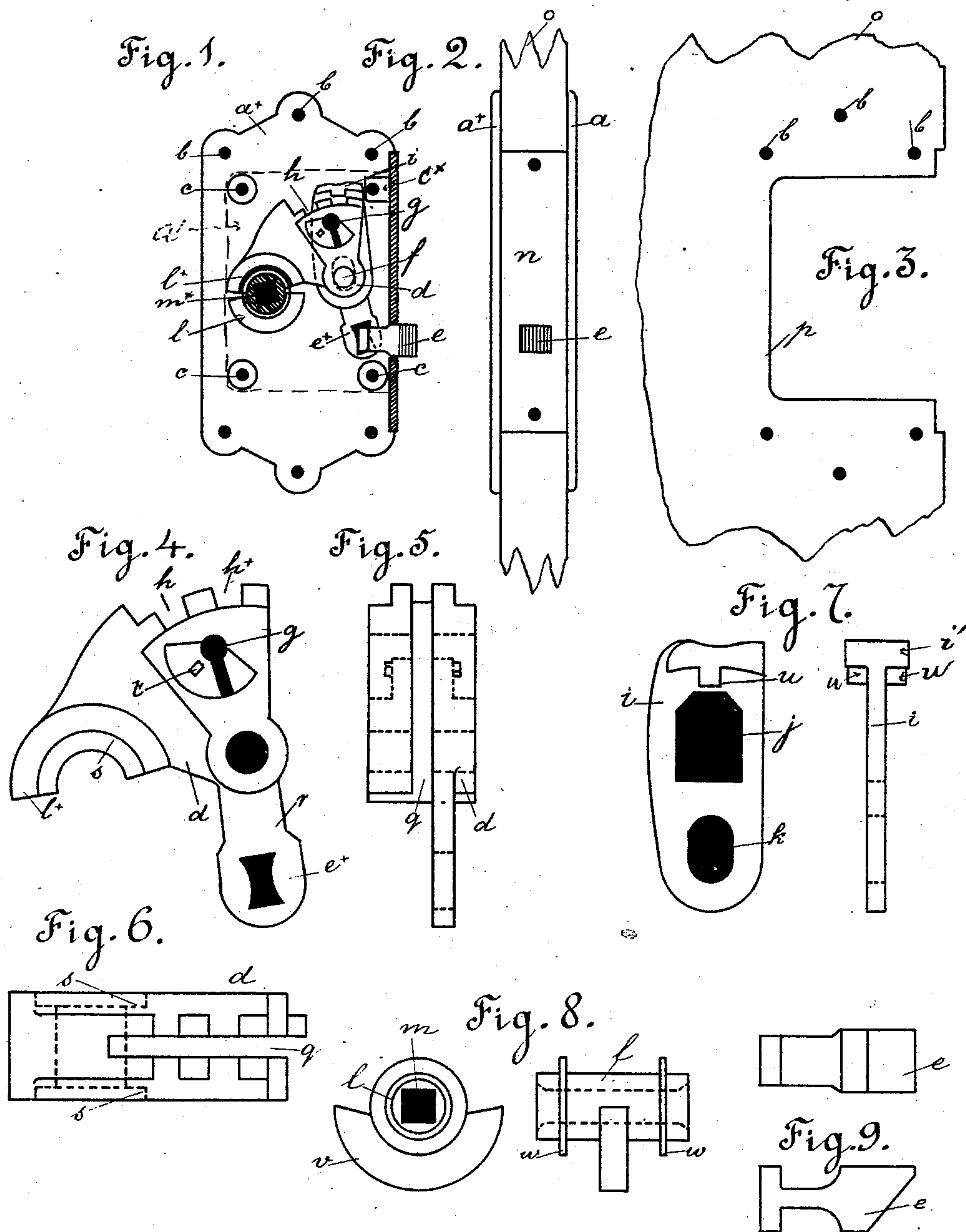


(Model.)

E. NYSWONGER.
COMBINED LOCK AND LATCH.

No. 364,727.

Patented June 14, 1887.



Witnesses.

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ELIJAH NYSWONGER, OF HANFORD, CALIFORNIA.

COMBINED LOCK AND LATCH.

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To all whom it may concern:

Be it known that I, ELIJAH NYSWONGER, a resident of Hanford, county of Tulare, State of California, have invented a novel and useful Combined Lock and Latch; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My invention relates to the construction of a lock which is operated without a spring by lever action, is both right and left hand, and is adapted for attachment to doors of different thickness.

The following description fully explains the nature of my said invention and the manner in which I proceed to construct, apply, and operate the same, the accompanying drawings being referred to by figures and letters.

Figure 1 represents an elevation of the lock with the front plate and the inner or lock plate removed, showing the internal mechanism. Fig. 2 represents an end elevation of the lock, showing part of a door-stile with the end plate and the front and back plates attached. Fig. 3 is a view of part of a door, showing a cut for the body of the lock. Fig. 4 is an enlarged view of the balance-lever, showing the fulcrum, slot for arm of latch-bolt, shoulder for cam-hub, recesses for tumbler-catch, and key-hole with recess and ward. Fig. 5 represents an end elevation of the balance-lever. Fig. 6 is a plan view of the same, showing by dotted lines the grooves for the reception of the collars of the cam-hub. Fig. 7 shows two views of the tumbler. Fig. 8 shows two views of the cam-hub. Fig. 9 shows two views of the latch-bolt.

My door-lock consists of a casing of two side plates, a a^x , and an end plate or face plate, n , through which the latch-bolt projects. The side plates have screw-holes b , for attaching to the door, a key-hole, g , and a hole, m^x , for the end of the cam-hub, through which the knob-spindle passes. A fulcrum-pin, f , and studs c c^x , to which a middle plate, a' , (shown in dotted lines in Fig. 1,) is screwed, are cast with or attached to side plate a^x . The face-plate n , the width of which corresponds to the thickness of the door, has screw-holes for attaching it to said door.

A device, which I call the "balance-lever" d ,

Figs. 1, 4, is constructed of massive metal, and works upon the fulcrum-pin f . There is an arm, r , in the lower part of which is a concave slot, e^x , for the reception and play of a foot of the latch-bolt e , which is reversible, and is provided with two feet, Fig. 9. A shoulder, l^x , projects from the balance-lever, forming at the end a vertical semi-cylinder, the upper and lower rim of which has a groove, s . A cam-hub, l , having a square hole, m , countersunk for the reception of the knob-spindle, fits into the semi-cylindrical shoulder of the lever. The cam-hub is cylindrical, having a collar, w , near each end, and a semicircular cam, v , corresponding to the diameter of the semi-cylindrical shoulder of the lever, projects from its center. The fulcrum-pin f extends into an opening in balance-lever d , and above it is the key-hole g and a fan-shaped recess, in which there is a ward, t . The key-hole is placed at a right angle with the key-hole in the plates.

In a slot, q , in balance-lever d is placed the body of the tumbler i , which has a broadened square head, i , with downward projections or catches u . The body i of tumbler is provided with a slot, j , for the key to work in, said slot being an oblong square with its upper corners cut off, so as to form three faces or sides on top, as shown in Fig. 7. The corner faces or sides at the top afford a means for moving the tumbler laterally after it has been lifted. A slot or opening, k , receives the fulcrum-pin f . In the top of the lever d , as shown, are formed two recesses, h and h^x , into which the projections u on the tumbler fit. When the said projections u are in recess h , the head of the tumbler is removed from stud c^x , and the top of lever d may be tilted forward to throw the lower end back and withdraw the latch e ; but when projections u are in recess h^x the head of tumbler will come in contact with the stud c^x and prevent such movement, thereby effectually locking the door.

The operation of my door-lock, in which I dispense with a spring and employ a lever action, is direct and simple. In opening the latched but unlocked door the knob is turned, which action causes the cam-hub l , through which the knob-spindle extends, to raise the shoulder l^x of the balance-lever d , to the arm

r of which the latch-bolt *c* is attached, and communicate its action to the latch-bolt and retract it.

In locking the door the key is inserted
5 through the key-hole in the side plate into the recess in the balance-lever and a quarter-turn made over the ward *t*, which action brings the key in line with the key-hole in the said balance-lever, into which the key is
10 inserted to the slot in which the tumbler *i* operates. A half-turn of the key strikes the catch *u* of the tumbler and lifts it out of recess *h* in the balance-lever and moves it toward and drops it into locking-recess *h*^{*}.
15 By leaving the key resting in its recess in the latch-bolt, which combines both the bolt and the latch of the common lock, said key cannot be released from the lock from the outside, as the key-hole in the balance-lever is at a right
20 angle with the key-hole in the plates.

When inserted through the key-hole in either of the plates *a* or *a*^{*}, the key serves to lock the door so long as it remains in the lock, regardless of the condition of the tumbler.

25 My door-lock has an advantage in being adapted for attachment to doors of different thickness. It can be applied securely to a door-stile only one inch thick as readily as to one having a stile one and a half inch or two
30 inches thick. A cut is made in a stile one inch thick, Fig. 3, into which the body of the lock is inserted, and the side plates, *a* *a*^{*}, are screwed to the sides of the stile and the end plate, *u*, is screwed to the edge, Fig. 2.

35 In applying my lock to a door having stiles an inch and a half thick the wood is cut out to

the thickness of the body of the lock, which is inserted in the space and the external plates screwed to the sides of the stile, and an end plate corresponding to the thickness of the 40 stile is screwed to the edge. My locks will be provided with knob-bars and end plates corresponding to the standard sizes of doors.

Having thus fully described my invention, what I claim, and desire to secure by Letters 45 Patent, is—

1. In a combined lock and latch, the combination, with the pivoted balance-lever *d* and latch-bolt connected to or formed therewith, said lever being provided with the recesses *h* 50 *h*^{*}, of the tumbler having the head *i*' and projections *u*, and the stop *c*^{*} on the plate, as set forth.

2. The combination of the balance-lever *d*, connected at one end to the latch-bolt and en- 55 gaging an opening device on the knob-spindle, and provided with longitudinal slot *q* and recesses *h* *h*^{*}, with the tumbler having the body *i* for insertion in slot *q*, head *i*', for the purposes set forth, and projections *u*, for engaging 60 the recesses *h* or *h*^{*}, as required for locking or unlocking the door.

3. The combination, with the side plates and balance-lever having key-holes at right angles to each other, of the tumbler constructed and 65 operated in conjunction with the key and balance-lever, substantially as and for the purpose set forth.

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Witnesses:

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