

J. B. FROST.  
Improvement in Locks.

No. 124,125.

Patented Feb. 27, 1872.

Fig. 1.

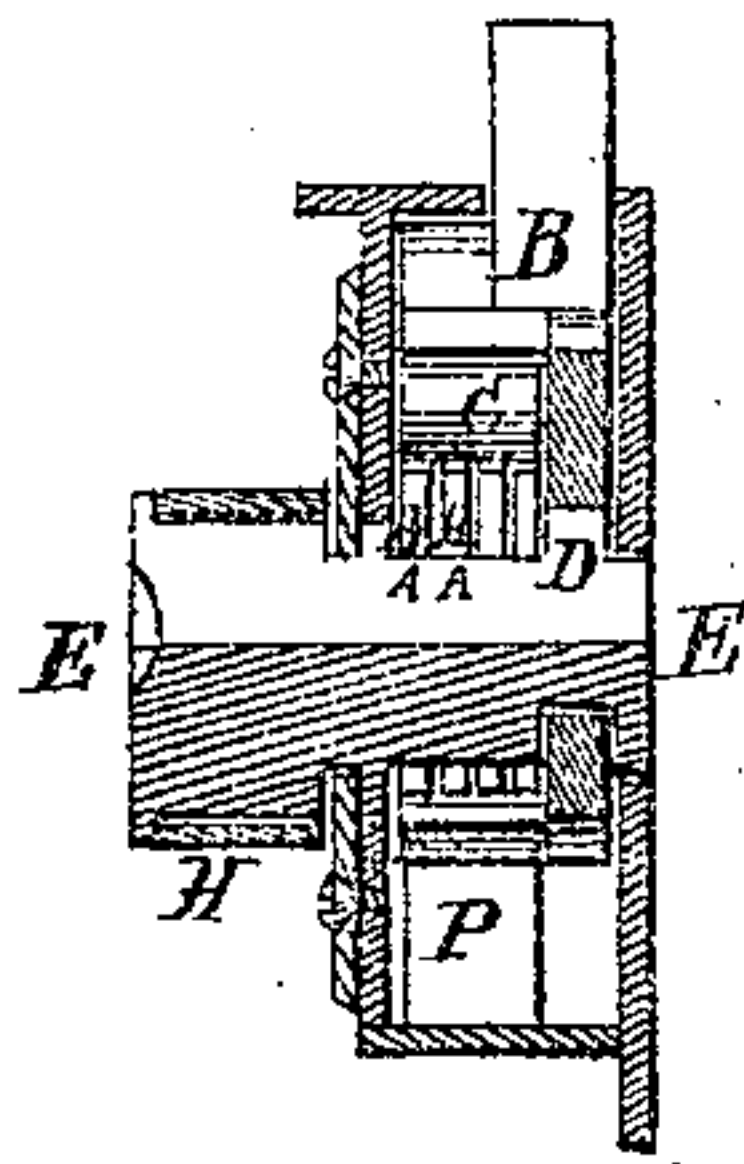


Fig. 7.

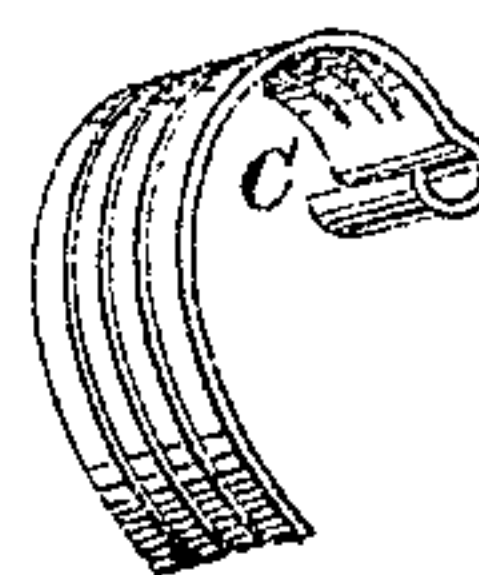


Fig. 6.

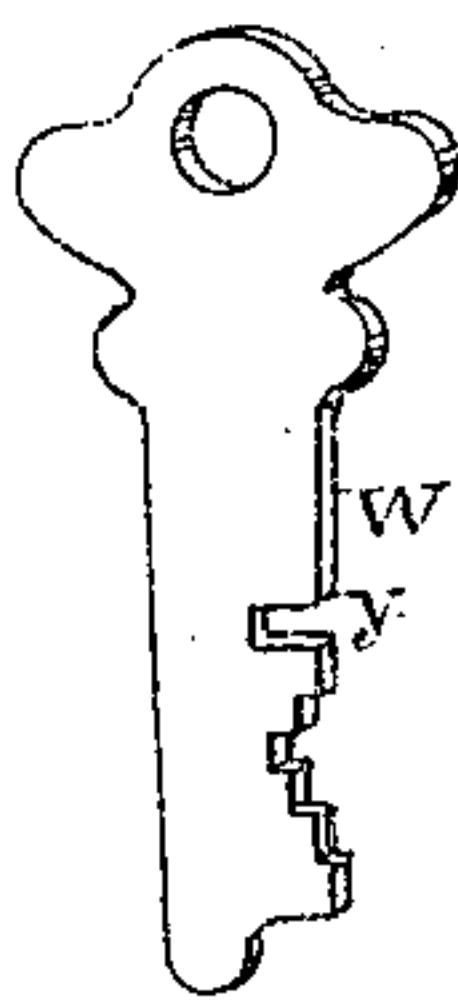


Fig. 2.

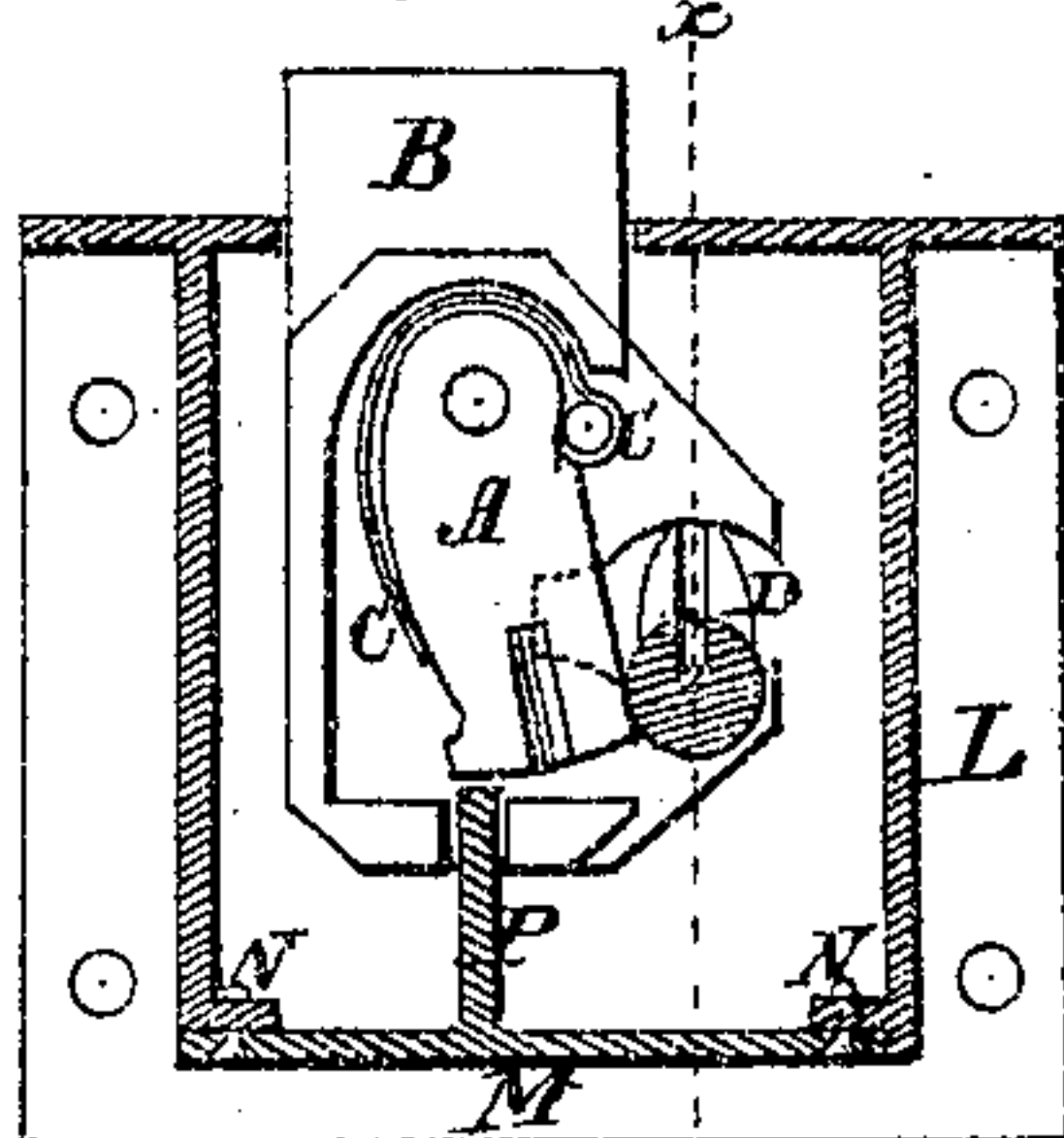


Fig. 8.

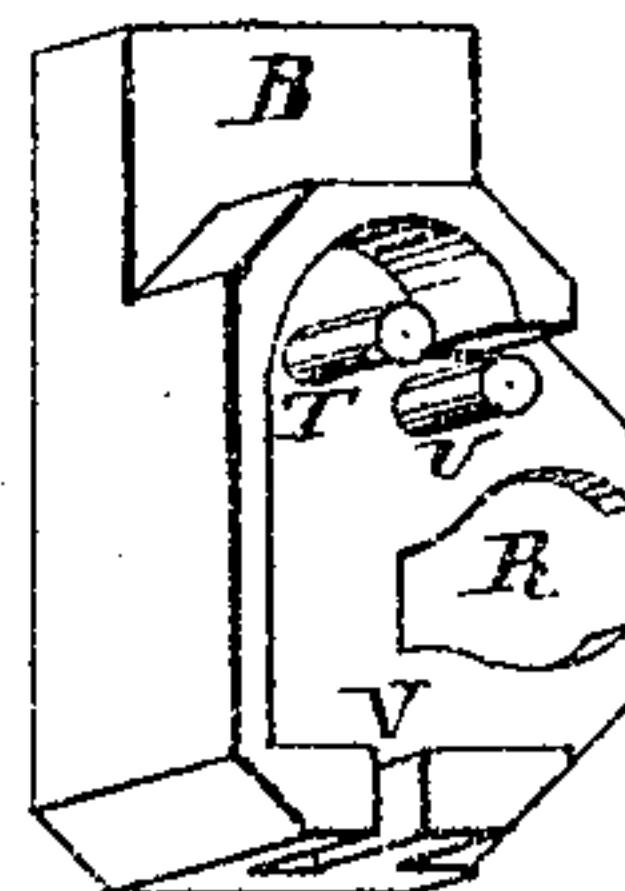


Fig. 5.



Fig. 3.

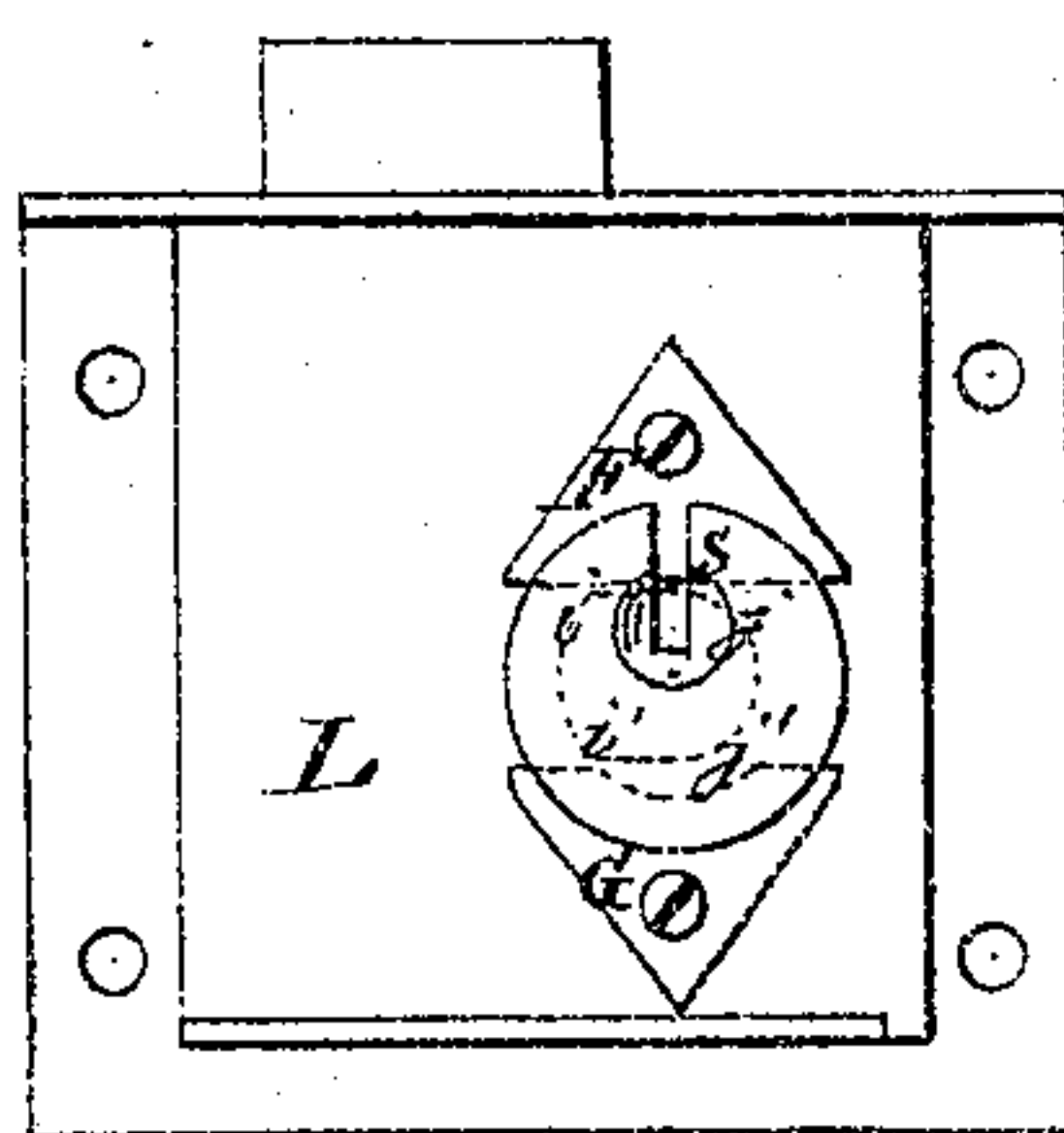


Fig. 9.

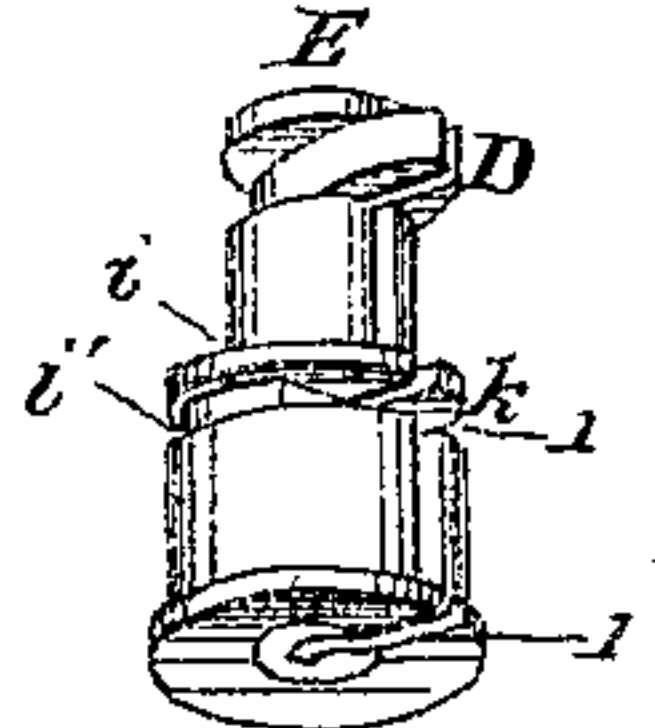
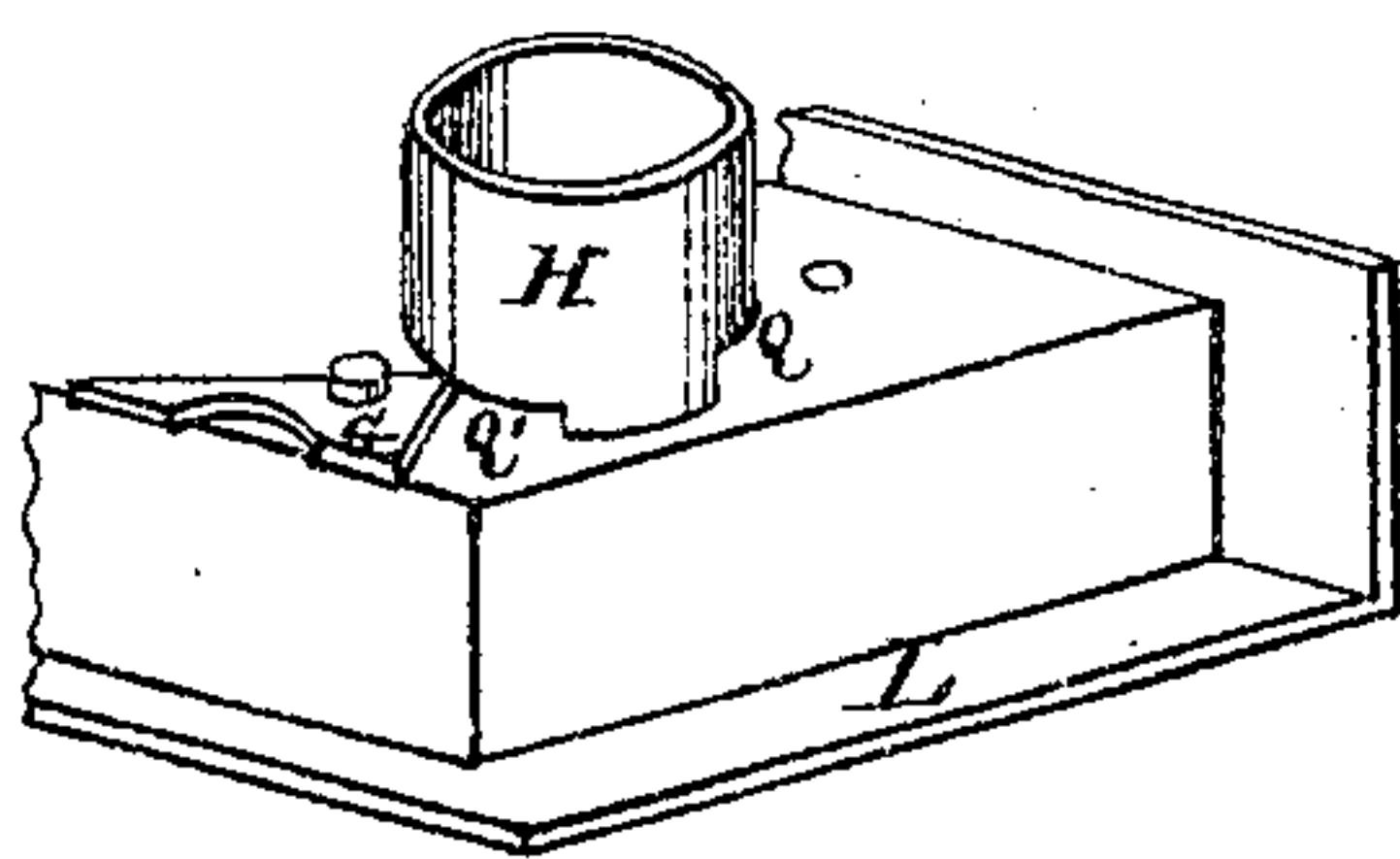


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JOSIAH B. FROST, OF JACKSON, MICHIGAN, ASSIGNOR TO HIMSELF AND HORACE J. FROST, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN LOCKS.

Specification forming part of Letters Patent No. 124,125, dated February 27, 1872.

Specification describing certain Improvements in Locks, invented by JOSIAH B. FROST, of Jackson, in the county of Jackson and State of Michigan.

My lock is constructed with a recessed bolt, tumbler, and spring, combined in such a manner that the tumblers are limited in their movement by the recess which contains them, and are operated by the separate leaves of a compound spring formed in one piece of metal and nearly surrounding the tumblers, and secured within the recessed bolt. In combination with the said bolt I employ an elliptical cam, constructed in one piece, with a key-guide inserted through a guiding barrel in the lock-case into the bolt, operating as an eccentric to move the bolt. My invention relates to the combination, with the bolt and tumblers, of a fence or stump and a cover or back plate for the lock, constructed in one piece, and arranged in such a manner that it forms an abutment for the tumblers when locked, a guide for the bolt, and a cover for the lock. My invention further relates to the combination, with the key-guide of a plate inserted through a slot in the guiding barrel, into a corresponding groove in the key-guide, in such a manner as to fasten the key-guide in the barrel and prevent it from traversing more than a desired part of a circle. My invention further relates to an adjustable plate inserted through another slot in the guiding barrel and into the groove, already described in the key-guide, the object of which is to readily adjust the lock so that the key cannot be removed unless the lock is locked, or so that it can be removed when unlocked.

Figure 1 is a vertical section of the lock on the line *xx* of Fig. 2. Fig. 2 is a view of the interior of the lock. Fig. 3 is a view of the lock complete. Fig. 4 is a perspective view of the guiding barrel. Figs. 5, 6, 7, 8, and 9 are perspective views of detached parts. Fig. 5 represents one of the tumblers, Fig. 6 the key, Fig. 7 the compound spring, Fig. 8 the recessed bolt, and Fig. 9 the key-guide and cam.

*L* is the lock-case. *B* is the bolt, recessed to admit the tumblers and springs. *E* is the key-guide with its cam *D*. *M* and *P* are the lock-cover and fence, formed of one piece of

metal. *C* is the compound spring, which is stamped or cut from sheet steel or brass. *A* are the tumblers. *F* is the fastening-plate, which secures the key-guide *E* within the lock. *G* is a pivoted plate, which, when adjusted as shown in Fig. 3, prevents, and when reversed, as shown in Fig. 4, permits, the removal of the key when the lock is unlocked. *W* is the key. These parts are cut with dies from durable sheet metal and are finished by the usual methods. The spring *C* is fastened upon the post *U*, with a bearing or abutment within the circular end of the recess of the bolt near the said post *U*. The tumblers are fastened upon the pivot *T*, inside the spring, each having a section of the spring bearing against it to disarrange them when locked. The bolt is placed in the lock-case through the opening at bottom, which is then closed by the plate *M*, the fence *P* projecting from said plate, passing into the slot *V*. The combined plate and fence are secured by the bolts *N N*. *H H* is the guiding barrel, through which the key-guide *E* is inserted until the cut *ll* is opposite the slots *Q* and *Q'* and the cam *D* within the opening *R* of the bolt. The fastening-plate *F* is inserted through the slot *Q* in the guiding barrel into the cut *l* in the key-guide, as far as the shoulder *ij*, so that when locked the shoulder *ij* strikes against it, preventing the key-guide from turning further to the right, the plate being fastened to the lock-case. The shoulder *ij* prevents the key-guide from turning too far in the opposite direction. The plate *F* engages into the flange *k*, fastening the guide in the barrel. The adjustable plate *G* is inserted into the openings *Q'* and *l* as far as *ij*.

To unlock the device, insert the key into the slot *V* in the key-guide, through the slot *S* in the fastening-plate until the wards are opposite the tumblers, the cam of the key completing the cam of the key-guide in its ellipse. As the key is turned it arranges the tumblers so that the slots *o o*, &c., are exactly opposite the fence *P* and presses the bolt and tumblers down upon the fence until it is unlocked. In passing around, the key is confined in the lock by the slot *y* in the key, coming in opposition to the plates *F* and *G* and by the wards in



contact with the tumblers until it returns, except when the plate G is reversed, as in Fig. 4; then it can be removed without returning.

I claim as my invention—

1. The recessed and slotted bolt B, in combination with the guiding-fence P and cover-plate M, said fence and plate being constructed in one piece, and all applied substantially as and for the purposes specified.

2. The combination of the fence and cover-plate M P, constructed in one piece, tumbler A, and bolt B, constructed, arranged, and operating in the manner and for the purposes set forth.

3. The plate F, fastened in the opening Q l, to secure the key-guide in the guiding barrel and to prevent it from traversing more than a desired distance, substantially as herein set forth.

4. The plate G, fastened in the openings Q' l to prevent the removal of the key, unless the device is locked, or reversible in a position to readily adjust it so that the key may be withdrawn locked or unlocked, substantially as herein set forth.

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