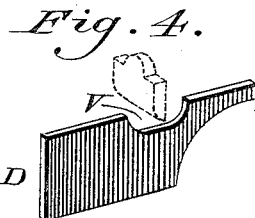
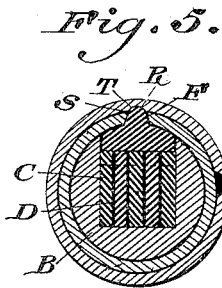
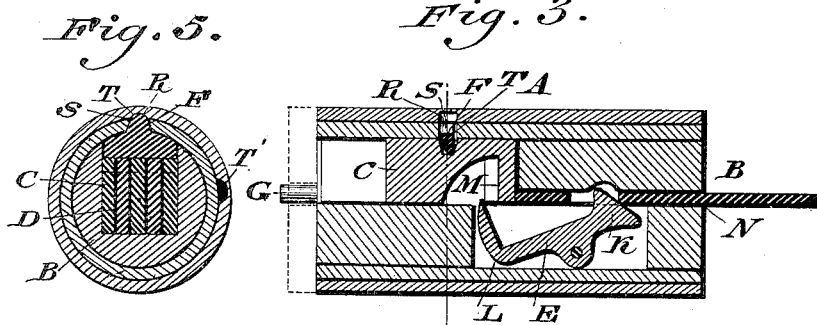
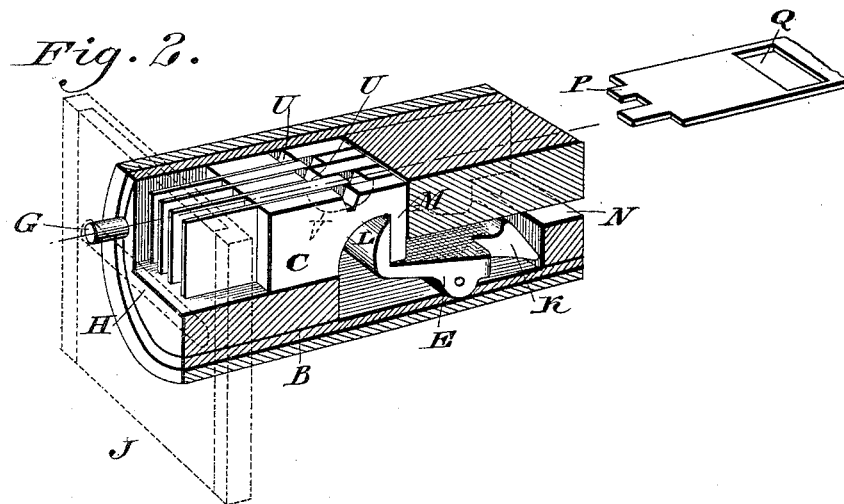
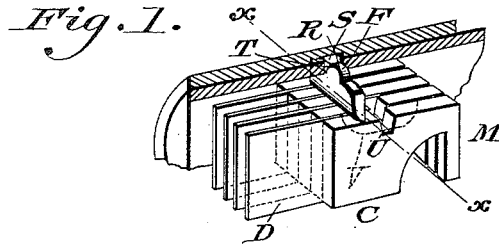


(Model.)

C. D. WILLIAMS.
LOCK.

No. 419,091.

Patented Jan. 7, 1890.



WITNESSES:

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CHARLES D. WILLIAMS, OF PHILADELPHIA, PENNSYLVANIA.

LOCK.

SPECIFICATION forming part of Letters Patent No. 419,091, dated January 7, 1890.

Application filed June 27, 1889. Serial No. 315,727. (Model.)

To all whom it may concern:

Be it known that I, CHARLES D. WILLIAMS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Locks, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a lock formed of tumblers, and a detent and a dog adapted to engage with and be disengaged from said tumblers, the operation being hereinafter fully described.

Figures 1 and 2 represent perspective views of portions of a lock embodying my invention. Fig. 3 represents a longitudinal section thereof. Fig. 4 represents a perspective view of a detached portion. Fig. 5 represents a section on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates the casing of a lock, the same being of cylindrical form and containing a rotating block B, the latter being recessed to receive the sliding tumblers C, the separating-washers D, the detent E, and the dog F. Projecting from the inner end of the block B is a pin or stud G, which enters a slot H of the bolt J, (shown in dotted lines,) it being seen that by the rotation of said block the bolt may be thrown in opposite directions for locking and unlocking purposes. The detent E is pivoted to the block, and has at one end a bevel-faced heel K, and at the other end a nose L, the latter being adapted to engage with legs M on the ends of the tumblers C. The heel K is adjacent to the key-hole N, it being noticed that the key has a number of bits P and a slot Q near the same. The dog F, when the bolt is locked, rests upon the tumblers C, and has on its back a tongue R, which passes through a slot S in the peripheral portion of the block B and enters the groove T on the inner face of the casing A.

In the edges of the tumblers C and washers D, adjacent to the dog F, are recesses U, V, respectively, it being noticed that the recesses U are not in alignment when the bolt is in locked condition and when the key is withdrawn from the lock. When, however, the bolt is in unlocked condition, the several

recesses U and V register, and the dog F occupies the same, one side of the lower or inner end of said dog being rounded or beveled, as most clearly shown in Fig. 1.

The operation is as follows: In order to unlock the bolt, the key is inserted into the hole N and passes freely over the heel K, and the bits come in contact with the legs M of the tumblers, whereby the tumblers are advanced. The legs in their motion press against the nose L of the detent E and depress the same, whereby the heel is raised and the same enters the slot Q of the key. The recesses U are now disposed in a right line directly under the dog F, whereby the latter drops into said recesses and likewise into the recesses V of the washer D. This causes the tongue R of the dog to clear the groove T of the casing A, so that said tongue is disengaged from the casing. The block B with its several parts may now be rotated by the key, whereby the bolt J may be thrown by the pin G, and consequently unlocked.

In order to lock the bolt, the key is rotated in the opposite direction and then withdrawn, in which operation the inner wall of the slot Q bears against the heel K and depresses it, thus raising the nose L and forcing the latter against the legs M of the tumblers, so that the several tumblers are successively withdrawn, and owing to the rounded end of the dog F and the contiguous walls of the recesses U bearing against said rounded ends, the dog is raised clear of said recesses and forced upon the edges of the tumblers, over the recesses of the washers, as will be seen dotted in Figs. 1, 2, and 4. The tongue R then enters the groove T of the casing A, so that rotation of the block B is prevented, said block being locked with the casing A by the tongue R, as will be seen in Fig. 5. The nose L is now in engaging condition with the legs M, and the heel K depressed clear of the slot Q, whereby the key may be withdrawn, the bolt remaining in locked condition. The inner periphery of the casing A has an additional groove T', so that when the bolt is unlocked and it is desired to withdraw the key the operation of the detent by said key and the movement of the tumblers causes the dog to rise, whereby the tongue enters said groove T'. It will be seen that the tumblers are

movable or returnable to their normal position without the employment of springs, and may therefore be said to be automatic in such action.

5 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A lock having a sliding tumbler and a pivoted detent, the latter being adapted to
10 engage with said tumbler and be engaged by the key of the lock, whereby when the tumbler is moved by the key the detent is withdrawn from the tumbler, and when the detent is moved by the key the detent engages with
15 the tumbler and moves the same, the parts named being combined substantially as described.

2. A lock having an outer stationary casing, a block or shell rotatable within the same,
20 and a tumbler, detent, and dog within said block, said detent being adapted to engage with said tumbler and said dog being adapted to engage with said tumbler and the outer casing, the parts named being combined substantially as described.

3. A rotary lock having a sliding tumbler, a pivoted detent engaging therewith, and a dog which is adapted to drop into a recess in said tumbler when the latter is adjusted, said
30 detent being movable in one direction by the action of the tumbler and in the other direction by the action of the key, said parts being combined substantially as described.

4. In a lock, substantially as described, a

detent pivoted within a rotatable block or
35 shell within an outer stationary casing, said detent having a nose and heel at opposite ends for engagement, respectively, with the tumbler and key of the lock, as stated.

5. A rotary lock having a sliding tumbler
40 and a stationary washer, the said tumbler having at its rear end a depending leg and in its upper part a recess and the washer having a recess in its upper edge, a pivoted
45 detent with a nose adapted to engage said leg, and a sliding dog adapted to engage in the said recesses in the washer and tumbler, said parts being combined substantially as described.

6. A casing with a groove therein, a rotary
50 block within the casing and having a peripheral groove, fixed washers in said block and provided with recesses in their upper edges, sliding tumblers with legs at their rear ends and recesses in their upper edges, a
55 sliding dog having a tongue on its back, said dog and tongue working in said peripheral grooves and upper edge recesses, pivoted detents with noses adapted to engage said
60 tumbler-legs, and bevel-heels adapted to engage the walls of a slotted key, the latter having projections for engaging the said tumbler-legs, said parts being combined substantially as described.

CHAS. D. WILLIAMS.

Witnesses:

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