(No Model.)

J. E. ARMSTRONG.

LATCH AND LOCK.

No. 508,267. Patented Nov. 7, 1893.

Fig. 1.

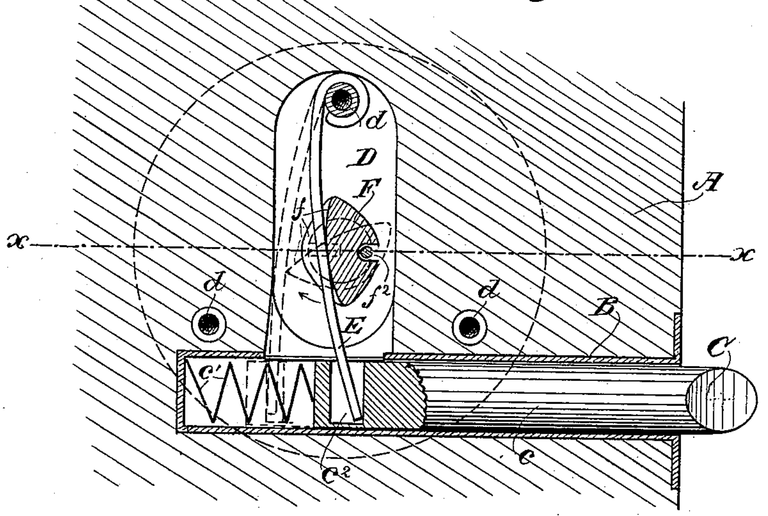


Fig. 2.

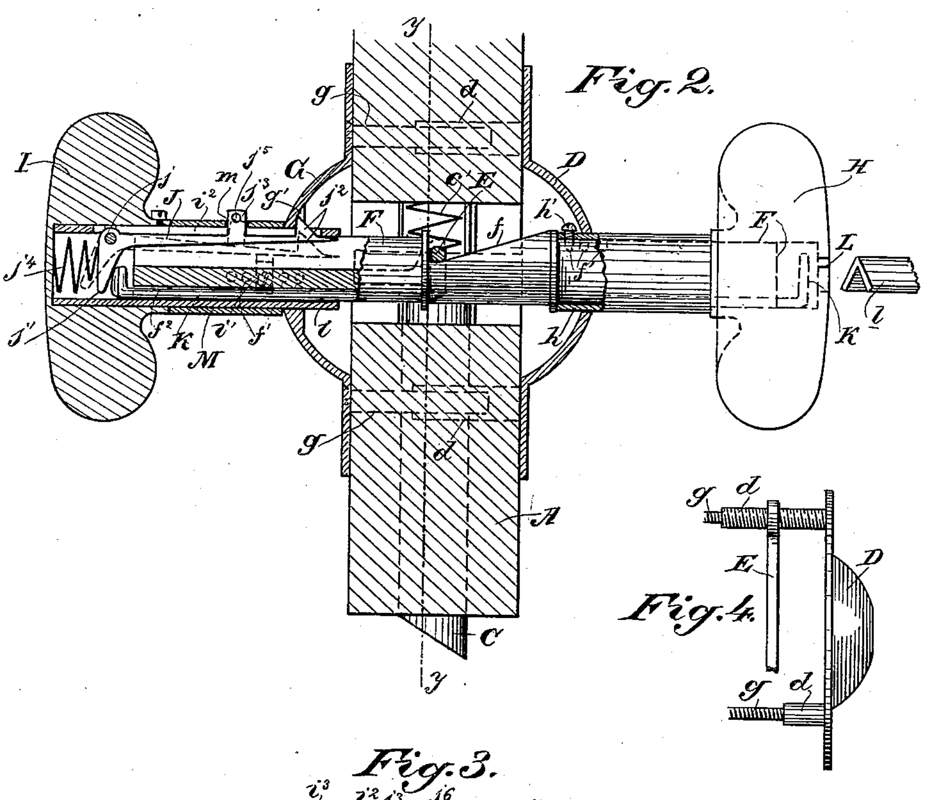
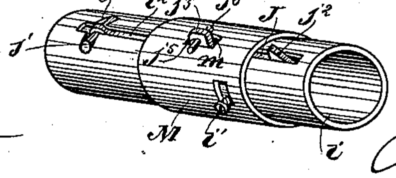


Fig. 4.

Fig. 3.



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LATCH AND LOCK.

SPECIFICATION forming part of Letters Patent No. 508,267, dated November 7, 1893.

Application filed July 13, 1893. Serial No. 480,394. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. ARMSTRONG, a citizen of the United States, residing at Santa Cruz, Santa Cruz county, State of California, have invented an Improvement in Latches and Locks; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of combined latches and locks in which the knob spindle is provided with a cam engaging the latch shank in such a manner as to retract it either by the axial or by the longitudinal movement of the spindle.

My invention consists in the novel connection between the knob spindle cam and the latch shank, in the means for locking and unlocking said spindle, and in other details of construction and arrangement, all of which I shall hereinafter fully describe.

The object of my invention is to improve and simplify the latch and lock, and to provide an efficient and easily operated device of this character.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a section on the line *y*—*y* of Fig. 2. Fig. 2 is a section on the line *x*—*x* of Fig. 1. Fig. 3 is a perspective view of the sleeve of the inner knob showing the locking device. Fig. 4 is an elevation of the outer rose plate showing the adjustable connection of the lever E with one of its posts *d*.

A is a door. B is a sheath let into the door, and in this is fitted and adapted to slide the shank *c* of the latch C, said shank having behind it a spring *c'* which projects it.

D is the outer rose plate. This has three posts *d* which enter the door. Upon one of these posts is pivotally hung a lever E, the lower end of which enters a slot c^2 in the latch shank *c*. The connection of this lever with the post *d* from which it is hung is an adjustable one, here effected by externally threading said post and screwing the lever-head upon it. This permits the lever to swing and at the same time to be moved to different points on the post in order to adapt it to position in doors having different thicknesses.

F is the knob spindle. This is formed with the cam *f* which bears upon lever E. This cam has a plane and an inclined face, the former being transverse of the spindle and the latter in its longitudinal plane. As the spindle is turned axially, the edges of the cam bear upon and force back the lever E, thus retracting the latch. As it is moved longitudinally, the inclined face of the cam acts in similar manner upon the lever and results in retracting the latch.

G is the inner rose plate. This is fitted to the door and is secured by screws *g*, which pass into the posts *d* of the outer rose plate, thus securing both rose plates firmly and avoiding the use of any screws for the outer rose plate.

H is the outer knob, the sleeve *h* of which passes through the outer rose plate, and is secured to the spindle by a screw *h'* within the rose plate, thus concealing and protecting it.

I is the inner knob, and its sleeve *i* passes through the inner rose plate. It is secured to the spindle without said plate by a screw *i'*. Both these securing screws *h'* and *i'* are adapted to enter any of a series of holes *f'* in the spindle whereby the knobs may be adjusted out or in, to suit different thicknesses of doors.

The locking mechanism is as follows: In the sleeve *i* of the inner knob is a longitudinal slot i^2, which joins at its outer end a cross slot i^3. Within the sleeves lies a locking arm J, which is provided at its outer end with cross trunnions *j* lying and pivoted in the cross slot i^3. This end has also a downwardly extending short crank *j'*. The inner end of the arm J has a pawl hook j^2 which is adapted, by the movement of the arm to play through the inner end of the slot i^2 of the sleeve. The arm also has a finger lug j^3 which also plays up through said slot. A spring j^4 is seated within the outer end of the sleeve and bears upon the crank *j'* whereby its effect is to throw and hold the inner end of the locking arm up with its pawl hook and its finger lug projecting through the slot of the sleeve. The pawl hook lies within the inner rose plate G, and in this plate on the inner side of its hub are notches *g'* with which the pawl hook engages thereby locking the spindle and preventing its movement either axially or longitudinally and thereby preventing the operation of the latch. Thus an automatic spring locking latch results. But to relieve it, the

operator presses down on the finger lug j^3, whereby the locking arm is forced down and its hook pawl disengaged from the notches of the rose plate.

To release the lock from the outer side by means of a key, I have a push rod K. This lies in a groove f^2 in the side of the knob spindle. Its outer end enters the sleeve of the outer knob, and its inner end enters the sleeve of the inner knob and bears against the short crank j' of the locking arm J. A key hole L of any suitable form is made through the outer knob, and in this may be inserted a key l of corresponding form. The end of this key bears on the outer end of the push rod K, and by forcing it in, causes the inner end of said rod to press back the short crank j' and thereby to swing downwardly the locking arm J which effects the disengagement of the pawl hook j^2 from the rose plate, thus releasing the knob spindle. When the key is removed, the spring j^4 returns the parts to a locked condition. Now, in order to hold the spindle unlocked, when desired, I have mounted upon the sleeve of the inner knob a turnable band M. This is slotted over the screw i' to permit its movement and to guide it, and it has an opening m, through which the finger lug j^3 of the locking arm J projects. By turning this band, it will pass over and press down the finger lug j^3 and hold it down, thereby keeping the pawl hook out of engagement.

In order to lock the device from within, even against the action of the key, I make a small hole j^5 through the finger lug, and in this a common pin j^6 may be inserted, to prevent it from being depressed and thereby prevent the pawl hook from moving from its engagement with the rose plate.

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

1. In a latch, the combination of the latch, having a shank with a slot, the knob spindle having a cam, and the swinging lever pivotally hung at one end and engaged near its center by the cam and having its free end engaging the slot of the latch shank, said lever being adjustable in or out to suit different thicknesses of doors, substantially as herein described.

2. In a latch, the combination of the latch, having a shank with a slot, the knob spindle having a cam, and the swinging lever actuated by the cam and engaging the slot of the latch shank, said lever having a screw adjustment at its suspended end to suit different thicknesses of doors, and knobs secured to and adjustable in or out upon the spindle, substantially as herein described.

3. In a latch, the combination of a latch a lever suspended from one end, the outer rose plate having the posts fitted to the door and upon one of which posts the lever is hung, the inner rose plate having the screws seated in the posts of the outer rose plate, a knob spindle and connections between said spindle and the latch to operate said latch, substantially as herein described.

4. In a latch, the combination of the latch having a shank with a slot, the rose plate having a post fitted to the door, a lever pivoted at one end on said post and having its opposite free end engaging the slot of the latch shank, and a knob spindle having a cam actuating said lever, substantially as herein described.

5. In a latch, the combination of a latch having a shank with a slot, the rose plate having a post fitted to the door and externally threaded, a lever screwed upon said post and adjustable thereon, said lever engaging the slot of the latch shank and a knob spindle having a cam actuating said lever, substantially as herein described.

6. In a latch and lock, the combination of a latch, a knob spindle for actuating said latch, a knob with a sleeve fitted upon and secured to the spindle, a swinging spring-controlled locking arm mounted in the knob sleeve and having a hook pawl playing through said sleeve, a rose plate having notches with which said hook pawl engages to lock the spindle, and a finger lug on the locking arm projecting through the knob sleeve whereby the hook pawl may be disengaged from the rose plate, substantially as herein described.

7. In a latch and lock, the combination of a latch, a knob spindle for actuating said latch, a knob with a sleeve fitted upon and secured to the spindle, a swinging spring-controlled locking arm mounted in the knob sleeve and having a hook pawl playing through said sleeve, a rose plate having notches with which said hook pawl engages to lock the spindle, a finger lug on the locking arm projecting through the knob sleeve whereby the hook pawl may be disengaged from the rose plate, and a turnable band on the sleeve adapted to press down the finger lug, substantially as herein described.

8. In a latch and lock, the combination of a latch, a knob spindle for actuating said latch, a knob with a sleeve secured to the spindle, a swinging spring-controlled locking arm mounted in the knob sleeve, and having a hook pawl playing through said sleeve, a rose plate having notches with which the hook pawl engages and a finger lug on the locking arm playing through the knob sleeve and having a hole to receive a pin whereby the locking arm may be held from moving, substantially as herein described.

9. In a latch and lock, the combination of a latch, a knob spindle for actuating said latch, an inner knob with a sleeve fitted upon and secured to the spindle, a swinging spring-controlled locking arm mounted in the knob sleeve and having a hook pawl playing through said sleeve, a rose plate having notches with which said hook pawl engages and a slidable push rod seated in the knob spindle and having its inner end adapted to

engage the locking arm and to move it to effect the disengagement of its hook pawl from the rose plate, substantially as herein described.

10. In a latch and lock, the combination of a latch, a knob spindle for actuating said latch, an inner knob with a sleeve fitted upon and secured to the spindle, a swinging spring-controlled locking arm mounted in the knob sleeve and having a hook pawl playing through said sleeve, a rose plate having notches with which said hook pawl engages, a slidable push rod seated in the knob spindle and having its inner end adapted to engage the locking arm and to move it to effect the disengagement of its hook pawl from the rose plate, and an outer knob, having a keyhole whereby a key may be inserted to engage the outer end of the push rod and operate it, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN E. ARMSTRONG.

Witnesses:
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F. W. MAKINNEY.