it will be seen that no spring is required to actuate the bolt.

What I claim is:

1. A lock of the character described including a longitudinally shiftable bolt, a weight pivotally mounted above the bolt and having its free end engaging the bolt to urge it to its projected position, an abutment behind the bolt, and a key actuated tumbler shiftable to position between the weight and the bolt, said tumbler having a portion projecting beneath and engaged with the weight when in its bolt engaging position, the weight thereby impeding the shifting of the tumbler.

2. A lock of the character described, including a longitudinally shiftable bolt, a weight pivotally mounted above the bolt and having its free end engaging with the bolt, said weight being cut away on its lower side adjacent to its rear end, an abutment behind the bolt, means for retracting the bolt against the force of said weight, and a rocking vertically shiftable key-actuated tumbler movable into or out of position between the abutment and the rear end of the bolt, said tumbler having a projecting portion engaging beneath and supporting the projecting end of the weight when the tumbler is in position between the abutment and the bolt whereby the weight impedes the shifting of the tumbler.

3. A lock of the character described including a casing, a longitudinally shiftable bolt therein, means for yieldingly projecting the bolt, means for manually retracting the bolt against the force of said projecting means, an abutment, and an angularly shaped tumbler, key actuated and having a

vertically sliding and rocking engagement between its fulcrum and the rear of the casing, said tumbler being movable by a key into or out of position behind the abutment and into or out of position between the abutment and the rear end of the bolt.

4. A lock of the character described including a casing, a longitudinally shiftable bolt therein, an abutment spaced from the rear end of the casing and disposed behind the bolt, means for yieldingly projecting the bolt, means for retracting the bolt against the force of said projecting means, and a tumbler, shaped angularly to provide a fulcrum and having a sliding and rocking engagement with the rear wall of the casing, said tumbler having a key engaging terminal upper end whereby upon a rotation of the key the tumbler will be rocked against the rear end of the casing and withdrawn from behind the abutment and projected into position between the abutment and the rear end of the bolt.

5. A lock including a casing, a longitudinally shiftable bolt located in the lower portion of the casing, a weight urging the bolt to its projected position, means for manually retracting the bolt, an abutment disposed behind the bolt and spaced from the rear wall of the casing, and a tumbler, shaped angularly to provide a fulcrum on its rear face having sliding and rocking engagement with the rear wall of the casing, the lower end of the said tumbler being adapted to engage behind the abutment or between the abutment and the rear end of the bolt, said tumbler at its upper end being formed with a key engaging terminal whereby the tumbler may be lifted and rocked

upon a rotation of the key to withdraw the tumbler from its position behind the abutment and to project the tumbler to a position between the abutment and the rear end of the bolt.

6. A lock including a casing, a longitudinally shiftable bolt mounted in the lower end of the casing, a segmental weight pivoted within the casing and engaging the bolt to urge it to its projected position, said weight having a rearwardly extending projection extending beyond the rear end of the bolt, means for manually retracting the bolt against the action of the weight, an abutment located behind the bolt and spaced from the rear wall of the casing, and a tumbler, shaped angularly to provide a fulcrum upon its rear face having rocking and sliding engagement with the rear wall of the casing, the lower end of the tumbler being insertible between the abutment and the casing or between the abutment and the rear end of the bolt, the forward edge of the tumbler being provided with a forwardly projecting lug adapted when the tumbler is turned to a locking position to engage beneath the projecting end of the weight, the upper end of the tumbler being provided with a circular barrel forming a key engaging terminal end, the side wall of the casing being formed with a key opening registering with the interior of the barrel.

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

CLAUDE BROWN. [L. s.]

Witnesses:

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J. M. COLES.