J. VETTER.

Combined Lock and Latch.

No. 197,531. Patented Nov. 27, 1877.

Fig. 1.

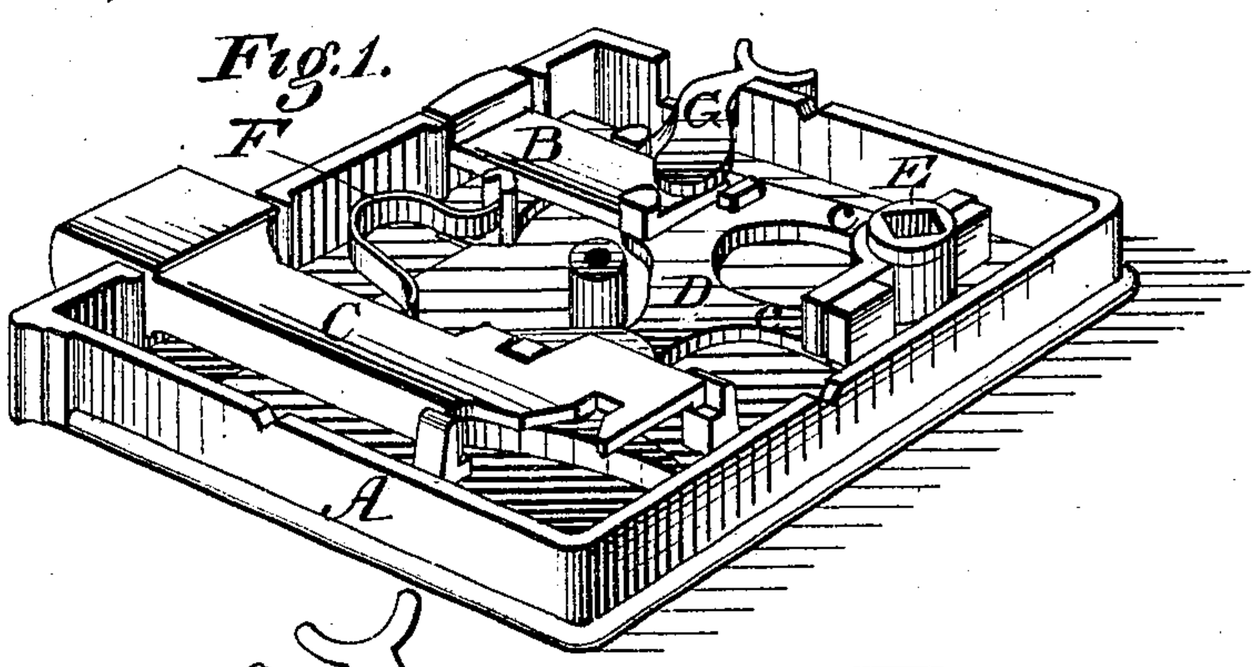


Fig. 2.

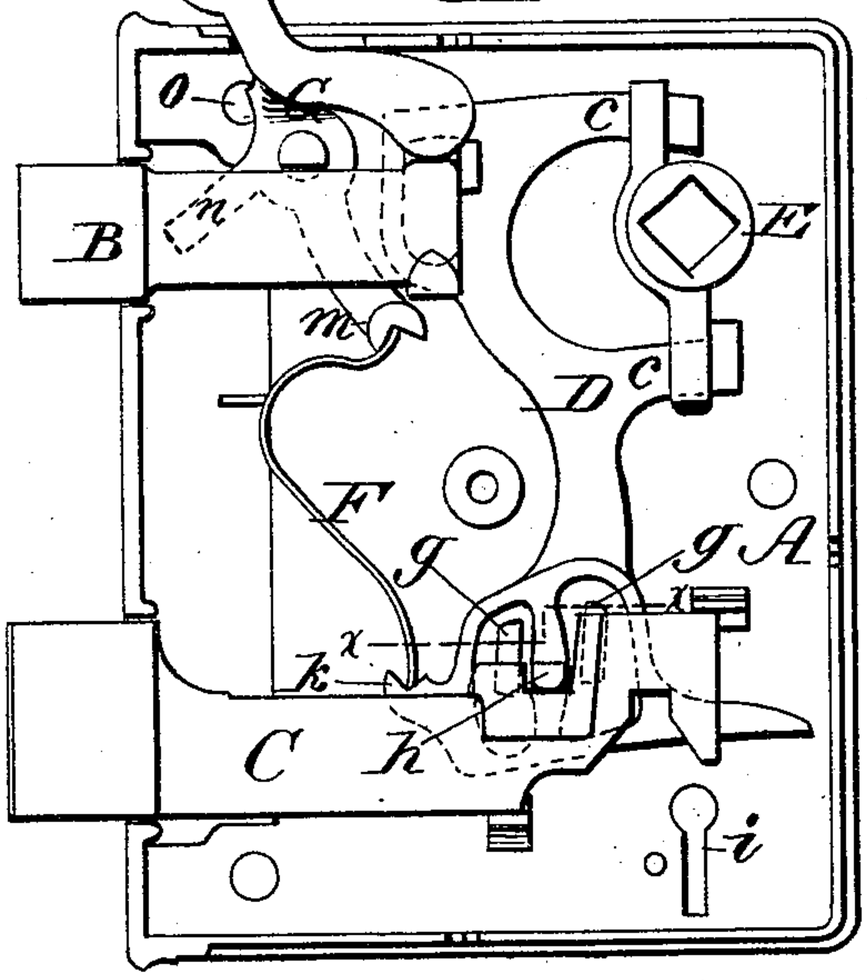


Fig. 5.

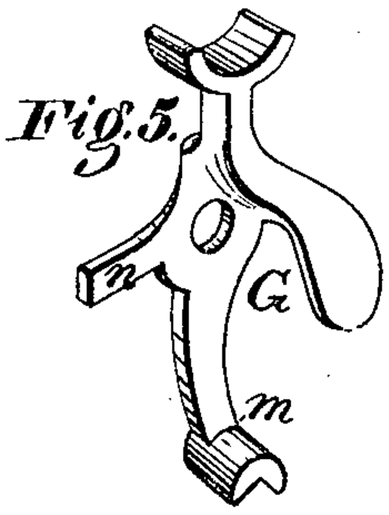


Fig. 6.

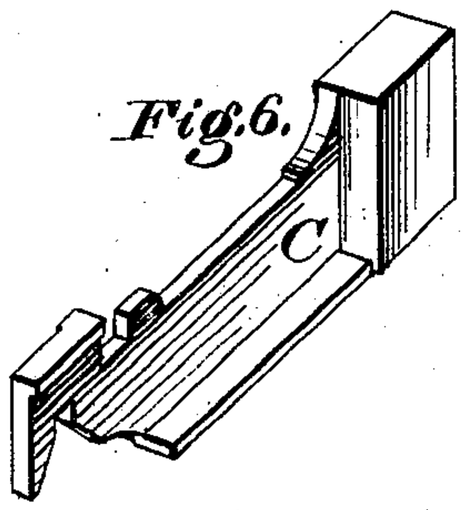


Fig. 4

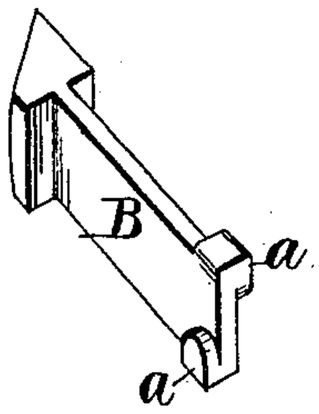
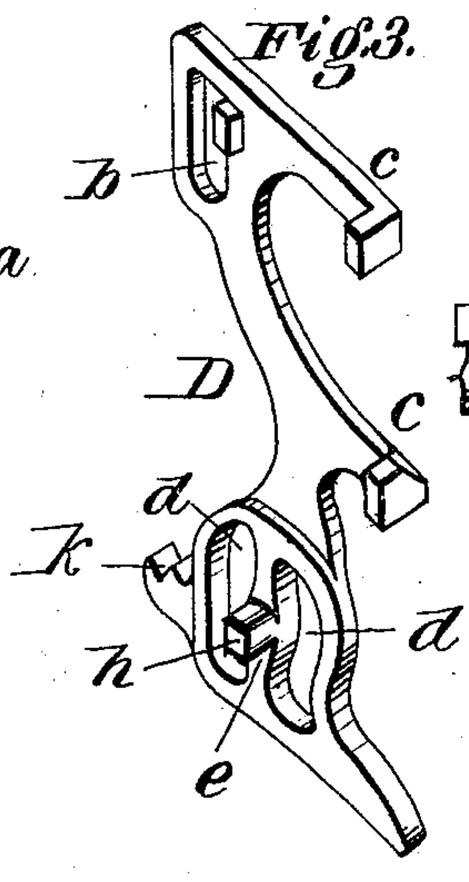
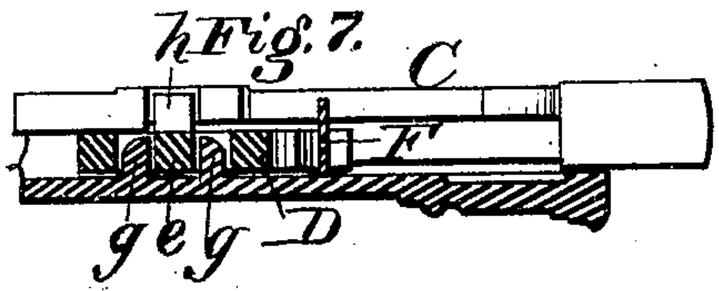


Fig. 3.



h Fig. 7.



Witnesses:

Will N. Dodge

Donn P. Twitchell.

Inventor:

John Vetter.

By his attys.

Dodgerton

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN VETTER, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN COMBINED LOCK AND LATCH.

Specification forming part of Letters Patent No. **197,531**, dated November 27, 1877; application filed October 12, 1877.

To all whom it may concern:

Be it known that I, JOHN VETTER, of Springfield, in the county of Clarke and State of Ohio, have invented certain Improvements in Lock and Latch, of which the following is a specification:

My invention relates to that class of locks in which separate lock and latch bolts are employed; and consists in constructing both the lock-tumbler and the latch-yoke in one piece; in connecting the reversible latch to the operating-yoke by a slot and stud, and retaining it in place by a stop, which also serves to lock the latch, when required; in so arranging the parts that a single spring serves to actuate the tumbler, the yoke, and latch-bolt, and also the stop and reversing devices when they are used, and in minor details hereinafter described.

Figure 1 represents a perspective view of my lock with one side of the case removed, showing the mechanism in its operative condition; Fig. 2, a face view of the same, with the stop in position to prevent the inward movement of the latch-bolt, but admit of its being withdrawn and reversed; Fig. 3, a perspective view of the combined yoke and tumbler; Fig. 4, a view of the latch-bolt detached; Fig. 5, a view of the stop by which the latch-bolt is held in connection with the actuating-yoke, and also locked fast when required; Fig. 6, a perspective view of the lock-bolt, and Fig. 7 a cross-section on the line *x x* of Fig. 2.

In constructing my lock I provide a case, A, and mount therein a sliding latch-bolt, B, and a sliding lock-bolt, C, all in substantially the usual manner, except that the latch is made with a thin flat shank or tail piece, having on opposite sides of its rear end at the top and bottom, respectively, two projecting studs *a*, as shown.

I next provide a combined yoke and tumbler, D, of the form represented in Fig. 3, and mount the same in the case, as shown in Figs. 1, 2, and 7. At its upper end the yoke is provided with a vertical slot, *b*, to receive one of the studs of the latch-bolt, and with the usual arms, *c*, with upturned ends, to engage behind the arms of the rotary spindle-hub E, which is constructed and arranged in the case in the ordinary manner, as shown in Figs. 1 and 2, so that when the hub is turned in either direction it will draw back the yoke and latch. At its lower end the yoke, or, more strictly speaking, the combined yoke and tumbler, contains two vertical slots, *d*, separted by a vertical bar, *e*, which latter is seated between two fixed studs, *g*, on the inside of the case, as clearly shown in Figs. 2 and 7, the bar thus held between the studs serving as a fulcrum upon which the yoke swings as its upper end moves forward and backward with the latch-bolt.

The vertical slots *d* in the lower and the vertical slot *b* in the upper end admit of the tumbler and yoke sliding vertically to a limited extent without disarranging the other parts, this vertical motion being independent of the pivotal motion, and for the purpose of securing and releasing the lock-bolt, as hereinafter explained.

The lower end of the yoke and tumbler, being the tumbler proper, has on the face of its bar *e* a stud, *h*, engaging in the upper notched edge of the lock-bolt C to prevent its retraction. This stud *h*, resting in or upon the upper edge of the bolt, also serves as a rocking pivot for the yoke and tumbler, limiting its downward movement, and preventing the excessive friction which would otherwise exist between the various parts. The lower face or edge of the tumbler is formed into an arm or bearing, to be acted upon by the bit of the key.

The key-hole *i* is made in the lower part of the case below the bolt, as shown, and when the key is inserted and turned it first raises the tumbler and then moves the bolt, and permits the tumber to fall and secure the same again, all in the ordinary manner.

The proper action of the yoke and tumbler, and through it the action of the latch-bolt, is secured by a single spring, F, bearing at its lower end on a notched arm, *k*, on the front of the tumbler, as shown.

In the drawing the spring is represented as bearing at its upper end against a pivoted stop, G; but when the stop is not used the case may be provided with a rigid stud or other bearing for the spring.

It will be observed that the downward pressure of the spring causes the stud *h* to bear fimly on the lock-bolt whenever the tumbler is released, and at the same time causes the

tumbler and yoke to tip forward and protrude the latch-bolt beyond the case.

For the purpose of maintaining the connection between the latch-bolt and tumbler I employ a pivoted stop, G, having one end extended through the edge of the case, and the other adapted to swing over the outer side of the shank of the latch, in the manner shown in Fig. 1, so as to hold the latch up against the side of the tumbler and retain its stud in the slot therein.

By tipping the stop on its pivot its arm is thrown back from over the latch, which latter may then be disengaged from the yoke, withdrawn, reversed, and again inserted and secured to the yoke. On the lower end of the dog or stop there is an arm, *m*, notched to receive the upper end of the spring F, as before mentioned, the parts being so arranged that the spring is thrown to opposite sides of the center by the movement of the stop, so that the latter is held in either position in which it may be placed.

For the purpose of locking the latch-bolt forward, and preventing its operation by means of the spindle, the stop has an arm, *n*, which engages behind the head or shoulder of the latch when the stop is thrown forward, as shown in Fig. 2.

In order to prevent the accidental release of the latch from the tumbler when the lock is applied to the door, the case is perforated to receive one of the fastening-screws at the point *o* just forward of the dog, so that when the screw is inserted it prevents the dog from moving so far forward as to throw its arm from over the latch.

It is obvious that the stop may be used merely as a stop when the reversible latch is not employed, or that it may be used merely to hold the latch to the yoke and not as a stop, and in either case actuated by the spring F, or by a separate spring. It is also obvious that many of the unessential details may be modified without affecting the mode of operation of the parts.

The combined yoke and tumbler may be used in connection with a bolt which is not reversible. The tumbler, instead of having the two slots and the intermediate bar working between the two retaining studs, may have a single slot to receive a fulcrum-stud, or a reversible latch of any ordinary style used in connection with the combined yoke and tumbler.

The essential features of the invention are a combined yoke and tumbler in one piece, a reversible latch-bolt, and a stop, operating in connection, as described, and the arrangement of the single spring to actuate the various parts; and so long as said parts are constructed and arranged to operate substantially as described, the details may be modified at will.

By my construction I am enabled to produce a lock and latch of great simplicity and cheapness, having all the advantages and capabilities of the expensive locks hitherto in use.

Having thus described my invention, what I claim is—

1. In a combined lock and latch, a yoke for operating the latch-bolt and a tumbler for fastening the lock-bolt, made in one piece, substantially as described and shown.

2. In a lock and latch, a combined yoke and tumbler, D, having a pivotal motion to actuate the latch-bolt, and a sliding motion to secure and release the lock-bolt.

3. The combination of the case A, provided with a stud or studs, *g*, latch-bolt B, locking-bolt C, spring F, and the combined yoke and tumbler D, substantially as shown.

4. The combination of the yoke D, reversible latch B, pivoted stop G, and the spring F, substantially as shown.

5. In combination with the yoke D and the reversible latch connected thereto, the pivoted stop G, serving to maintain the connection between the yoke and latch, and also to prevent the retraction of the latter.

6. In combination with the latch-bolt, having the studs *a a* on opposite sides and at opposite edges, the yoke, having an opening to receive said studs, and the pivoted stop G and its actuating-spring, as shown.

7. The combination of a swinging yoke, having the latch-bolt attached, a stop, G, to prevent the retraction of the latch-bolt, and a spring bearing at opposite ends against the yoke and stop, and serving to operate them both, substantially as shown.

8. In a combined lock and latch, a single spring, arranged to operate the yoke and tumbler, and stop, substantially as shown.

JOHN VETTER.

Witnesses:
CHARLES C. MARSHALL,
HENRY P. EYSENBACH.