(Model.)

J. LOCH.

COMBINED LATCH AND LOCK.

No. 387,523. Patented Aug. 7, 1888.

Fig. 1.

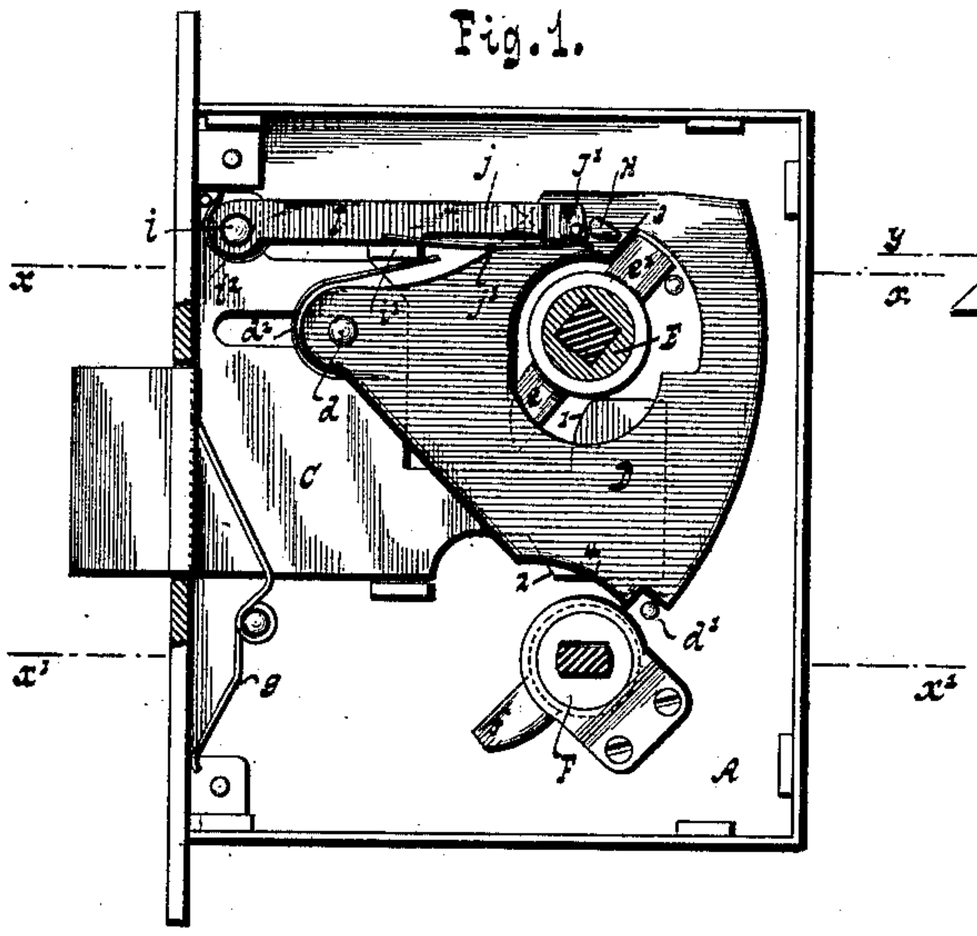


Fig. 4.

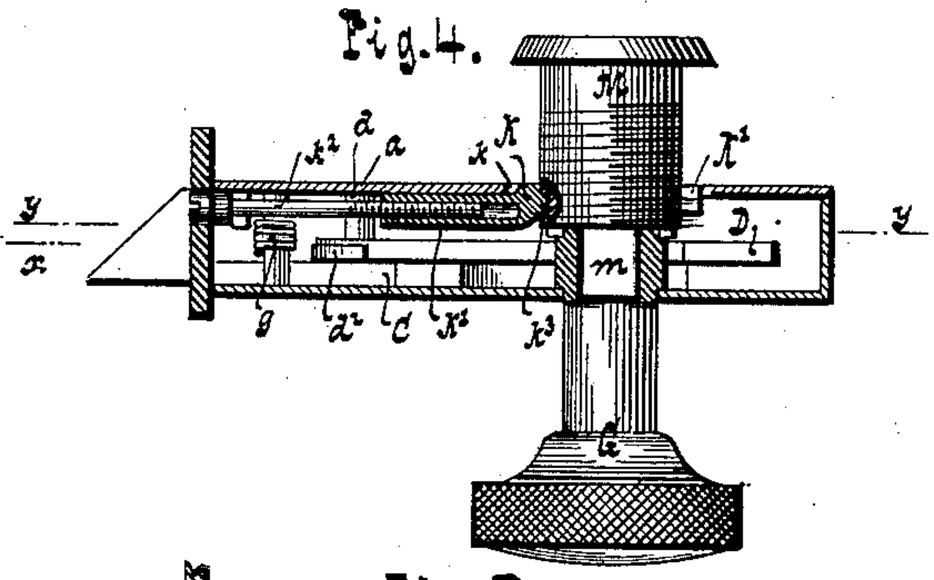


Fig. 5.

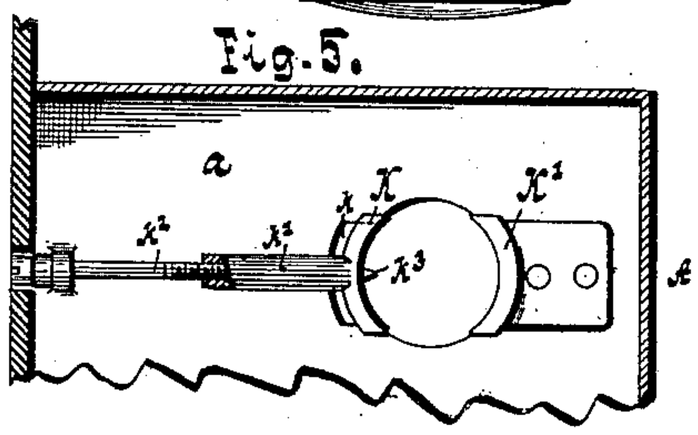


Fig. 2.

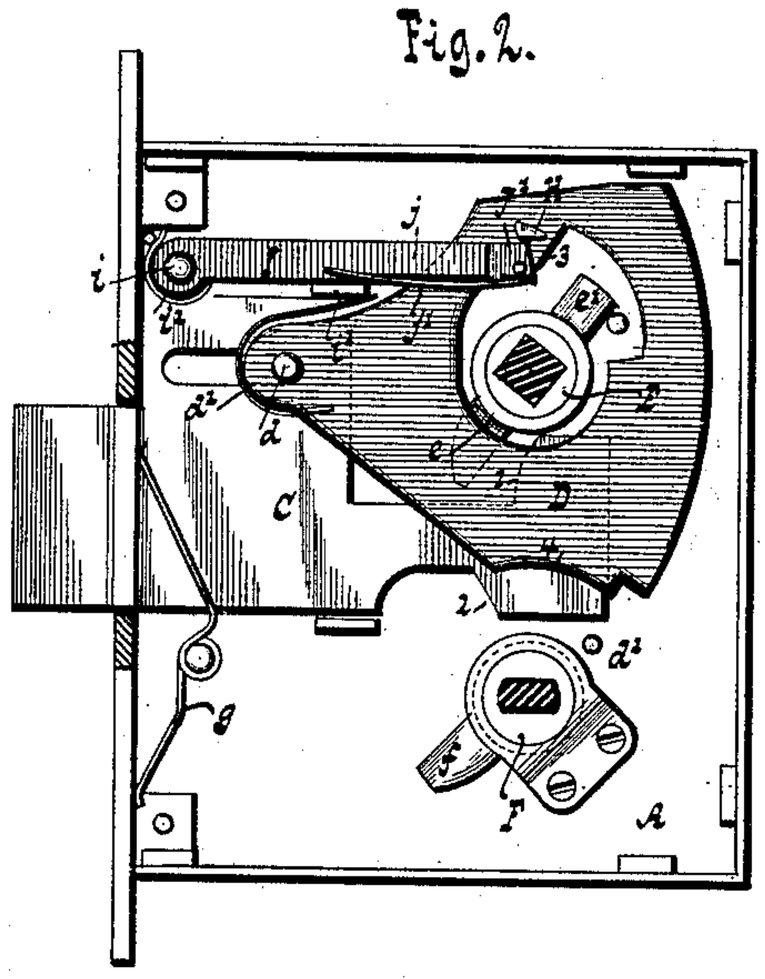


Fig. 6.

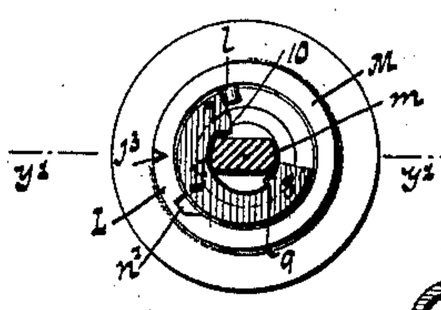


Fig. 9.

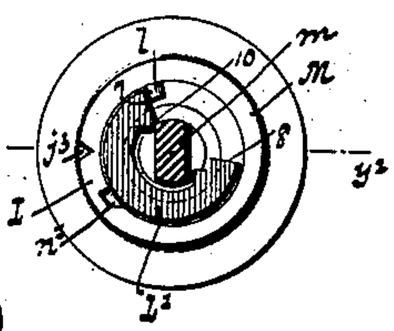


Fig. 15.

Fig. 7.

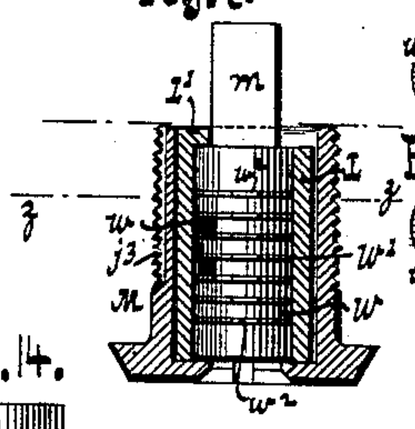


Fig. 16

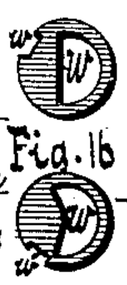


Fig. 10.

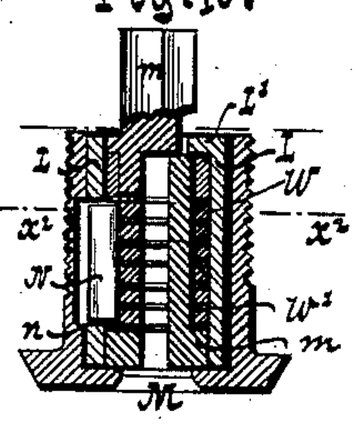


Fig. 14.

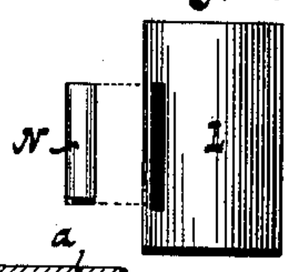


Fig. 3.

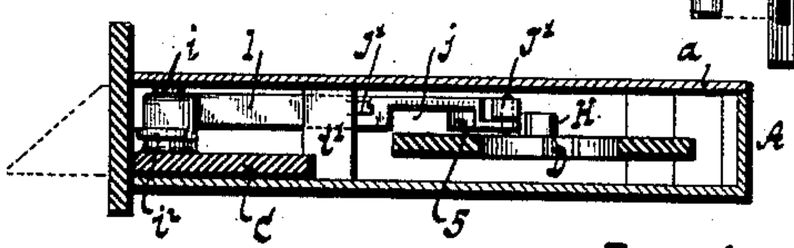


Fig. 8.

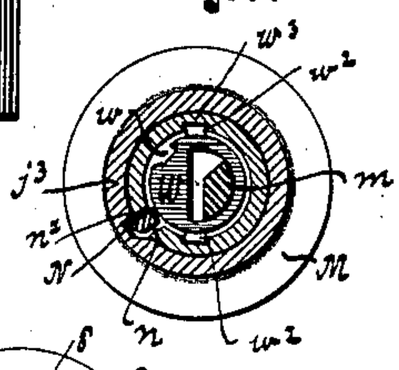


Fig. 11.

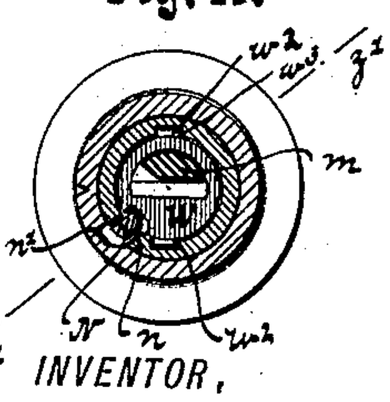


Fig. 12.

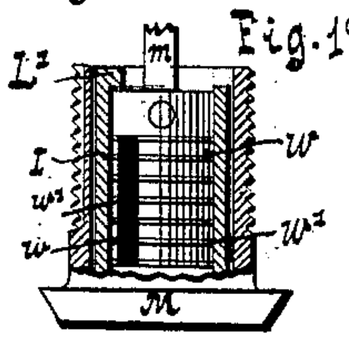
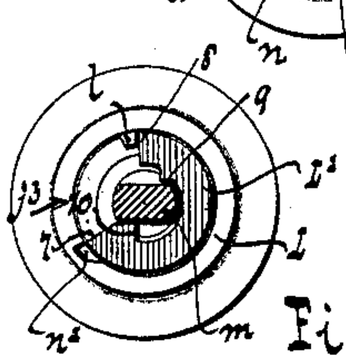


Fig. 13.



WITNESSES:

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JOSEPH LOCH, OF NEW YORK, N. Y.

COMBINED LATCH AND LOCK.

SPECIFICATION forming part of Letters Patent No. 387,523, dated August 7, 1888.

Application filed January 5, 1888. Serial No. 259,826. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH LOCH, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Combined Latch and Lock, of which the following is a specification.

My invention consists in an improved combined latch and lock, the novel features of which are fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a face view of the interior mechanism of the locking-latch. Fig. 2 is a similar view showing the parts in a different position. Fig. 3 is a transverse section in the plane *x x*, Fig. 1. Fig. 4 is a similar section in the plane *x' x'*, Fig. 1. Fig. 5 is a longitudinal section of a portion of the locking-section in the plane *y y*, Fig. 4. Fig. 6 is a sectional top view of the barrel and its actuating mechanism, said figure being drawn on a larger scale than the preceding figures. Fig. 7 is a section in the plane *y' y'*, Fig. 6. Fig. 8 is a section in the plane *z z*, Fig. 7. Fig. 9 is a similar view to Fig. 6, but showing the parts in a different position. Fig. 10 is a section in the plane *z' z'*, Fig. 11. Fig. 11 is a section in the plane x^2 x^2, Fig. 10. Fig. 12 is a section in the plane y^2 y^2, Fig. 9. Fig. 13 is a similar view to Fig. 6, but showing the parts in a different position. Fig. 14 is a side view of the barrel detached. Fig. 15 is a section of a friction-plate. Fig. 16 shows detail views of the wards.

Similar letters indicate corresponding parts.

In the drawings, referring at present to Figs. 1, 2, 3, and 4, the letter A designates the lock-case, and *a* is the back plate. C is a bolt; D, a tumbler; and E and F, Figs. 1 and 2, are hubs for actuating the tumbler D and for withdrawing the bolt C. The hub F is turned by a key from the outside of the door, and the hub E by a knob, G, Fig. 4, on the interior of the door. In the example shown in the drawings the bolt C slides in the case and is provided with suitable faces, 1 and 2, which are in position to be engaged, respectively, by toes *e* and *f* on the hubs E and F, respectively. A spring, *g*, holds the bolt in its advanced or locked position against suitable stops. The tumbler D swings about a pivot, *d*, its motion downward being limited by a stop, *d'*. A spring, d^2, normally holds the tumbler against said stop and insures proper action of the said tumbler. The tumbler is provided with faces 3 and 4, the latter of which is in position to be engaged by the toe *f* of the hub F and the former by a second toe, *e'*, on the hub E.

On the upper face of the tumbler is a projecting lug, H, which forms a stop for a detent, I, which has a pivotal connection at *i* with the bolt C and moves back and forth with the same. A stop, *i'*, in contact with the detent prevents a downward motion of the same. On turning the hub F by means of the key the toe *f* thereof engages with the face 4 of the tumbler D and lifts the latter, thereby clearing the stop H from the detent I. On the further rotation of the hub F its toe engages with the face 2 of the bolt C and withdraws the same to its unlocking position. When the hub F is now turned back to its original position, (see Fig. 2,) the stop H engages the upper face of the detent I through the co-operation of a block, J', on the detent, to be hereinafter described, and the tumbler remains suspended in the position shown in Fig. 2, the said detent being held horizontal by the stop *i'*. In the under side of the detent I is a recess, *j*, Fig. 3 especially, which permits the passage therethrough of the stop H on the tumbler when the bolt is pushed inward—as, for instance, upon closing the door. When the stop H is brought opposite this recess, the tumbler falls into the position shown in Fig. 1, bringing the stop again opposite the end of the detent I, and the bolt C cannot be moved except by turning the knob or key. To permit the stop H to readily pass the end of the detent I when the tumbler is swung from the position shown in Fig. 1 to that shown in Fig. 2, the detent is provided with a pivoted block or head, J', which is acted on by a flat spring, *j'*, and can yield as the tumbler is moved, but is held immovable when the tumbler is pendent from the bar. To allow the detent I to clear the stop H as the bolt moves outward—that is, to its locking position—said detent is hinged, as before stated, and in addition to this the side 5 of the recess is made inclined, as is also the contact-face of the stop, so that the detent is lifted and rides over the stop. A spring, i^2, acting on the de-

tent, insures the proper action of the same. The result of this mechanism is that when the door is closed the lock-bolt is locked and cannot be forced back; but it can be easily drawn back by either the key or knob. To operate the lock-bolt by the knob G, which engages the hub E, the said knob is turned to move the toe e' of the hub E toward the face-plate of the lock-case. The toe e' thereby acts on the face 3 of the tumbler D and lifts the latter to place the stop H above the inner end of the detent I. The continued rotation of the hub E causes its other toe, e, to act on the face 1 of the lock-bolt, and thereby retracts the same.

The tubular casing M of the barrel L is secured to the back plate of the lock-case, Figs. 4 and 5, by means of the jaws K K′, one of which, K′, is stationary and the other movable toward the same. The movable jaw K is guided in a slot, k, in the back plate and provided with a rigid nut, k', which is engaged by a screw, k^2, the outer end of which has a bearing in a lug on the back plate. The head of the screw projects into an opening in the face-plate of the lock-case. The movable jaw is provided with a spur, k^3, which enters a groove, j^3, in the tubular casing M. By turning the screw k^2 after the insertion of the tubular casing the latter is tightly clamped. The spur k^3 enters the groove j^3 in the casing M and prevents the same from turning.

The barrel L, Figs. 6 to 14, is tubular in form, and contains on its inner end a segmental head, L′, the ends 7 and 8 of which are about a quadrant apart and can be brought into engagement with a stop, l, fixed in the interior of the tubular casing M. Within the barrel is arranged a series of wards, W, each ward having a peripheral notch, w. The wards are arranged about a suitable sectional stem, m, which engages with the hub F, Fig. 4. Between the wards are placed friction-plates W′, having peripheral notches, w', Fig. 15 especially, and also peripheral projections w^2. Said projections are received by notches w^3 in the barrel. The barrel is held to the tubular casing M and prevented from rotating at certain times by a lock, N, which is in the shape of a key and lies in a slot, n, in the barrel. It engages with a recess, n', in the tubular casing M. This lock N is normally held in the said recess by the wards W, (see Figs. 6 and 7, and especially Fig. 8;) but when the key is inserted and turned through a quadrant the wards are adjusted to bring the notches w in line, and the lock N falls by its own weight into the recess as formed, whereby the barrel is released from the casing. The head L′ of the barrel L is segmental, as before described, and allows the stem m to rotate therein between two stops, 9 and 10, located a quadrant apart. During the quadrant of motion of the stem in withdrawing the bolt the wards are adjusted to bring the notches therein in line, Fig. 11, whereupon the lock N falls into its unlocking position and the barrel turns with the stem until the stop 8 engages with the stop l.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a bolt, of the pivoted tumbler D, a stop, H, thereon, and a movable detent, I, carried by the bolt and engaging with the stop, substantially as shown and described.

2. The combination, with a sliding bolt, of a pivoted tumbler, a stop, H, on the same, a detent, I, carried by the bolt and engaging with said stop, said detent containing a recess for the passage therethrough of the stop in the tumbler, and a yielding block or head, J′, substantially as shown and described.

3. The combination, with the tubular casing M and the barrel L therein, of the lock N, connecting the casing and barrel, and the notched wards W, which, when formed, receive said lock and free the barrel, substantially as shown and described.

4. The combination, with the tubular casing M and the barrel L therein, of the lock N, connecting the casing and barrel, the notched wards W, the head L′ on the barrel, the stem m, extending through the barrel, and the stops 9 and 10 in the head for arresting the motion of the stem, substantially as shown and described.

5. The combination, with the tubular casing M, having a stop, l, and the barrel L therein, having a head containing stops 7 and 8, for engaging said stop l, of the notched wards W, the friction-plates W′, engaging the barrel, the stem m, extending through the barrel, and stops 9 and 10 in the barrel-head, for arresting the motion of the stem, substantially as shown and described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOSEPH LOCH. [L. S.]

Witnesses:
W. C. HAUFF,
E. F. KASTENHUBER.