(No Model.)

E. J. COLBY.

LOCK.

No. 312,819. Patented Feb. 24, 1885.

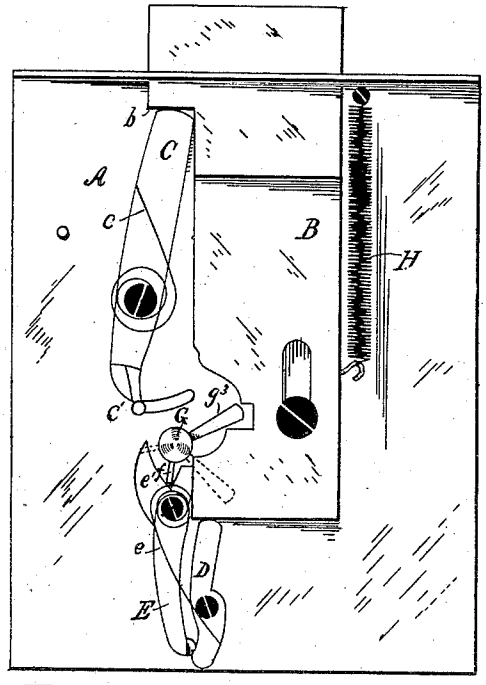

fig. 1.

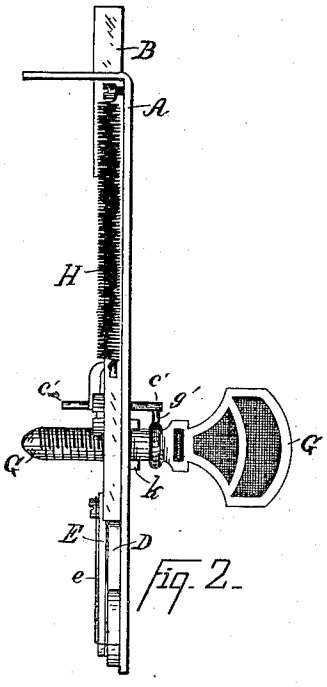

fig. 2.

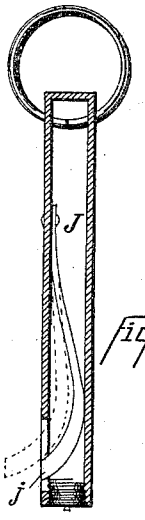

fig. 3.

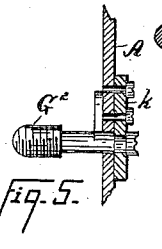

fig. 5.

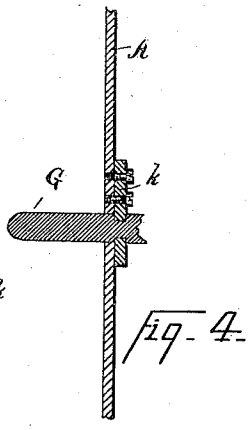

fig. 4.

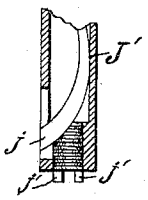

fig. 6.

Attest—
Christian D. Rapp
Casper Miles.

Inventor—
Edward J. Colby
By Geo. J. Murray
Atty

UNITED STATES PATENT OFFICE.

EDWARD J. COLBY, OF CINCINNATI, OHIO.

LOCK.

SPECIFICATION forming part of Letters Patent No. 312,819, dated February 24, 1885.

Application filed July 8, 1884. (No model.)

To all whom it may concern:

Be it known that I. EDWARD J. COLBY, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to an improvement in locks for general purposes. Its object is a lock which is by slight changes adapted to be opened by a great many keys, and is not susceptible of being picked by the ordinary instruments known. Its object is also a lock that can be cheaply and readily changed in case its key is lost, so that the key formerly fitted to it will not be available to open the lock.

With these objects in view my invention consists in certain peculiar formations of the key and key-post, and peculiar dogging devices arranged to be actuated by either the key and key-post or by the key-post and inner latch-piece attached to it.

It consists, also, in certain peculiar arrangements by which the key-post can be readily detached and changed, so as to require a different key to open the lock without disturbing the other parts of the lock mechanism, all of which will be fully understood by the following description of the accompanying drawings, in which—

Figure 1 is a front elevation of the lock-plate and the lock mechanism, the cap-plate being removed. Fig. 2 is a side elevation of the view shown in Fig. 1. Fig. 3 is an axial section of the key, showing the spring-arm for throwing the dogging device protruded in dotted line. Fig. 4 is a vertical section through the lock-plate and key-post, showing the means for attaching and detaching the key-post. Fig. 5 is a detail view of a modification which adapts my invention to use with the ordinary lock, the bolts of which are thrown in both directions by the key. Fig. 6 illustrates in vertical section the lower or operating part of a modified form of key.

The lock-case A may be made of any desired form, depending upon the use for which the lock is intended. The form shown, Figs. 1 and 2, represents an ordinary door-lock with the cap-plate removed. The bolt B is of ordinary construction, except that it has an offset or shoulder, *b*, at the outer end and within the case, against which the dogging-lever C bears. When the bolt is protruded, the dogging-lever is held normally under the shoulder *b* by a spring, *c*. Beneath the bolt B is another dogging-lever, D, which is pivoted on a pin which is secured in the case. This dogging-lever is held in contact with a swinging arm, E, by a spring, *e*. The swinging arm E has an arm, *e'*, to engage a pin which projects from the key-post G, so that when the key-post is turned partially around the pin *f*, acting upon the swinging arm, will throw the upper end outward from the key-post, and thus, acting upon the lower end of the dogging-lever, will throw its upper end from under the lower end of the bolt B. The lower end of the dogging-lever C is provided with a pin, *c'*, which passes through it and through a circular slot in the lock-case A. The pin also projects from the inside of the lever C to engage with the spring-arm *j* of the key J, so that when the key-post is turned, whether by the key from the outside of the door or the thumb-piece G', which is a part of the key-post, the dogging-levers C and D are disengaged from the bolt by the spring-arm *j* or projection g^2 on the thumb-piece G and pin *f*, when the bolt will be retracted by the bit g^3, which projects from the key-post. The key-post G is screw-threaded to engage an internal screw-thread in the hollow key J, and is made cone-shaped on the outer end, so that when it passes up into the shank of the key as it is turned to place for unlocking the bolt, the free end of the spring-arm *j* will be protruded through a longitudinal slot in the key to engage the pin projecting from the dogging-lever C, to throw the said lever out of engagement with the bolt. The key has a tooth, *j'*, projecting from its lower end, to engage the bit g^3 when the key is turned down upon the key-post and retract the bolt after the dogging devices have been disengaged. The bolt is protruded by a spring, H, the opposite ends of which are secured, respectively, to the lock-case and bolt B. The key-post G has an annular groove turned around it outside of the lock-case A. The neck thus formed receives the edges of a slotted plate, *k*, which is screwed on the outside of the lock-case, and while screwed in place keeps the key-post in position. It is intended

that the key-post shall project beyond the lock-case, so that it will pass into the key-hole in the door or other article upon which the lock is used. By making the threads on the key-post and within the keys of a number of these locks of different pitch, no key will pass down a sufficient distance to open any but its own lock. The arms g^3 may also be made of varying lengths, and their engaging-pins c' be placed at varying distances from the key-post, so that a great variety of locks may be made by these changes, each one requiring its own key to open it. Should the key of any lock be lost, it will only be necessary to unscrew the plate k and remove the key-post, and insert a key-post with a different pitch of thread and a key to fit it, so that the old key would no longer be available to open the lock.

The form of lock above described is the spring or latch bolt, in which the bolt is retracted by the key and protruded by a spring so soon as the key is withdrawn.

I will now, referring to Fig. 5, describe how my invention is to be applied to the common lock, in which the bolt is thrown in both directions by the key. The key-post G^2, Fig. 5, has the threaded portion only on the outer part, and a plain diminished portion between the screw-threaded part and the plate A, and the key J′ has only its lower end internally threaded, with an enlarged bore above the screw-tapped end, so that when the threaded portion of the key-post passes the screw-tapped internal collar in the end of the key the key may be turned freely in either direction without turning the key-post. From the lower edge of the key J′ project two spurs, j', which pass upon each side of the bit-piece g^3, to turn it in either direction, and thus retract or protrude the bolt B. It will be observed that the bit-piece g^3 also acts as a dogging device, to prevent the bolt from being driven inward by force exerted upon the outer end of the bolt, and that the key J may also be used with the form of key-post G^2, shown in Fig. 5, as could also the key J′ be with the key-post G.

By the means above described I avoid the use of a great many tumblers to make a secure lock, and as the post nearly fills the key-hole there is little room for the insertion of tools to pick the lock. The screws upon the post may be made either right or left, and I intend to make them both ways, so that I can make a great number of locks nearly alike in appearance and working parts, and yet each one requiring a different key to unlock it.

It is evident that my peculiar form of key, with the internal spring-arm to be forced out by the key-post, can be used to advantage even without the screw-threads, the spring-arm serving, as the bit does in ordinary keys, to throw the bolt or tumblers.

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

1. In combination with the lock-case and bolt mechanism, the screw-threaded key-post and hollow internally-screw-threaded key having within it an arm to be protruded by the key-post when the key is turned to place upon its post, said arm being adapted when protruded from the key to disengage a dogging-lever, substantially as described.

2. In combination with the lock-case A, the detachable screw-threaded key-post and internally-screw-threaded key, said key-post having projections to throw the bolt and bolt-dogging devices, substantially as specified.

3. The combination, substantially as specified, of the bolt B, having a shoulder or offset, and the dogging-lever C, pivoted to the case and held under said offset by a spring, and having the pin c' at its opposite end projecting from each side, with the key-post having an arm at the rear to engage the pin, and the hollow key having an internal spring-arm to engage the pin in the dogging-lever and disengage said lever from the bolt.

4. In combination with a lock having a key-post projecting through the case, a hollow key having an internal spring-arm adapted to be forced out by the key-post when the key is inserted for the purpose of releasing the bolt or bolt-dogging devices, substantially as specified.

EDWARD J. COLBY.

Witnesses:
GEO. J. MURRAY,
CASPER MILES.