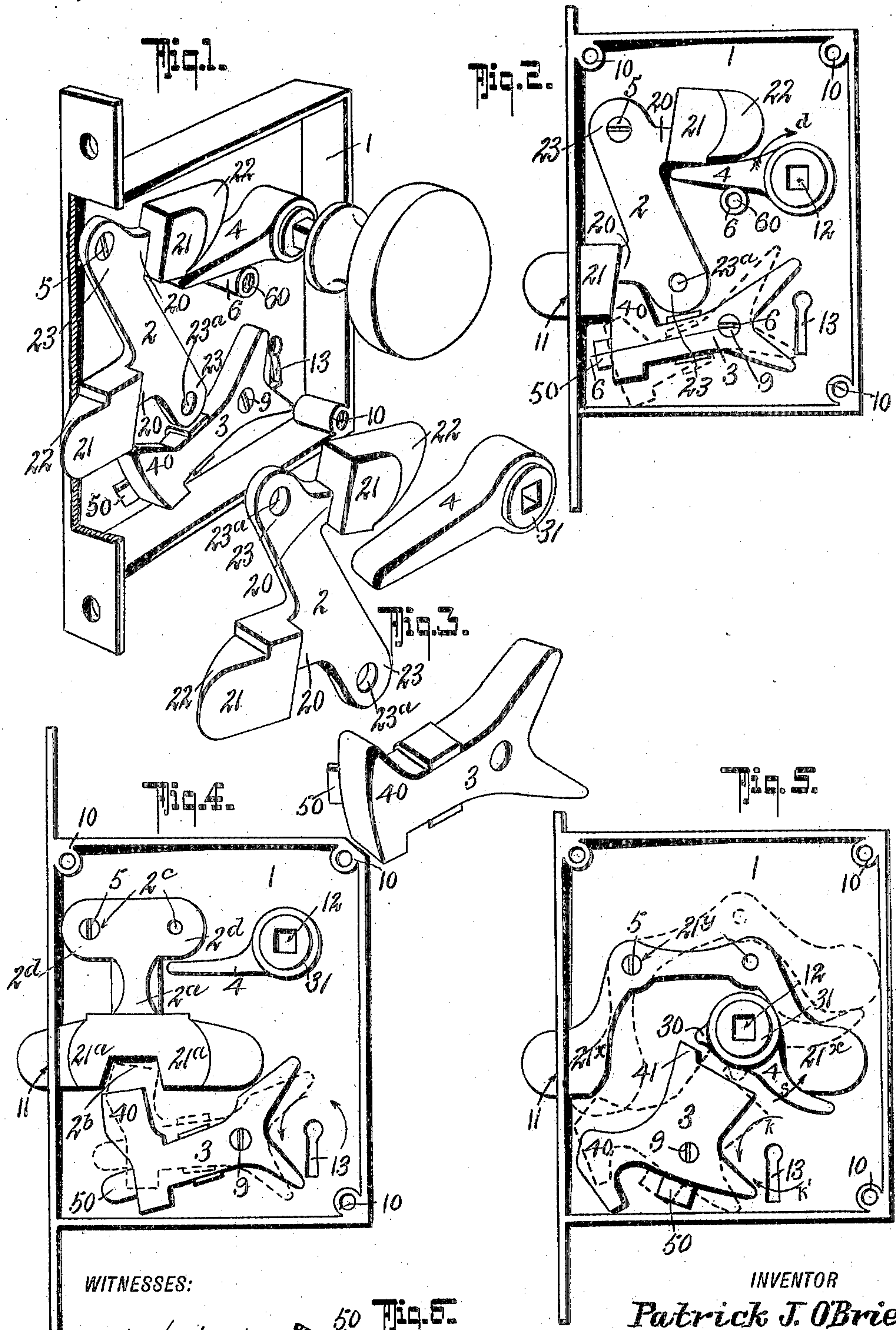


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 SPRINGLESS LOCK.

APPLICATION FILED APR. 27, 1909.

947,996.

Patented Feb. 1, 1910.



WITNESSES:

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## SPRINGLESS LOCK.

947,996.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed April 27, 1909. Serial No. 492,604.

*To all whom it may concern:*

Be it known that I, PATRICK J. O'BRIEN, residing at Torris Cove, Newfoundland, have invented a new and Improved Construction of Springless Lock, of which the following is a specification.

This invention relates to improvements in that type of door locks in which the locking bolt is weighted to swing by gravity into its locking position and in which the usual bolt or latch returning spring devices are omitted and it has for its object to provide a new and improved lock of the type stated of a simple and economical construction, in which the bolt is especially designed for being mounted within the lock casing to work for a right or left hand closing door and in which a special type of key controlled detent is included that maintains its adjusted positions relatively to the locking bolt until moved to or from the bolt locking position by turning the key.

With other objects in view that will hereafter appear my invention consists in the peculiar arrangement and combination of parts hereinafter fully explained, specifically pointed out in the appended claims and illustrated in the accompanying drawings, in which:

Figure 1, is a perspective view of the preferred form of my improved lock, the casing plate being omitted and the bolt shown in its normal or interlocked position. Fig. 2, is a full view of the lock, the casing plate omitted, and the bolt shown as held locked to its "latched" position. Fig. 3, shows the bolt, the key actuated detent and the knob controlled dog or tumbler that constitute the internal mechanism of my lock, detached. Fig. 4, is a face view of a modified form of latch bolt combined with the detent and dog devices of the preferred form of my lock. Fig. 5, is a similar view of a further modification of my lock that will be hereinafter described. Fig. 6, is a detail section on the line 6—6 of Fig. 2.

In the drawings, 1 designates the lock casing of the conventional type, it having the usual screw receiving bosses 10, to receive the screws for holding the cover plate not shown. The casing shown, is of the mortise lock kind and has the usual latch bolt opening 11 in the front face, the knob spindle aperture 12 and the keyway 13.

The internal mechanism of my lock, the peculiar construction of which forms the essentials of my invention, comprises three parts, the locking bolt 2, the key controlled detent 3 and the knob controlled dog 4. In the preferred construction, the bolt 2 has the shape of the letter Z, its oppositely projected ends 20—20 terminating in thickened heads 21—21 that are beveled as at 22—22, and they form the usual type of beveled latch members for sliding into a locked engagement with the lock mortise in the door casing when the door is closed at the angle ends 23—23. The bolt 2 is apertured as at 23<sup>a</sup>—23<sup>a</sup> and through either of these apertures passes the pivot stud or screw 5 that engages the lock casing at such point, relatively to the latch opening 11, that the said latch 2 when hung by the screw 5 gravitates so its lower head 21 swings through the opening 11, as clearly shown in Figs. 1 and 2 of the drawings, by reference to which it will be also noticed that the upper latch head 21 projects inwardly and forms an angle extension or member for coöperating with the knob spindle dog 4, which, in the form shown in Figs. 1 and 2, extends under the said angle member or head 21, and is held from turning downwardly on a rest stud 6 which may also be formed with a socket for receiving one of the casing plate holding screws.

By reason of the arrangement of the two parts 2 and 3, as shown and described, it is obvious that by simply turning the knob in the direction of the arrow *d* on Fig. 2, the dog will lift the angle member or head 21, and thereby swing the latch inwardly to move its locking head out of the door casing mortise, it being obvious that so soon as the knob is released the weight of the latch will cause the knob to turn back to its normal position (see Fig. 2) and the locking head 22 to gravitate through the front wall of the casing to a locking position.

By making the locking latch 2 in the manner shown and described, it will be readily apparent it can be adjusted to hang from either of its apertured ends, for a right or left hand closing door, the lower head always forming the latch head while the upper head forms the angle member for engaging the knob dog 3.

While I prefer the form of latch member



shown in Figs. 1 and 2, the same results can be obtained by shaping the latch member 2 as shown in Fig. 4, which shows the same T-shaped, with the latch heads  $21^a$ — $21^a$  formed in the opposite ends of the cross member  $2^a$ , the latter having a recess  $2^b$  midway the heads  $21^a$ — $21^a$ , the purpose of which will presently appear, it being understood that the said heads are reversely beveled to permit of interchangeably hanging the said T-shaped member on the stud 5, the upper or neck end having a pair of apertures  $2^c$ — $2^c$  for alternately engaging the stud and the said neck end has angle members  $2^d$ — $2^d$  for cooperating with the knob dog 3.

In Fig. 5 is shown a further modification of the latch bolt and in this form it has a substantially U-shape, its ends  $21^x$ — $21^x$  forming the locking or latch heads, either of which can be hung to swing through the casing bolt slot by hanging the said latch bolt on the stud 5 with either of its apertures  $21^y$ — $21^y$  engaging said stud 5. In this form the knob dog or tumbler 3 has a heel 30 that projects from the hub 31 in a direction opposite to the lifting end, which in the form shown in Fig. 5, projects rearwardly so that when the knob spindle is turned in the direction of arrow  $s$  the bolt is swung to the position shown in dotted lines on Fig. 5, and the heel is brought to the position shown to be engaged by the detent in the manner presently explained.

The key controlled detent 4, before referred to, so far as it relates to the form of latch bolts shown in Figs. 1, 2 and 4, is of the shape shown in Figs. 2 and 4 and consists of a member that is pivotally mounted on the screw stud 9 adjacent the key hole, and at the key hole end the said member is bifurcated or Y-shaped to straddle the rod of the key K, in such manner that the turning of the key in the direction of the arrow  $k$  moves the detent to the locking position shown in Fig. 2, and when moved in the opposite direction, see arrow  $k'$ , it moves the detent 4 to the latch bolt released position, as clearly shown in Fig. 4. To hold the detent 4 to its shifted position a flat spring plate 50 is secured on the under side of the detent to frictionally engage the casing, see Fig. 6.

Detent 4, in the form shown in Figs. 1, 2 and 4, has a heel 40 for engaging either of the recesses in the latch bolt in such manner that when the said heel is moved up to the locked position the latch bolt is positively held from movement and by reason of the way it, at its angle members, engages the knob dog or tumbler the knob and spindle is also locked from turning. In Fig. 5, the detent 4 is of a slightly different shape, it, however, having the Y-shaped face for coacting with the key wad, but in addition to the heel 40 for engaging one end of the

latch member, see dotted lines in Fig. 5, it has another heel member 41 for projecting over the heel on the knob spindle tumbler for holding the several parts locked from movement.

From the foregoing taken in connection with the accompanying drawing, the complete construction, the manner in which my lock is used and the advantages of its structure is believed to be clearly shown and readily understood, the same is of a very few parts and they are so shaped that they can be economically manufactured and easily assembled for either a right or left hand closing door.

I am aware that it is not new to provide springless locks in which the latch bolt gravitates to its latching position. My invention, so far as I know, differentiates from what has heretofore been done in this art, in the peculiar correlation, the combination and shaping of the several parts whereby no interchanging or adjusting of the several parts is required further than to hang the double headed lock bolt to the position necessary to adapt it for the particular kind of door on which it is to be used.

What I claim is:

1. In a springless lock, the combination with the casing, the knob dog or tumbler, and a fulcrum stud in the casing; of a double headed locking bolt, the heads having oppositely beveled latch faces, said bolt having two apertures adapted for being alternately hung on the stud, said bolt having a pair of oppositely projected angle portions, either of which cooperates with the knob tumbler, a key controlled detent adapted to be key shifted into and out of a locked engagement with the pivotally hung bolt when the latter is at its door locking position, and means on the detent for holding it in a tight frictional contact with the casing.

2. The combination with the casing, the knob actuated tumbler and a single bolt hanging stud, of a double headed bolt, having two apertures, either adapted for receiving the stud for hanging the bolt for a right or left closing door, the heads of the bolt having oppositely beveled latch faces, said bolt having a pair of oppositely projected angle members for coacting with the knob tumbler, said bolt having locking shoulders contiguous to the opposite latch heads, and a key actuated detent fulcrumed on the casing having a forked end for coacting with the key wad and having a heel for engaging the locking shoulders in the bolt heads.

3. The combination with the casing, the knob actuated tumbler and a single bolt hanging stud, of a double headed bolt, having two apertures, either adapted for receiving the stud for hanging the bolt for a right or left closing door, the heads of the bolt

having a pair of oppositely projected angle members for coacting with the knob tumbler, said bolt having locking shoulders contiguous to the opposite latch heads, a key  
5 actuated detent fulcrumed on the casing having a forked end for coacting with the key wad and having a heel for engaging the locking shoulders in the bolt heads, and having means for frictionally holding it to its key shifted positions.

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Witnesses:

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