L. L. BATES.

LOCKS FOR DRAWERS, &c.

No. 174,182. Patented Feb. 29, 1876.

Fig. 1.

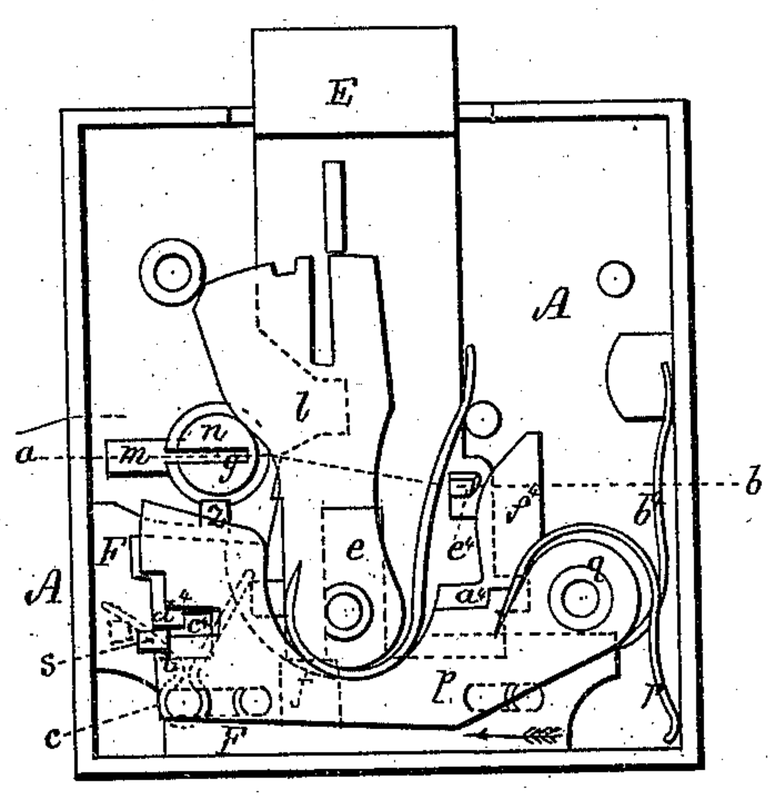


Fig. 2.

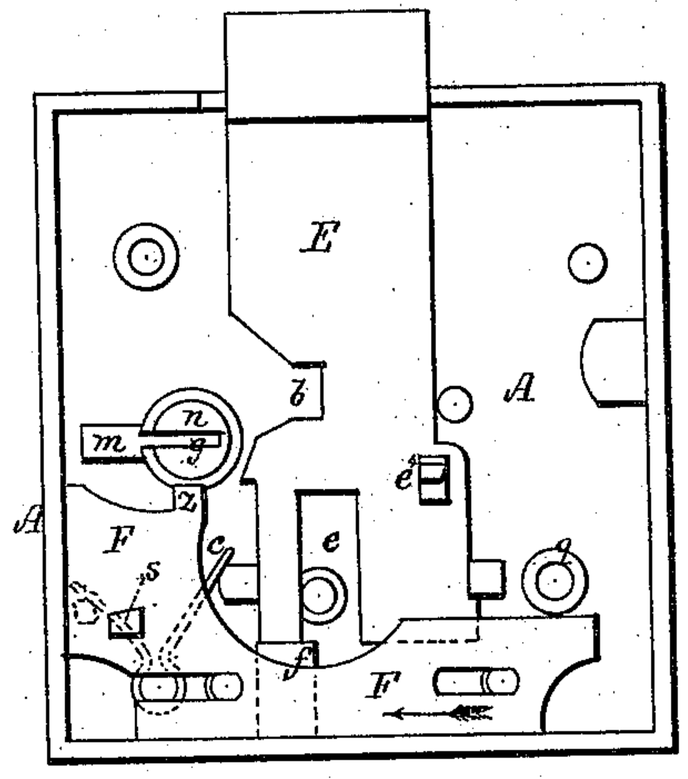


Fig. 3.
on line a.b. of Fig. 1.

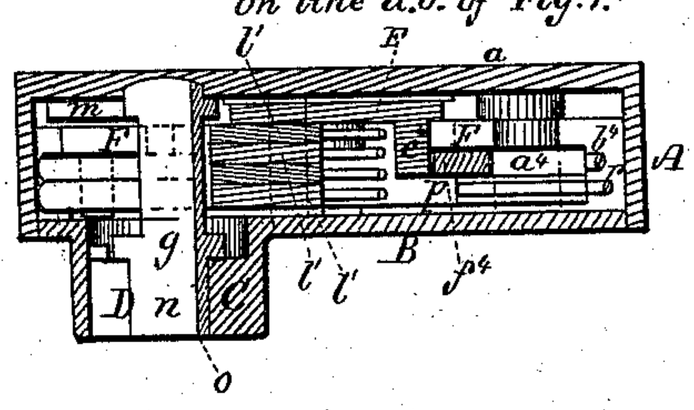


Fig. 4.
Reduced.

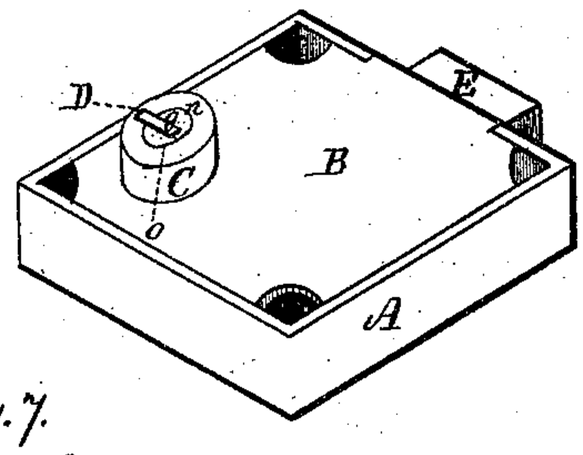


Fig. 5.

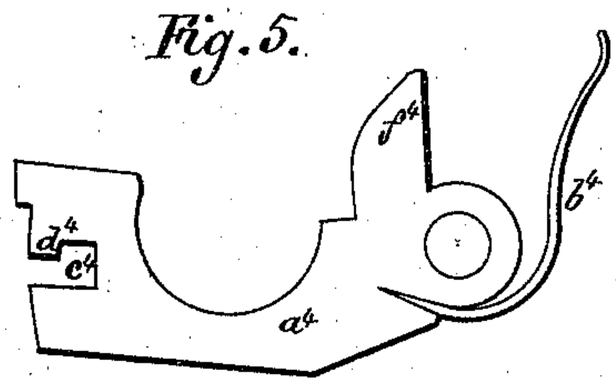


Fig. 6.

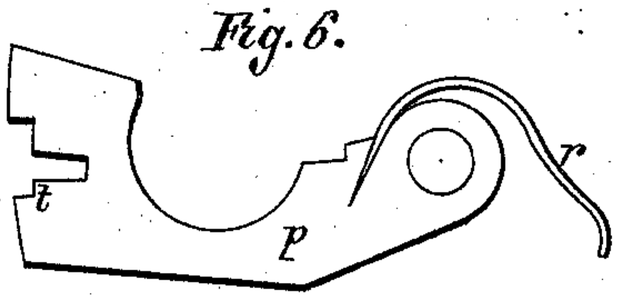


Fig. 7.
Enlarged.

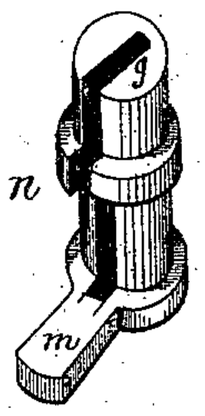


Fig. 8.

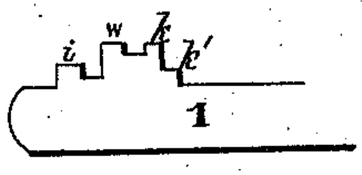
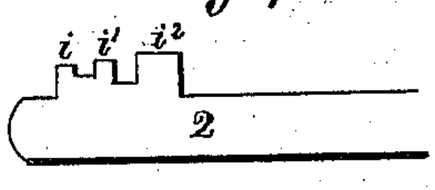


Fig. 9.



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UNITED STATES PATENT OFFICE.

LORING L. BATES, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN LOCKS FOR DRAWERS, &c.

Specification forming part of Letters Patent No. **174,182**, dated February 29, 1876; application filed November 27, 1875.

To all whom it may concern:

Be it known that I, LORING L. BATES, of Boston, Suffolk county, Massachusetts, have invented an Improvement in Locks for Drawers, &c., of which the following is a specification:

This invention relates to improvements in a class of locks for the drawers of safety-deposit vaults, in which two keys of different forms or character are requisite to operate the lock, one of which is lodged in the hands of the custodian of the vaults, and is used to prepare the lock for being unlocked by the owner, while the other key is in the possession of the owner, and is used to unlock and lock the drawer in which the property of the owner is deposited.

Heretofore this class of locks has been operated by means of two distinct hubs and key-holes, disposed at some distance asunder.

My improvement consists in combining in a lock of this character the bolt and the bolt locking or latching mechanism with a single rotating hub, through which each may be operated by its own key, substantially as hereinafter described.

The drawings accompanying this specification represent in Figure 1 an interior view of the lock; in Fig. 2, an interior view containing only the bolt and safety-latch. Fig. 3 is a horizontal section of the lock, and Fig. 4 a perspective view of the same. Figs. 5 and 6 are diagrams of the catch-plate and tumbler respectively. Fig. 7 is a perspective view of the key-hub, and Figs. 8 and 9 diagrams of the two keys employed with the lock.

In these drawings, A represents the case of the lock, being a rectangular box, provided with a plate or cover, B, upon the lower central outside of which is cast a hub, C, in which a key-hole or key-way, D, is formed.

The bolt of the lock is shown at E as disposed against the back *a* of the case A, the notch in such bolt, by which the key-hub operates it, being shown at *b*, while the rear or inner end of said bolt is forked, as shown at *e*, for the purposes hereinafter stated.

F in the drawings represents a latch, disposed at the rear part of the case A, and in a plane immediately above that in which the bolt E plays, a stud or stop, *f*, being affixed to the under side of the said latch, to operate in connection with the fork *e* of the bolt, as well as with the adjacent end of the latter.

The latch F is forced in the direction of its arrow by a suitable spring, *c*, and when forced to its extreme position in one direction by the auxiliary key 1 against the stress of said spring, its stud *f* coincides with the fork *e* of the bolt E, and permits the latter to be unlocked by the primary key 2, while as the bolt is shot forward or locked by the key 2 the latch is forced by its spring to its extreme in the opposite direction, and its stud *f* abuts against the end of the bolt and prevents unlocking or retraction of the latter.

The bits of the primary key 2 are shown at *i* i^1 i^2, and those of the auxiliary key 1 at *k′ k′*, &c., while the yielding-levers of the lock are shown at *l l′*, &c.

The bolt is thrown by a bit, *m*, making part of a rotating key-hub, *n*, that is disposed within the case, and stepped at its inner end within the back of the latter, while its outer end passes through an axial bore, *o*, of the hub C, with a close fit, the body of such key-hub being formed with a key-way, *g*.

To securely hold the latch F in position while the bolt is locked, I employ a tumbler, *p*, disposed within the case A and near to its cap-plate; this tumbler being pivoted at one end to a stud, *q*, and forced upward by a spring, *r*, against a stud, *s*, projecting laterally outward from the latch; while to permit the latch to be thrown to its opposite extreme I form a notch, *t*, in the end of the said tumbler *p*, into which the stud *s* can enter.

To throw the latch inward (supposing the bolt to be locked) and release the bolt, the auxiliary key 1 is inserted in the combined slots *g* of the key-hub *n* and D of the hub C and turned backward, the result of which movement is that the bit *w* of said key first wipes against and raises the tumbler *p* until its notch *t* coincides with the stop *s* of the latch F, when the bit *i* of said key bears against a tooth, *z*, formed upon the upper edge of the latch F, and throws the latch inward and releases the bolt.

To hold the latch in the last-named position, and against the action of its spring, I employ a catch-plate, a^4, which, like the first, is pivoted

to the stud q, and is forced downward by the action of a spring, b^4, and is formed with a hooked notch, c^4, in its end, which serves to lock the latch.

The hook d^4 of the notch c^4 lies against the stud s, and as the latch passes inward and carries the hook beyond the stud, the catch-plate a^4 is thrown down by the action of its spring, and the hook passes behind the stud. As the bolt is thrown inward by the action of the bit m of the rotating key-hub, operated by the primary key 2, a stud, e^4, projecting outward from the bolt E, wipes against a cam, f^4, formed upon the catch-plate a^4 and lifts the hook d^4 from behind the stud, and frees the latch from such hook, so that when the bolt is thrown upward or in locked position, and the stud e^4 passes above the cam f^4 of the latch, the latter is fully released, and is thrown outward by the action of its spring.

The operation of the above-described lock is as follows, supposing the bolt to be at its extreme height, or locked, and both keys removed, the keyways D and g being in alignment, and constituting a passage for the auxiliary key 1:

To unlock the bolt, the key 1 is inserted and turned to the left or backward, which in this case is downward. The bit w wipes against the upper edge of the tumbler p, and forces the latter downward and frees the stud s of the latch from its hold, when the bit i next bears against the tooth z of the latch, and throws the latter inward, and carries its stud f into alignment with the fork e of the bolt, the hook d^4 of the catch plate a^4 at the same time dropping, by the action of the spring of such catch-plate, behind the stud s, as before stated, and locking the latch in this position. The key 1 is then returned to the position in which it entered the lock, and is removed. The primary key 2 is now inserted in the combined keyways, and turned to the right until the bolt is lowered and unlocked. As the bolt describes the last-named movement, its stud e^4, wipes against the cam f^4 of the catch-plate a^4, and raises the hook d^4 of such plate from its hold of the stud s, and the latch is left free to be thrown outward by its spring, when its stud f is released from the fork of the bolt as the latter is shot forward and locked. The key 2 remains in the lock, and cannot be withdrawn while the bolt is unlocked, as the outermost bit of such key is covered by the cap-plate of the lock. To lock the bolt the key 2 is turned to the left, and the bolt pushed outward, and as the bolt reaches its extreme outward or locked position it rises above the stud f of the latch, and the latch thus freed from its restraint is shot outward by the action of its spring, and its stud f rests behind the bolt and prevents its retraction until removed by the key 1, as before stated.

I claim—

1. The tumbler p and catch-plate a^4, in combination with the bolt E and latch F, substantially as and for purposes stated.

2. The latch F, provided with the stud f to enter the fork e of the bolt E, and with the stud s to operate in connection with the tumbler p and catch-plate a^4, and the tooth z to be operated upon by the key 1, substantially as and for the purposes stated.

3. In a lock in which the bolt and the mechanism for latching or locking the same are operated each by its own key, as described, the combination, substantially as set forth, of the said bolt, and mechanism for latching or locking it in place, with a single rotating key-hub, adapted to receive in succession the operating-keys, the said bolt latching or locking mechanism and bolt being arranged with reference to said hub substantially as specified, so that each in succession may be operated by its own key through one and the same hub.

LORING L. BATES.

Witnesses:
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