

No. 701,231.

Patented May 27, 1902.

W. H. TAYLOR.
CHANGEABLE COMBINATION KEY LOCK.

(Application filed Mar. 10, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

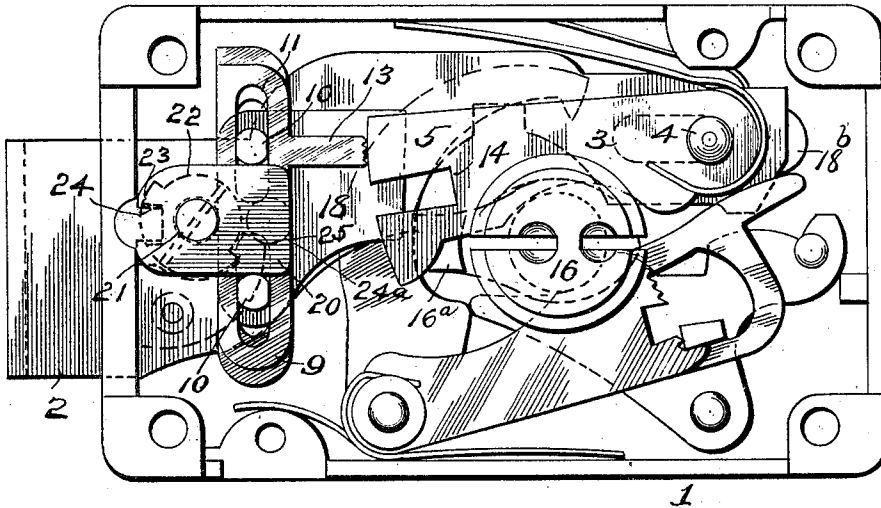
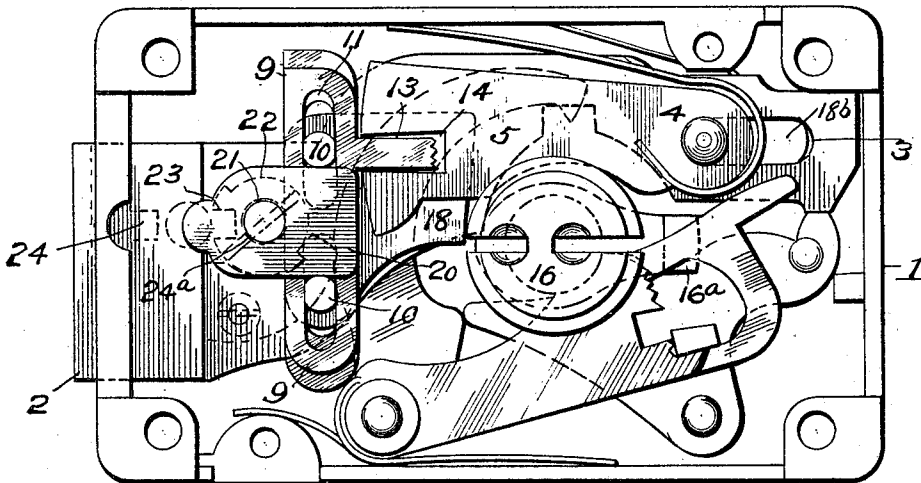


Fig. 2.



WITNESSES
E. Nottingham
G. F. Downing

INVENTOR
W. H. Taylor
By H. A. Seymour
Attorney

No. 701,231.

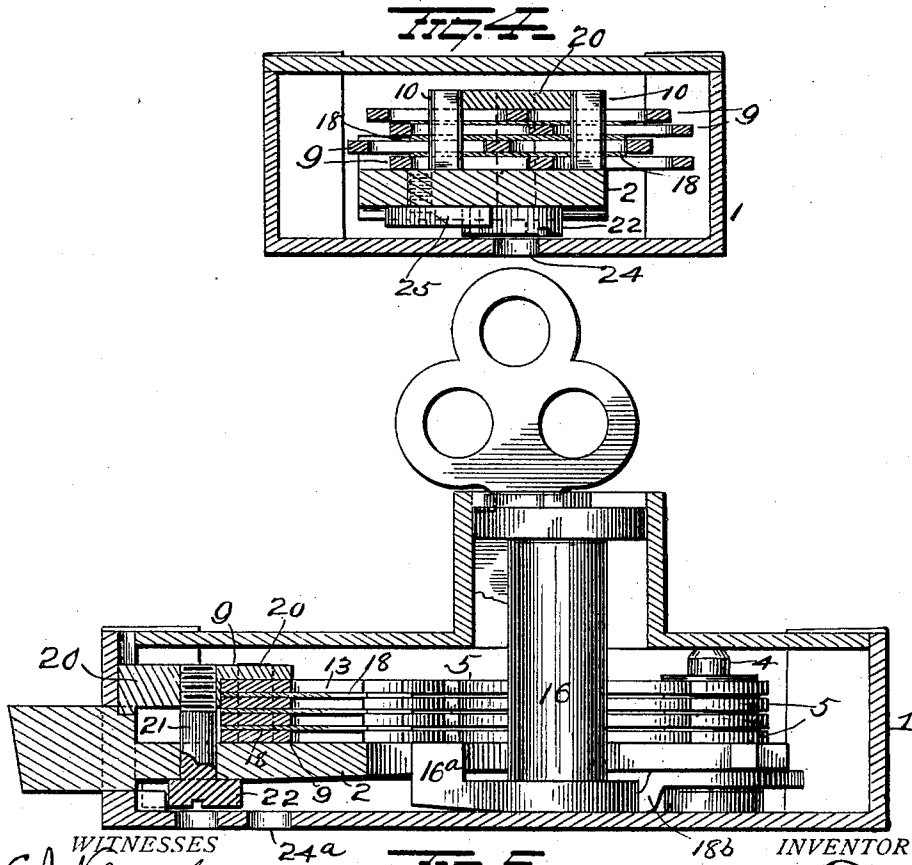
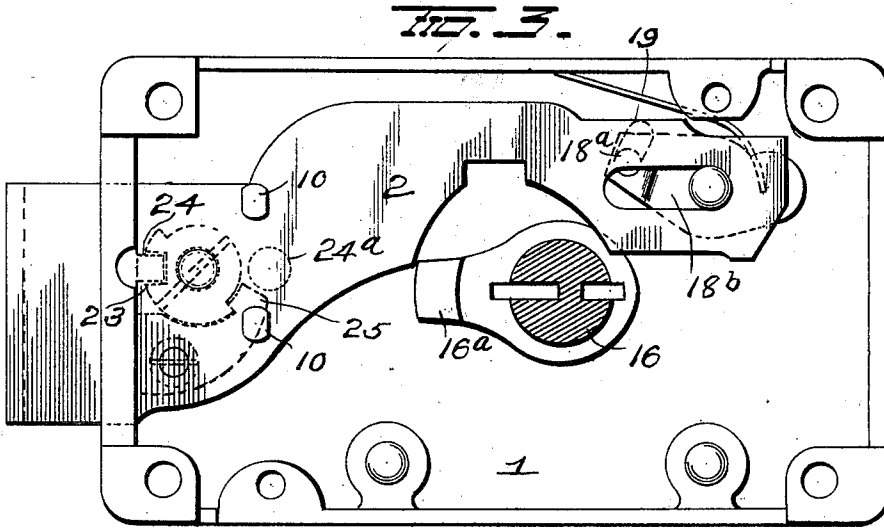
Patented May 27, 1902.

W. H. TAYLOR.
CHANGEABLE COMBINATION KEY LOCK.

(Application filed Mar. 10, 1902.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES
E. A. Muehlemann
G. F. Downing

FIG. 5.

INVENTOR
W. H. Taylor
By *H. A. Seymour*
Attorney

UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE
YALE & TOWNE MANUFACTURING COMPANY, OF STAMFORD, CON-
NECTICUT.

CHANGEABLE COMBINATION KEY-LOCK.

SPECIFICATION forming part of Letters Patent No. 701,231, dated May 27, 1902.

Application filed March 10, 1902. Serial No. 97,589. (No model.)

To all whom it may concern:

Be it known that I, WARREN H. TAYLOR, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Changeable Combination Key-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same.

My invention relates to an improvement in changeable combination key-locks, and is designed more particularly as an improvement on the construction disclosed in United States
15 Patent No. 690,537, granted to me January 7, 1902. In the said patented improvement the fences are retained against movement by a stationary spline and are disengaged from said spline by the movement of the bolt, and
20 their positions are changed relatively to each other by the tumblers with which they engage, so that in shooting the bolt the fences are first moved in a direction transversely of the bolt, each independently by its respective tumbler,
25 and are carried by the bolt into engagement with a fixed spline, by which they are retained while the bolt remains in its locked position. In retracting the bolt the fences are carried
30 out of contact with the spline and engage and drop with the tumblers. The objection to this form of lock and all others when the fences have a movement independent of the movement of the bolt in the ordinary manipulation of the lock is that it is possible by an
35 error in manipulation to separate the fences from the tumblers while throwing the bolt forward in such a way that they will not properly set up to any key, and when this happens the lock is in such condition that it cannot be opened by any key.

The object, therefore, of the present invention is to provide means for preventing the fences from shifting their relative positions during the ordinary manipulations of the lock
45 and also for preventing the lock from operating when the fences are released for a change in their adjustment, as when changing the combination.

With these objects in view my invention

consists in the parts and combinations of parts, 50 as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation of my improved lock with the face-plate of the casing removed and the
55 bolt in its locked position. Fig. 2 is a similar view showing the bolt in its unlocked position. Fig. 3 is a view showing the bolt within the casing and the actuating mechanism for the clamping-plate. Fig. 4 is a transverse
60 sectional view taken through the clamping-plate, and Fig. 5 is a longitudinal sectional view taken through the clamping-plate and fences.

1 represents the lock-casing, and 2 the bolt 65 slidingly mounted therein and provided with an elongated slot 3 for the passage of the fixed stud 4, which latter operates to support and guide the rear end of the bolt, the front end of the latter being supported and guided by
70 the lock-casing.

Pivotaly mounted on the stud 4 is a series of tumblers 5, each of which is designed to be engaged by the key in the usual manner, and each of which is also provided with a gating
75 to receive the finger 13 of its respective fence 9. There is a series of tumblers and a fence for each tumbler. Hence in order to withdraw or retract the bolt the gatings in the several tumblers must be made to aline by
80 the proper key with the fingers of their respective fences, and until the gatings of the tumblers are so brought into alinement with the fingers of the fences the bolt cannot be
85 retracted.

The fences 9 are mounted on the stud 10, carried by the bolt 2, and each fence is provided with two elongated slots 11 for the passage of the studs 10 and with a rearwardly-projecting finger 13, which, as previously
90 stated, is adapted to enter the gating 14 in its tumbler. The fences 9 are loosely mounted on the studs 10, and by providing the fences with elongated slots it will be seen that the
95 latter can be moved or adjusted transversely of the bolt and are so moved or adjusted each time the combination is changed. Also mounted on the studs 10 between the several fences

are the spacing and friction plates 18, which latter overlap the front ends of the tumblers and hold the latter in alinement each with its respective fence and also operate, as will be hereinafter described, to clamp the several fences against the possibility of accidental movement. The fences thus applied to the bolt are locked in position thereon by the clamping-plate 20, which latter overlaps and rests on the outer fence between the two studs and operates to normally prevent any independent movement of the fences. This clamping-plate is screw-threaded for the passage of the screw 21, which latter passes through a hole in the bolt 2 and is provided on its end farthest removed from the clamping-plate with a head 22, having the ordinary screw-slot therein for engaging a screw-driver introduced through a slot in the casing, and also provided on one edge with a slot or recess 23, which when the plate 20 is clamped to the fences rests in line with the stud 24, fast to the lock-casing, and permits the bolt 2 to be moved to a locked position, the disk or head 22 of the screw 21 being of such size that when the slot 23 is out of alinement with the stud 24 it strikes said stud, thus preventing the bolt from being thrown to a locked position and preventing the possibility of a lock-out. The head of the screw when the lock is unlocked is immediately under the opening 24 in the lock-casing 1, so as to permit it to be engaged by a screw-driver inserted from the outside. When the parts are properly adjusted, the fences are clamped by plate 20 and held thereby and by the friction of plates 18 against any independent movement.

To change the combination, the bolt is retracted and the key-hub 16 turned to its position for the insertion of a new key. The screw 21 should then be turned in a direction to loosen up the clamping-plate, the movement of the screw being limited by a stud 25. This loosening up of the clamping-plate leaves the fences free to be moved longitudinally by the spring-actuated tumblers. The new key for which the combination is to be set should then be inserted and turned in the direction for locking. This rotation of the key actuates the several tumblers and the fences in engagement therewith and operates to set the several fences in their proper positions for the particular key used; but the clamping-plate still being loose the disk or head 22 on the screw 21 will be in such a position that the key cannot be turned far enough to throw out the bolt or disconnect the movable fences from the tumblers. In order, therefore, that this may be accomplished, the screw 21 must be turned in the direction to tighten up the clamping-plate, and it must also be turned far enough so that the slot 23 in the head thereof will align with the stud on the casing, and when so turned the plate 20 will have clamped the fences against movement, and thus locked or set the parts to the new key. In other words, in this lock the

fences are adjusted and then clamped and held clamped until it is again desired to change the combination, at which time they are released, readjusted to the new key, and again clamped. The lock is operated by a key resting in a slot in the key-hub 16, the latter being provided with a cam 16^a, which as the hub is rotated by the key engages a shoulder on the bolt 2 and moves the latter out and in.

In order to prevent the accidental withdrawal of the key while the lock is unlocked, I have provided the pivoted cam-stop 18^b, which is located in the path of the cam 16^a and stops same after the bolt has been fully retracted, but before the key has reached a position where it can be withdrawn.

When it is desired to change the combination, it must be done while the bolt is retracted, and in order to change the combination the key which unlocked the lock must be removed, and this is accomplished by providing the cam-stop with a pin 18^a, which latter passes through a slot 19 in the lock-casing. By simply engaging the pin 18^a with the finger and pushing it up in the slot the cam will be removed from the path of the cam 16^a and the key-hub be permitted to turn in a position where the key can be released.

While my improvements are applicable to any form of lock, I have shown them in connection with a lock having a guard-key mechanism which is actuated by a master-key retained by some one other than the holder of the special key. This guard-key mechanism locks the main locking mechanism against action until unlocked by the master-key, after which the special key should be inserted and turned. This mechanism is not essential to the present improvement and is shown and described in the patent previously referred to.

It is evident that many slight changes might be resorted to in the relative arrangement of parts herein shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described; but,

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

1. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby and a tumbler coacting with the fence, of a clamping-plate for the fence, a screw carrying said clamping-plate, and means carried by the bolt and engaging a stop on the casing for preventing the bolt from being thrown to its locked position when the pressure of the clamping-plate is removed from the fence.

2. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby, a tumbler coacting with the fence

and a stop carried by the casing, of a clamping-plate for the fence, and a screw carried by the bolt and connected to said clamping-plate and provided with a slotted head, the slot in said head resting in line with the stop on the casing when the fence is locked by the clamping-plate.

3. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby, a tumbler coacting with the fence and a stop carried by the casing, of a clamping-plate for the fence, and a screw carried by the bolt and connected to said clamping-plate, the head of said screw being constructed to engage said stop and prevent the bolt from being thrown to a locked position except when the fence is clamped by the clamping-plate.

4. In a changeable combination key-lock, the combination with a bolt, a plurality of adjustable fences carried by said bolt, a tumbler coacting with each fence and spacing and friction plates between the several fences and overlapping the ends of the tumblers, of a clamping-plate engaging the outer fence, a

screw carried by the bolt and engaging the clamping-plate, a casing inclosing said parts and provided with an opening through which the head of the screw may be reached, and means carried by the bolt for preventing the latter from being thrown to its locked position when the pressure on the clamping-plate is removed from the fence.

5. In a changeable combination key-lock, the combination with a bolt, a fence carried thereby and a tumbler coacting with the fence, of a clamp for holding the fence against accidental movement, a device for adjusting said clamp, and means actuated by the clamp-adjusting device for preventing the bolt from being thrown to its locked position when the pressure of the clamp is removed from the fence.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WARREN H. TAYLOR.

Witnesses:

SCHUYLER MERRITT,
ISAAC N. MERRITT.