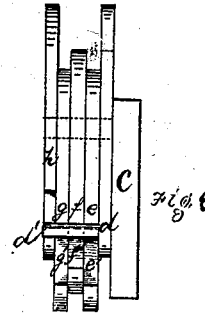
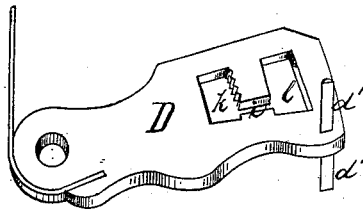
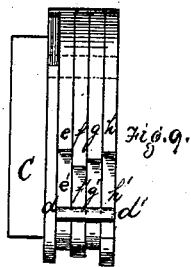
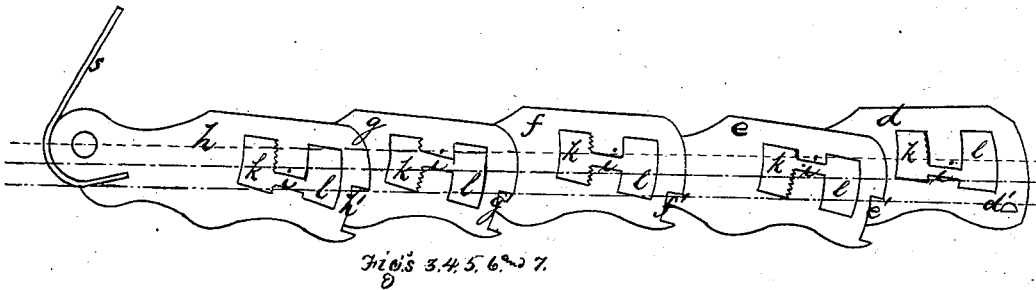
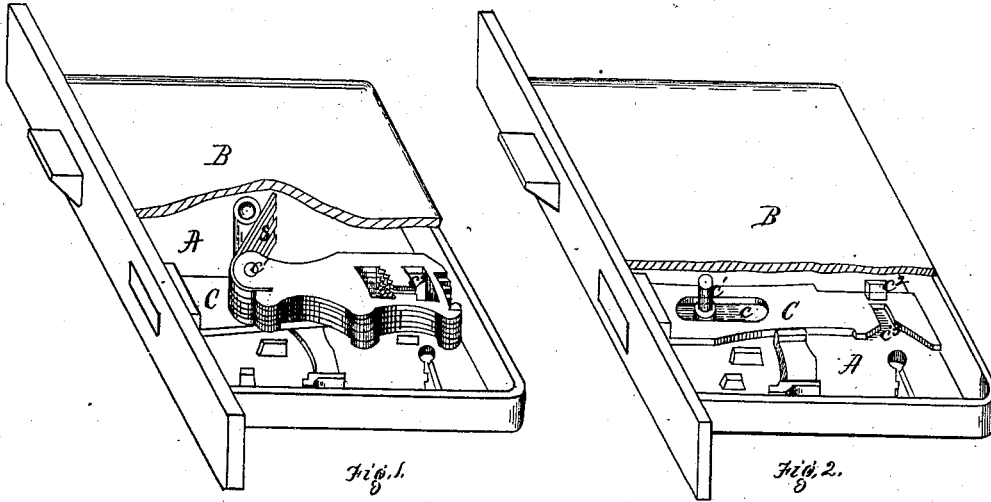


F. C. YANDA.  
 MASTER KEY LOCK.

No. 189,294.

Patented April 3, 1877.



Witnesses:  
*Jno. D. Patten*  
*J. Carpenter*

INVENTOR:  
 Ferdinand C. Yanda  
 by Bakewell & Kerr  
 Attys.

# UNITED STATES PATENT OFFICE.

FERDINAND C. YANDA, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN MASTER-KEY LOCKS.

Specification forming part of Letters Patent No. 189,294, dated April 3, 1877; application filed March 1, 1877.

*To all whom it may concern:*

Be it known that I, FERDINAND C. YANDA, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Hotel Tumbler-Locks; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a perspective view of a lock embodying my invention, the cover-plate of the lock partially broken away to show the bolt and tumblers. Fig. 2 is a similar view, the tumblers having been removed to show the bolt, &c. Figs. 3, 4, 5, 6, and 7 are detached views of the tumblers. Fig. 8 is an end view of the tumblers and bolt when in position to permit the passage of the bolt-pin in shooting or withdrawing the bolt. Fig. 9 is a similar view, showing the relation of the tumblers when the bolt is either drawn or shot.

Like letters refer to like parts wherever they occur.

My invention relates to that class of locks termed "tumbler-locks," and is adapted for use in hotels, or like places where it is desirable to have a series of locks which may be opened by a single pass-key, and where no key other than the pass-key will unlock more than a single lock of the series.

My invention consists, first, in combining, with the bolt, a series of tumblers controlled by a master-tumbler, by means of which the combination-slots of the several tumblers of the series may be so arranged as to permit the traverse of the bolt; and, secondly, in combining, with a series of tumblers which are controllable by a master-tumbler, an independent or guard tumbler, which must be operated independently of the master-tumbler in order to release the bolt.

I will now proceed to describe, so that others skilled in the art to which it appertains may apply the same.

In the drawing, A represents the lock-case, and B the cover-plate thereof. Arranged within the case is the bolt C, slotted as at *c*, for the passage of the tumbler post or pivot *c'*, upon which the tumblers turn, and provided with the bolt-pin *c''*, which enters the

combination-slots of the tumblers. *c''* indicates the notch of bolt C, with which the key engages in shooting or withdrawing the bolt. *d e f g* are a series of tumblers, of which *d* is the master-tumbler. These tumblers are pivoted on the tumbler-post *c'*, and provided with the usual combination-slots formed by the transverse slots *k l* and connecting-slots *i*, and with the spring *s*, which bear against a lug or post in the case.

In the present instance the first tumbler *d* of the series, or that which lies next the bolt, has been selected as the master-tumbler. This tumbler *d* has secured to and projecting from it a pin or lug, *d'*, which engages in slots formed upon the other tumblers of the series, so that when the tumbler *d* is raised by the pass-key the other tumblers move with it. Each of the remaining tumblers of the series has graduated slots *e'*, *f'*, and *g'*, at points corresponding to the position of lug or pin *d'*, and each slot is also so arranged at right angles with and relatively to the cross-slot *i* of the combination-slot of its respective tumbler that when the series of tumblers are raised by the pin of the master-tumbler, the slots *i* in all the tumblers register to permit the passage of bolt-pin *c''*. *h* represents a tumbler that may be termed the "guard-tumbler," which, though provided with the same number of slots as the tumblers *e, f, and g* of the series, is not controlled by the master-tumbler, but by an independent ward on the pass-key. The slot *h'* of tumbler *h*, though arranged in relation to pin *d'*, is not proportioned and arranged with relation to slot *i* of its tumbler; consequently, when the tumbler *h* is lifted by pin *d'*, its cross-slot will not register with the cross-slots in the remaining tumblers of the series. This tumbler, therefore, has to be lifted by a special ward on the pass-key. The guard-tumbler *h* may be omitted or inserted, at pleasure.

It will be observed that the master-tumbler has been made, for purposes of illustration, the first of the series, and the pin *d'* projects from one face of the tumbler, and also that the master-slots *e', f', and g'* in the series of tumblers have been made in the ends of the tumblers distant from the pivot; but it is evident the pin *d'* may be placed at any point

away from the fulcrum or point of pivoting, and the slots *e'*, *f'*, *g'*, and *h'* made at corresponding points in the series of tumblers. When the master-tumbler *d* is an inner tumbler, it will have the pin or pins *d'* projecting from both faces, as shown in Diagram D.

In fitting up a series of locks, changes may be made not only proportionate to the number of tumblers in the series, but by the substitution of other tumblers for one or more of those composing the series. Each lock of the series will be provided with its own key, having wards corresponding to the arrangement of its tumblers, and adapted to operate the series of tumblers in the usual manner, but incapable of being used with any other lock of the set. For the set of locks a pass-key is provided having a ward adapted to operate the master-tumbler *d*, and when a guard-tumbler, *h*, is used, a second ward adapted to operate the guard-tumbler, the said wards being positioned on the key-bit to correspond with the position of the master and guard tumblers of the lock.

Those portions of the key-bit which are not required to operate the master and guard tumblers are cut away sufficiently to prevent the possibility of interference with the other tumblers of the lock.

The bolt is operated by the pass-key as follows: The master-ward of the key engages with the belly of the master-tumbler *d*, raising said tumbler until the pin *d'* comes in contact with the ends of the slots *e' f' g'*, causing the tumblers *e*, *f*, and *g* to be raised without dropping into the wards of the pass-key, and bringing the cross-slots *i* in line; at the same time the guard-tumbler *h* is raised by the guide-ward of the pass-key until its cross-slot *i* is also in line, when the bolt-pin *e<sup>2</sup>* will traverse the slot, permitting the movement of bolt C.

The advantages of my invention are as follows: First, the slots *e'*, *f'*, *g'*, and *h'*, in con-

nection with the pin *d'*, add to the security of the lock, for the reason that if a false key or pick is inserted in the lock, and operates one or more of the tumblers, (other than the master-tumbler,) the lower end of the slot *e'*, *f'*, *g'*, or *h'* will press upon the pin *d'*, causing the tumblers to rise higher than the registering-point of the slots *i*, thus preventing any movement of bolt C; secondly, the master-tumbler and guard-tumbler being placed in proper position, any of the other tumblers of the series may be changed at will without changing the master-key; thirdly, by changing the position in the series of the master-tumbler and guard-tumbler, or either of them, the original pass-key may be rendered useless, and a different pass-key may take its place; fourth, this improvement can be added to any safe-lock, so that any number of locks making a set can have a master-key without altering the lock, except by adding a pin to one of the tumblers and slotting the remaining tumblers, in the manner before specified.

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

1. In a tumbler-lock, the combination of a master-tumbler with the series of tumblers adapted to be operated from or by the master-tumbler, substantially as and for the purpose specified.

2. In a tumbler-lock, the combination of a master-tumbler with a series of tumblers adapted to be operated from or by the master-tumbler, and with a tumbler operated independently of the master-tumbler, substantially as and for the purpose specified.

In testimony whereof I, the said FERDINAND C. YANDA, have hereunto set my hand.

FERDINAND C. YANDA.

Witnesses:

JAMES I. KAY,  
J. K. SMITH.