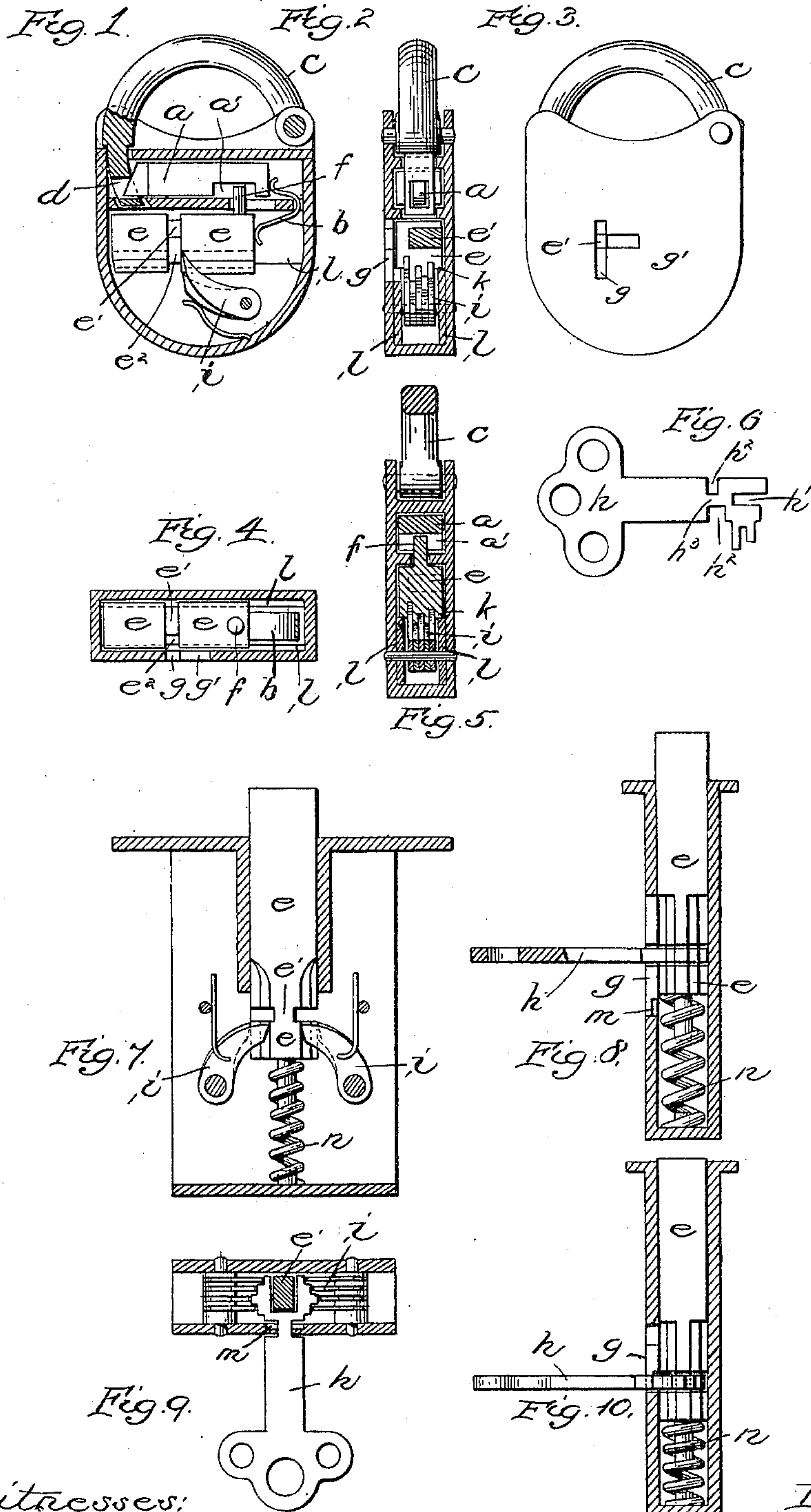


P. FEHLING.

LOCK.

(Application filed Oct. 20, 1900.)

(No Model.)



Witnesses:  
 L. B. Middleton  
 Chas. L. Reed.

Inventor:  
 Paul Fehling.  
 by - Richards & Co.  
 attys



# UNITED STATES PATENT OFFICE.

PAUL FEHLING, OF BERLIN, GERMANY.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 679,119, dated July 23, 1901.

Application filed October 20, 1900. Serial No. 33,771. (No model.)

*To all whom it may concern:*

Be it known that I, PAUL FEHLING, a subject of the Emperor of Germany, residing at Berlin, Germany, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to locks of that class in which sliding locking-bolts are employed; and the object thereof is to provide a simple form of lock which will require for its operation a special form of key, whereby improper operation of the same will be prevented.

To this end the invention includes a construction of lock in which the key slides with the bolt in the operation of the same, and it further includes controllers which coact with tumblers to prevent the operation of the bolt without the use of the proper key.

It further includes the details of construction, as will be hereinafter described, and particularly pointed out in the claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of the lock. Fig. 2 is a cross-sectional view. Fig. 3 is a side elevation. Fig. 4 is a cross-sectional view. Fig. 5 is another cross-sectional view. Fig. 6 is a detail of the key. Fig. 7 is a sectional view of a modification. Fig. 8 is a cross-sectional view, and Figs. 9 and 10 are sectional views of the same form of lock.

In the present lock the key accompanies the rectilinear shifting movement of the bolt. With this arrangement a means for securing the bolt against movement unless the proper key is used is provided, the cross-section of the bolt-controller and the bit of the key corresponding, the bit of the key serving to fill exactly a transverse slot cut out in the controller in such a way that the little pawl-levers (so-called "tumblers") pressed by spring-pressure against the controller can slide over the transverse slot of the same in its movement without interfering in any manner with the actuation of the bolt, (the opening of the lock.) If, on the other hand, a false key is introduced the bit of which would not fill exactly the controller-slot or which would project from same, the tumblers would either fall into the slot like pawls or thrust against the key-bit protruding from the slot, and hence

a secure locking of the bolt would be obtained in either case, thus preventing opening of the lock. The tumblers may be arranged at one or both sides of the controller.

The first form of the invention is illustrated in the drawings by Figs. 1 to 6, a representative form of padlock being shown, while the modified form is illustrated in Figs. 7 to 10, a box-lock being shown therein.

In the padlock, which will be described first, the bolt *a*, Fig. 1, is intended to be actuated automatically by a spring *b*, catching, as a so-called "snap-latch," into the snap-hole *d* of the hasp *c*. To release the latch, an auxiliary slide *e e* or controller, arranged in a separate lock-chamber below the latch, is pushed back in the required direction, in which operation a pin *f* of the controller catching into a notch *a'* of the bolt carries along the bolt. The controller consists of two blocks *e e*, ribbed on their under faces, between which a flat connecting-piece *e'* extends, a space *e<sup>2</sup>* being left between the blades, which is in alinement with the keyhole *g* of the lock-casing and which serves to receive the flat key *h*, Fig. 6. The latter is provided with a recess *h'*, which receives the piece *e'* when the key is inserted. The controller *e e* on its under face is ribbed or stepped, (see Fig. 5,) and the bit of the key *h* corresponds exactly to this shape, so that it will just fill the slot *e<sup>2</sup>* of the slide. When the parts are released after being retracted, both the bolt *a* and the slide *e e* snap back automatically into the initial position, so that the bolt can snap again into the locking position and the key can be removed. The two outside steps *k* of the slide serve as guides on plates *l*. To retract the bolt, the key is inserted, and, as it bridges the space between the blocks *e e* and conforms in configuration to the same, when it is pushed laterally along the slot *g'* to retract the bolt the tumblers *i* will move uninterruptedly along the first block and the bottom of the key and over into the second block. If, however, a key is used which does not conform to the ribbed configuration of the controller, the ends of the tumblers *i* will strike the end of the key if it projects into the path of the same, or if said end does not completely bridge the space between



the blocks said tumblers will strike the end of the second block, in either case arresting the bolt. In this form the tumblers are arranged at both sides of the controller *e e*, which  
 5 in this case forms a continuation of the bolt, and the bit of the key *h*, Fig. 9, which is pushed over the stay or bridge *e'*, corresponds exactly to the controller, which is ribbed on opposite sides. The duplication of the tum-  
 10 blers enhances materially the security of the lock against illicit opening.

Assuming this lock fixed on a drawer or the like, the opening would be effected by first pressing down the controller *e* by means  
 15 of the key *h* from the locking position, Fig. 8, into the opening position, Fig. 10, and then pulling out the drawer (from the wardrobe, &c.) by means of the key. The pull exercised in this operation on the key has been  
 20 utilized in the present box-lock in a very simple manner for holding fast the bolt in the opening position occupied, Fig. 10.

In the front wall of the lock-casing a horizontal recess *m* is provided at the lower ex-  
 25 tremity of the vertical branch *g'* of the key-hole and the bit of the key aligns exactly with this recess when the bolt is fully retracted. This recess allows the key to make a slight displacement in the direction of its pull to the  
 30 lock when the drawer is pulled out, and owing to this displacement the bit will penetrate into the recess as much as its depth. (See Fig. 10.) Thereby the bolt is locked in the open-  
 35 ing position—that is, it is prevented from snapping up under the action of its spring *n* into the locking position, Fig. 8, as long as the opened drawer is used. The drawer can be pushed back into the chest, &c., without  
 40 first actuating the lock, and in that case it is only necessary for the closing of the lock to release the key by a light pressure on the same from the recess *m*, whereupon the bolt snaps into the locking position under the action of  
 45 its spring and the key returns into the (upper) position, Fig. 8, at which it can be pulled out.

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

50 1. In combination in a lock, a sliding bolt, controllers therefor having ribbed surfaces, spring-pressed pawls engaging the same, a space separating said ribbed surfaces, and a key adapted to fill said space having a configu-

ration conforming to said ribbed surfaces, 55 substantially as described.

2. In combination in a lock, a sliding bolt, controller therefor having ribbed surfaces arranged in alinement separated by a space, a piece bridging said space, a casing having an  
 60 opening in alinement with said space when the bolt is in locked position and a branch opening extending in the path of movement of said bolt, a series of tumblers engaging the ribs in said controller and a key having a re-  
 65 cess to receive said bridge-piece and fingers corresponding to said rib portion and bridging said space, substantially as described.

3. In combination, a sliding bolt, ribbed blocks having a sliding connection therewith, 70 a space separating said blocks, a piece bridging said space, means for pressing the bolt and blocks forwardly, tumblers engaging with the ribs in the blocks and a key fitted to receive the bridge and conforming in shape to  
 75 the ribbed surface of the blocks and adapted to bridge the space between the same, substantially as described.

4. In combination, a casing having a key-opening, a bolt guided in an upper chamber 80 in the casing, ribbed blocks arranged in alinement, separated by a short space and guided in a lower chamber in the casing, bridge-pieces connecting the blocks and a series of pivoted pawls, one of which is adapted to engage with  
 85 each groove in the blocks and a key shaped to conform to the ribbed configuration of the blocks and to bridge the space separating the same, substantially as described.

5. In combination a sliding bolt, a casing, 90 coacting controllers and tumblers, a key adapted to slide with the bolt in operating the same, and means for locking the key to hold the bolt in its retracted position.

6. In combination, a sliding bolt, a casing, 95 coacting controllers and tumblers, a key adapted to slide with the bolt in operating the same, and means for locking the key to hold the bolt in its retracted position, said means comprising a recess in the casing adapted to engage  
 100 with the key substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

PAUL FEHLING.

Witnesses:

HENRY HASPER,  
 WOLDEMAR HAUPT.