(No Model.)

W. W. PURSEL.

DOOR LOCK.

No. 390,704. Patented Oct. 9, 1888.

Fig. 1.

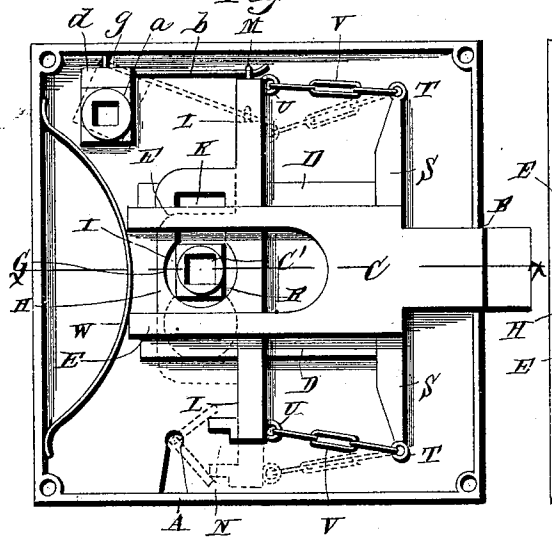


Fig. 2.

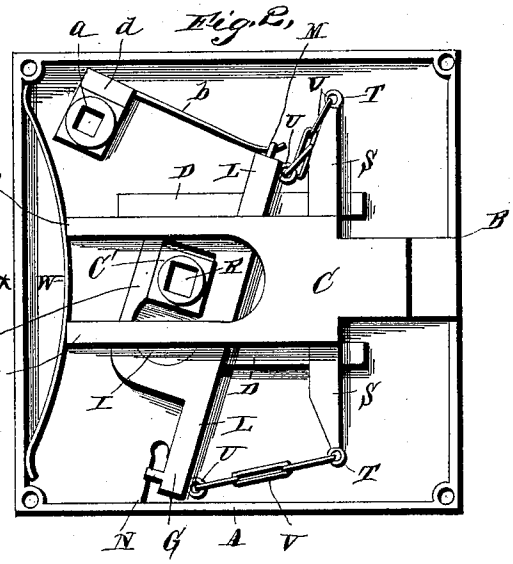


Fig. 3.

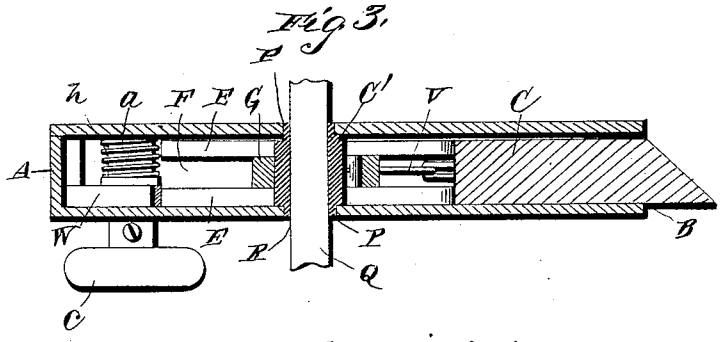


Fig. 4.

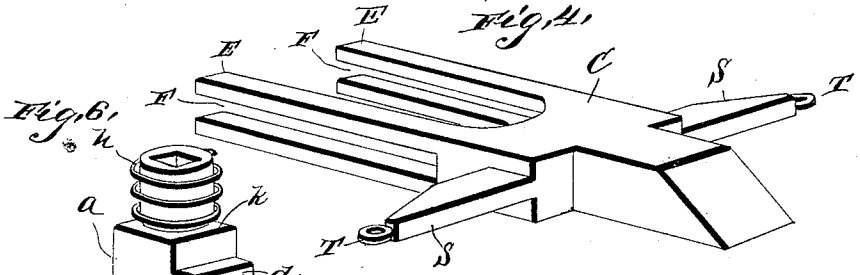


Fig. 6.

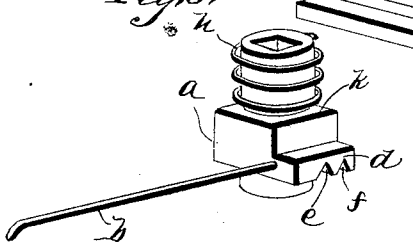
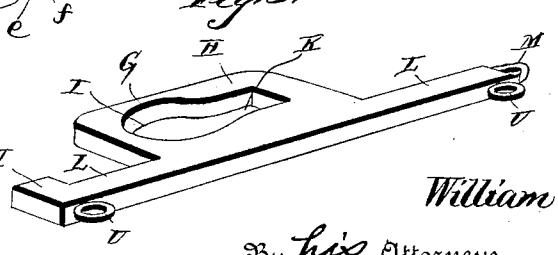


Fig. 5.



Witnesses.

C. S. Taylor,

C. E. Boyle.

Inventor.

William W. Pursel.

By his Attorneys.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

WILLIAM W. PURSEL, OF BERWICK, PENNSYLVANIA.

DOOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 390,704, dated October 9, 1888.

Application filed January 25, 1888. Serial No. 261,826. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. PURSEL, a citizen of the United States, residing at Berwick, in the county of Columbia and State of Pennsylvania, have invented a new and useful Improvement in Door-Locks, of which the following is a specification.

My invention relates to improvements in door-locks; and it has for its object to provide a simple, cheap, and durable lock for doors which will combine the advantages of a lock and a dead-latch.

The device by which I attain this object consists in a certain novel construction and arrangement of parts, which is hereinafter fully described in connection with the accompanying drawings, wherein—

Figure 1 is an elevation of the lock, with the face-plate removed to show the arrangement of the parts of the lock when the dead-latch is off, and indicating in dotted lines the movements of the parts of the lock when the bolt is retracted. Fig. 2 is a similar view of the lock to show the arrangement of the parts when the dead-latch is set so that the bolt cannot be retracted. Fig. 3 is a sectional view of the lock, taken longitudinally through the center of the bolt on the line *x x* of Fig. 1. Fig. 4 is a detached perspective view of the bolt. Fig. 5 is a similar view of the operating-lever. Fig. 6 is a similar view of the tumbler for the dead-latch.

Referring by letter to the drawings, A designates the case of the lock, which is provided at its front edge with the bolt-opening B, and C designates the bolt, projecting at its outer end through the said opening. The bolt slides between the guide-ribs D D, which are attached to the case, and it is provided with the rearward-extending arms E E, having longitudinal aligned slots F F therein. A lever, G, is mounted in the said aligned slots, and it consists of the body H, having the round opening I and the square opening K therein, communicating with each other, and the lateral arms L L. One of these arms is provided with a keeper, M, on the end, and the other arm is provided with a detent, N, the functions of both of which are hereinafter fully described. It will be seen that the lever is capable of free movement.

C′ designates a tumbler which is mounted in aligned bearings P in opposite sides of the case, and the said tumbler has a square body which is adapted to fit snugly in the squared opening in the lever. The knob-shaft Q engages the squared aperture R, which is formed longitudinally in the tumbler, whereby when the knob is turned the tumbler is rotated. Therefore, when the tumbler is engaged in the opening K, the lever may be turned by turning the knob.

The bolt is provided with the lateral arms S S, having eyes T T on their extremities, and the extremities of the lever are provided with similar eyes, U U. Connecting-chains V V (or flexible connections of any suitable kind) are attached at their opposite ends to the eyes T and U, and thus connect the ends of the arms S S to the ends of the lever. Therefore when the lever is turned by means of the knob-shaft, one of its arms will draw upon one of the lateral arms S, and the bolt will be retracted. A leaf-spring, W, bears at its ends against the rear side of the case and at its center against the rear ends of the arms E E. This spring normally holds the bolt pressed forward in the position to engage a catch on the jamb.

a represents a tumbler, which is mounted in suitable bearings in the case, and is provided with an arm, *b*, which operates at its free end in the keeper M on the end of the lever. A squared shaft is mounted in the squared aperture in the tumbler *a*, and is provided with a suitable knob, *c*, on one end.

It will be readily seen that when the tumbler *a* is turned the arm *b* moves the lever laterally, and thereby brings either the round opening I or the squared opening K around the tumbler C′, according to the direction in which it moves. When the tumbler is located in the round opening it will turn loosely without operating the lever.

The tumbler *a* is further provided with a lateral lug, *d*, having two notches, *e f*, in its under side, which are adapted to engage a rib or projection, *g*, on the case. A pressure-spring, *h*, is coiled around the tumbler and bears at opposite ends against the case (around the bearing for the tumbler) and a shoulder, *k*, on the tumbler. This spring presses the tumbler down, thereby holding the lug pressed

against the rib or projection above referred to. When the notch *e* is in engagement with the rib or projection, the square opening in the lever surrounds the tumbler C′, and when the notch *f* is in engagement with the rib or projection the round opening of the lever surrounds the tumbler.

The operation of this lock will be readily understood from the foregoing description, when taken in connection with the drawings, and is briefly as follows: When the parts are in the position shown in Fig. 2, the bolt is retracted by turning the tumbler C′, and when the parts are in the position shown in Fig. 1 the tumbler *a* must first be turned to throw the squared opening into engagement with the tumbler C′. The tumbler *a* can only be operated from the inside of the door, and when it is desired to retract the bolt from the outside it is necessary to insert a key into the lock and turn it until it engages the detent N on the end of the lever and moves the latter. The lever may also be moved into the locked position by means of the key. The case is preferably provided with wards to prevent the use of all keys except the proper one.

The bolt is cast in a single piece, as shown in the drawings. By turning the bolt over in the case the lock may be adapted for use on either a right or a left hand door. The parts of the lock are readily attached together, on account of the simplicity of the connections, and there is little danger of the same becoming disarranged by rough usage. The actuating-spring is large, and therefore is more powerful and less liable to be broken by the constant strain.

Having thus described my invention, I claim—

1. In a lock, the combination, with the sliding bolt C, of the lever connected at its ends to the bolt by the flexible chains V, and having the round opening I and the angular opening K therein, and the tumbler connected to the knob-shaft and adapted to be engaged in either of the said openings, substantially as specified.

2. In a lock, the combination of the bolt, the lever connected at its ends to the bolt, and having the round opening I and the communicating square opening K therein, the square tumbler C′, passing through one of the said openings, and the tumbler *a*, having an arm, *b*, connected to the lever, whereby it may be moved to engage either of the openings I K with the tumbler, substantially as and for the purpose specified.

3. In a lock, the combination of the bolt, the lever connected at its ends thereto, and having the communicating openings I K therein, the keeper M and the detent N on opposite ends of the lever, the tumbler C′, adapted to engage rigidly in the opening K, and the tumbler *a*, having an arm, *b*, engaging the keeper M, substantially as specified.

4. In a lock, the combination of the bolt, the laterally-movable lever connected at its ends thereto and having the openings I K therein, the tumbler C′, adapted to engage rigidly in the opening K, the tumbler *a*, having the arm *b* connected to the lever, and the lug *d*, provided with the notches *e f*, adapted to engage a rib or projection on the case, and the spring *h*, mounted on the said tumbler *a*, substantially as specified.

5. In a lock, the combination of the bolt having the rearward-extending slotted arms E E and the lateral arms S S, the lever mounted in the slots in the arms E E and connected to the ends of the arms S S by the connecting-chains V V, the tumbler C′, engaging in an opening in the lever, and the spring to normally hold the bolt extended, substantially as and for the purpose specified.

6. In a lock, the combination, with the case having the guide-ribs D D thereon, of the bolt C, sliding between the guide-ribs, and having the slotted arms E E and the lateral arms S S, the tumbler C′, mounted in the case between the slotted arms, the knob shaft engaging an opening in the tumbler, the lever mounted on the tumbler and connected at its ends to the ends of the lateral arms S S by the chains V V, and the spring W, bearing against the rear ends of the slotted arms, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM W. PURSEL.

Witnesses:
SAM C. BROWN,
W. C. DOUGHERTY.