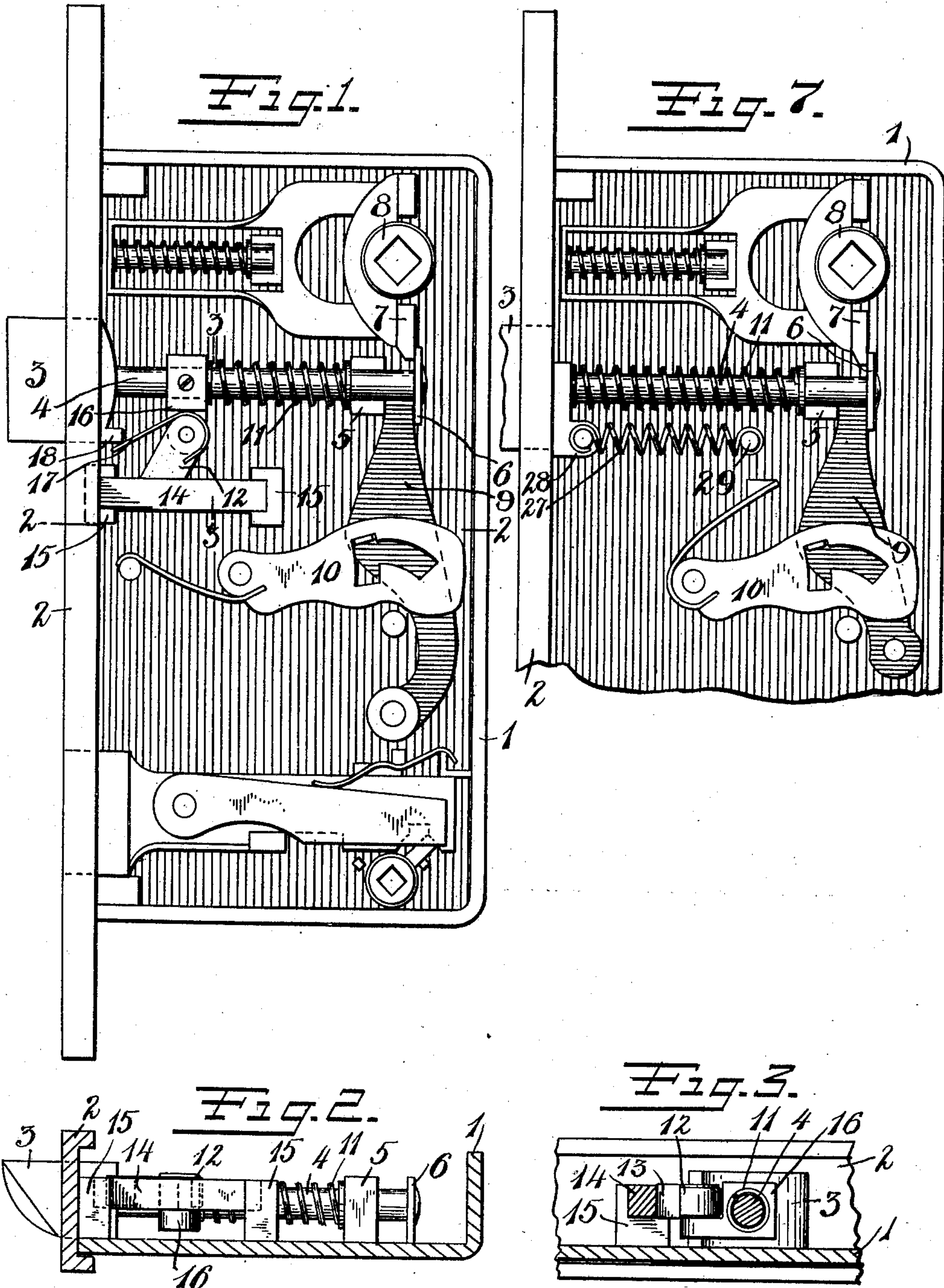


H. G. VOIGHT.
 LOCK.
 APPLICATION FILED OCT. 22, 1910.

990,613.

Patented Apr. 25, 1911.
 2 SHEETS—SHEET 1.



Witnesses:
Charles A. Reed
Fred H. W. Rammelfer

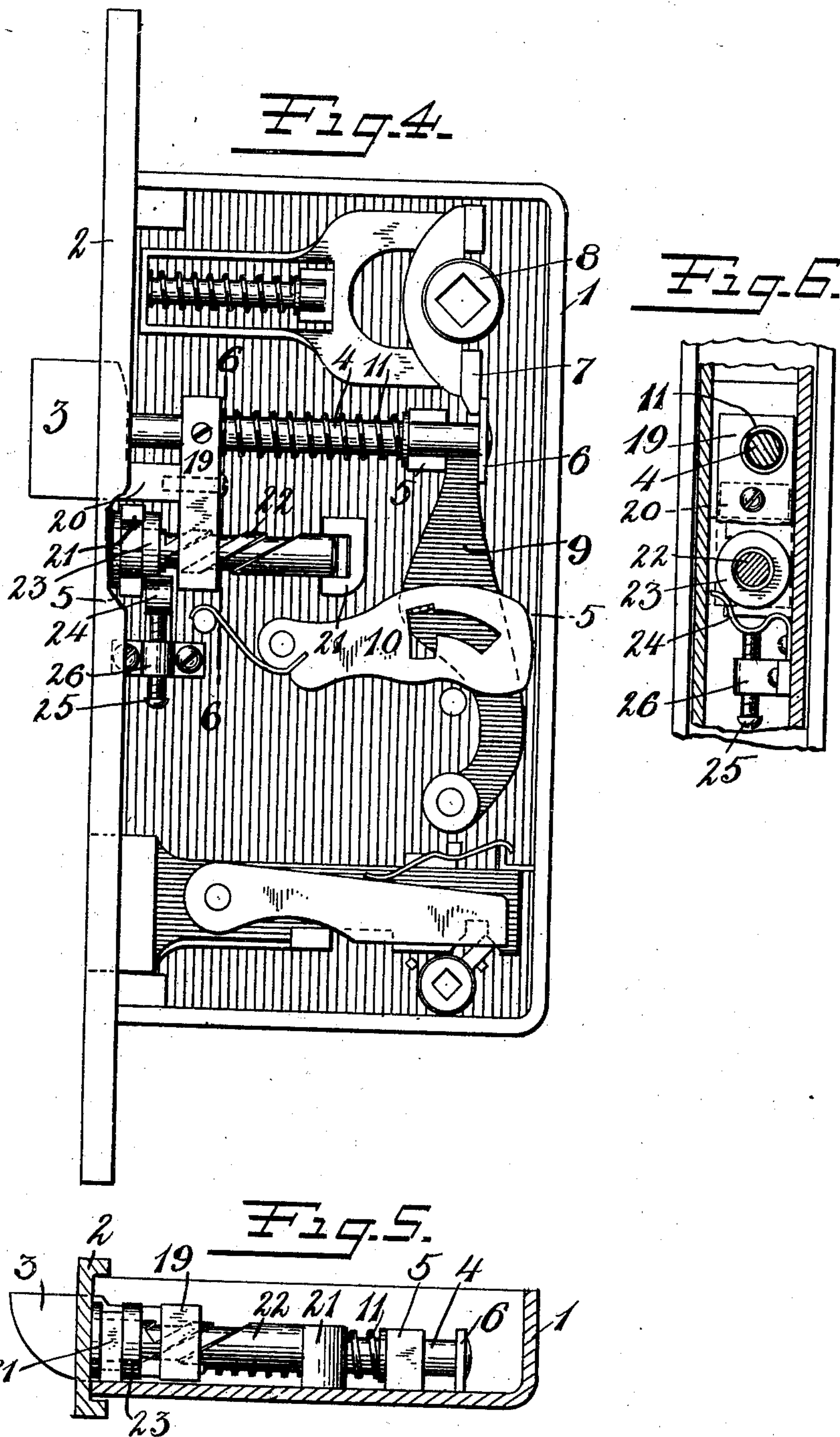
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UNITED STATES PATENT OFFICE.

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LOCK.

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Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed October 22, 1910. Serial No. 588,397.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a full, clear, and exact description.

My invention relates to locks, and is particularly concerned with improvements in locks in which the locking bolt is normally spring-actuated to locking position, usually under the influence of a spring surrounding its shank or tail-piece.

The object of the invention is to deaden the click of the locking or latch bolt when the same shoots into its opening in the striker plate. To this end I provide means for retarding such outward or return movement.

The invention is of particular utility in hotels, asylums and other public institutions where the noise due to the clicking of the locks is particularly disturbing to the inmates.

With this object in view, the invention consists in the constructions and arrangement of parts, preferred embodiments of which are illustrated in the accompanying drawings, in which—

Figure 1 is a view of a lock with the cover plate removed exposing the invention in conjunction with the latch bolt. Fig. 2 is a sectional view on the line 2—2 Fig. 1, looking up. Fig. 3 is a sectional view on the line 3—3 Fig. 1. Fig. 4 is a view similar to Fig. 1, of a modified form of the invention. Fig. 5 is a sectional view on the line 5—5 Fig. 4, looking up. Fig. 6 is a sectional view on the line 6—6 Fig. 4. Fig. 7 is a fragmentary view similar to Fig. 1 of a further modification.

In the embodiment of the invention illustrated in Figs. 1 to 3 inclusive, 1 is a lock case, 2 the face plate, 3 the latch bolt, the latter having a tail-piece 4 slidably mounted in bearings 5 in the lock case and having a cross head 6 adapted to be engaged by a roll-back 7 operated by the usual knob spindle mounted in the roll-back hub 8. The latch bolt may also be operated by means of a key-operated roll-back arm 9 provided with a tumbler 10, in a well known manner.

Upon the tail-piece 4 of the latch bolt is mounted the usual spiral spring 11 for pro-

jecting the latch bolt into its proper aperture in the striker plate. In order to retard this return movement of the latch bolt and thus deaden the click caused thereby, I provide a toggle member 12, of any suitable construction, which slides upon a bearing bar 14 suitably mounted in supports 15—15 in the lock case. The toggle member 12 may be conveniently mounted upon a lug 16 attached to the latch bolt tail-piece, and said toggle member is normally pressed against its bearing bar 14 by means of a spring 17 engaging the shoulders 18 of the latch bolt head.

As the latch bolt is retracted by means of the roll-back 7 or roll-back 9, the toggle member 12 slides comparatively easily along the bearing bar 14, subject only to the slight pressure of the spring 17. When, however, the latch bolt returns to normal position under the influence of its spring 11, the toggle member 12, by reason of its inclined position toward the bar 14, has a tendency to bear with more pressure upon the said bar, which pressure is augmented by the spring 17. By this construction the influence of the main spring 11 is counteracted to a considerable extent, but not sufficiently to prevent its effective operation.

In the modified form of the invention illustrated in Fig. 4, the latch bolt tail-piece 4 has an arm 19 secured thereto, which arm is preferably also secured to a lug 20 on the latch bolt head 3. Below the latch bolt and in bearings 21 is mounted a rotatable spiral cam member 22, which passes through a preferably threaded bore in the lower end of the arm 19, although said bore may, if desired, be provided merely with a pin to engage the spiral cam faces of the member 22. Secured to the spiral member 22 is a brake-disk 23, against which a spring arm 24 bears to increase the retarding effect of the spiral cam on the latch bolt through the arm 19. The pressure of the brake spring 24 may be regulated by a screw 25 mounted on a bearing or lug 26. In this construction, as the latch bolt is retracted by the knob spindle or key, the arm 19 is caused to revolve the spiral cam member 22 in one direction and to revolve the same in the opposite direction as the latch bolt returns to normal projected position under the influence of the spring. This return movement will be retarded not only by the force nec-

essary to overcome the inertia of the cam member 22, but also due to the braking effect of the spring 24 on the brake-disk 23.

In the form shown in Fig. 7, substantially the same retarding effect is produced by a spring 27 attached to a lug 28 on the latch bolt head, the opposite end of said spring being secured at 29 to the lock case.

It should be particularly noted, in connection with the form shown in Fig. 1, that while the retarding means operates effectually while the latch bolt is being projected under the influence of its spring, the retractive movement of the latch bolt is opposed only to a very slight extent.

While I have herein shown and described several embodiments of my invention, it is to be understood that the same may be altered in details and in relative arrangement of parts within the scope of the appended claims.

What I claim is:

1. In a lock, a case, a bolt, a spring for advancing the same, means to retard said advance movement including means bearing a friction surface carried by the bolt, means carried by the case having a co-acting friction surface, said friction surfaces being normally in contact.

2. In a lock, a latch bolt having a tail-piece having means to normally project the same, a cam member carried by said tail-piece, and a cam member carried by the lock

case coöperating with the first named cam member, said cam members operating to retard the movement of the latch bolt to projected position.

3. In a lock, a latch bolt having a tail-piece, means to normally project said latch bolt, a cam member mounted on and movable by said tail-piece, and a stationary cam member mounted on the lock case, said movable cam member being constructed and arranged to be positioned with respect to the stationary cam member by the retraction of the latch bolt to retard the return movement of said latch bolt to projected position.

4. In a lock, a latch bolt having a tail-piece, means to normally project said latch bolt, a toggle member carried by said tail-piece, said member extending toward the face plate of the lock, a fixed bearing member coöperating with said toggle member, and a spring to cause said toggle member to bear upon said bearing member with slight pressure when the latch bolt is being retracted and to cause said toggle member to bear on said bearing member with increased pressure when said latch bolt is projected whereby said projecting movement of the latch bolt is retarded.

HENRY G. VOIGHT.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."