F. SOLEY.

LOCK.

APPLICATION FILED JULY 29, 1912.

1,141,019. Patented May 25, 1915.

Fig. 1.

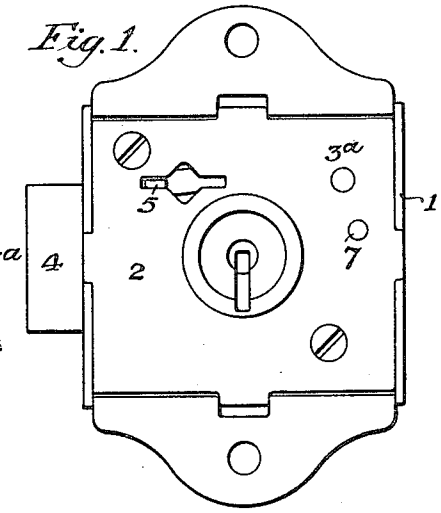


Fig. 5.

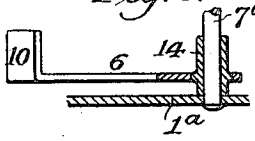


Fig. 6.

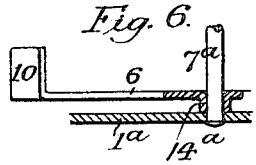


Fig. 2.

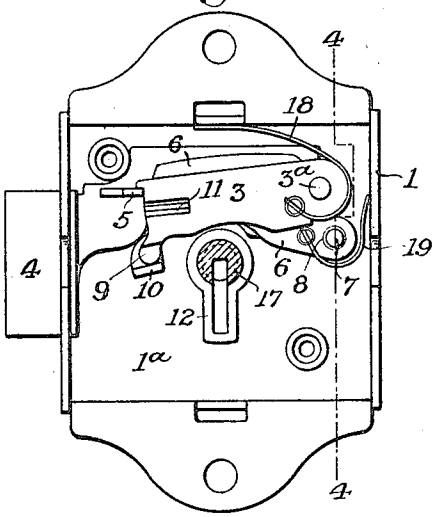


Fig. 3.

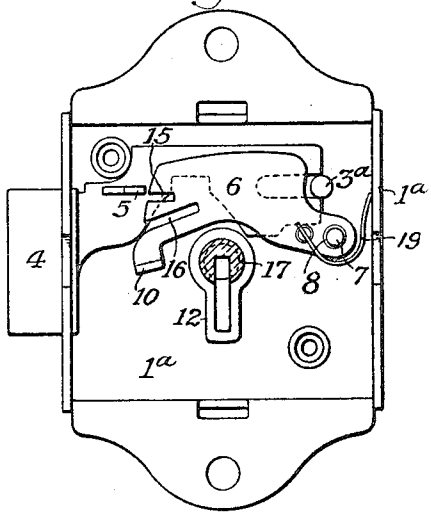
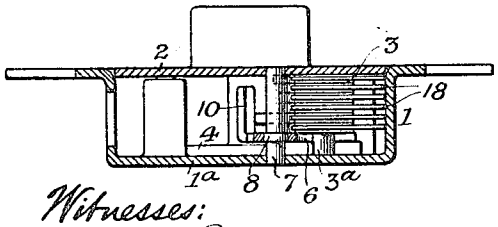
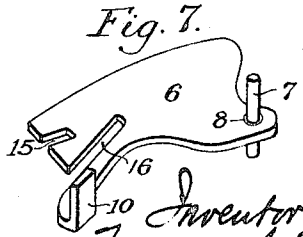


Fig. 4.



Witnesses:
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Fig. 7.



Inventor:
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by his Attorneys
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UNITED STATES PATENT OFFICE.

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LOCK.

1,141,019. Specification of Letters Patent. Patented May 25, 1915.

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To all whom it may concern:

Be it known that I, FRANK SOLEY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Locks, of which the following is a specification.

My invention relates to locks, and consists of an improvement in that form of locks which are provided with a master tumbler designed to lift all or a plurality of the change tumblers.

One feature of the improvement forming the subject of my invention consists in pivotally mounting the master tumbler in the lock case on an axis independent of the axis of the change tumblers so that when such master tumbler is moved, there will be no tendency of the same to move out of its normal plane of movement at right angles to its pivotal connection. The master tumbler may carry a staff journaled in the walls of the lock case or it may be pivotally mounted on a fixed staff.

A further feature of my invention is the utilization of the master tumbler as one of the change tumblers.

These and other features of my invention will be more fully described hereinafter, reference being had to the accompanying drawings, in which:

Figure 1, is a view in elevation of a lock embodying my invention; Fig. 2, is a similar view, with the top plate removed; Fig. 3, is a view showing the bolt and master tumbler; the change tumblers being removed; Fig. 4, is a sectional elevation on the line 4—4, Fig. 2; Figs. 5 and 6, are views illustrating modified details within the scope of my invention, and Fig. 7, is a perspective view of the master tumbler.

The common practice heretofore has been to provide a master tumbler pivoted on the same axis as the other tumblers; in some instances having a pin which carries said other tumblers, and in other instances having a sleeve carrying the other tumblers, which sleeve in turn is journaled on a fixed pin.

My improved construction may be described as follows:

In the drawings, 1 represents the lock case having the usual cover plate 2 concealing the tumblers 3 and holding the latter in place on their bearing post 3^a. A sliding bolt is indicated at 4, operating in a usual manner; such bolt being provided at a point at the rear of its head with a fence 5 of the usual type for coaction with the tumblers for locking and releasing the bolt.

The master tumbler or lifter which I employ with my improved lock is indicated at 6, and is pivotally mounted within the lock casing. As shown in Figs. 2, 3, 4 and 7, it may be connected to a staff 7 provided with an integral collar 8 for the permanent attachment to it by any suitable means of said master tumbler, which latter, for such purpose, may be formed with a circular opening just large enough to receive the said collar, and said collar is by preference swaged in place. When the staff 7 is employed to carry the master tumbler, it is journaled in both the wall 1^a of the casing and the cover plate 2, as clearly indicated in Fig. 4, and may be placed at a point beyond the bearing post 3^a upon which the change tumblers are journaled, as clearly indicated in the drawings. This master tumbler carries an arm or sweep 10 of a sufficient height to engage all or as many of the change tumblers as may be desired, depending upon the character of the master key or of the change-keys, and the said change tumblers are provided with slots 11 which may be brought into alinement with the fence 5 carried by the bolt by the sweep 10 of the master tumbler, and when in such alinement further movement of the key will cause a ward of the same or the usual key-bearing roll-back 12, which may be employed in my lock, to engage one wall of the recess 13 in the bolt and shift the latter to the unlocked position.

In manufacturing the change tumblers, the blanks are initially provided with projections 9 which may be subsequently cut away or reduced to any desired extent with reference to the position of the slots 11 in preparing said change tumblers for assembly in a lock; such projections, in their various lengths, lying in the path of the sweep or arm 10 of the master tumbler and being successively engaged by the same when the master tumbler is operated to bring the slots 11 into alinement with the fence 5. In all instances the master tumbler is pivotally mounted in the lock casing but does not necessarily carry its pivot pin. Other arrangements may be provided with-

in the scope of my invention. In Fig. 5, I have shown an arrangement in which the master tumbler is provided with a sleeve 14 whereby it may be journaled on a staff 7^a riveted or otherwise fixed to the wall of the lock casing or the cover plate of the same. In this instance the sleeve is a separate element properly secured in a suitable manner to the master tumbler. In Fig. 6, the tumbler is provided with an extended bearing which may be formed by drawing a portion of the metal to form a hub 14^a; which hub may be journaled on a fixed staff 7^a carried by the lock casing or cover plate. Other equivalent means I deem to be within the scope of my invention.

The master or lifter tumbler is preferably placed between the bank of change-key tumblers and the bolt, although it is obvious that it might be placed at some other point or above the same, care being taken to insure the presence of the proper means in the form of a sweep of the necessary size to effect the shifting of all or as many of the change-key tumblers as is necessary to insure the positioning of the slots of the same in line with the fence 5.

In locks of this character the change-keys do not normally engage the master of lifter tumbler, which is of such a shape as to be independent of the fence when the change-key tumblers are moved to bring their slots in registry with said fence, but I am enabled to increase the number of key changes in a lock of this type without multiplying the tumblers, by employing said master tumbler as a change tumbler. For this purpose the master tumbler is provided with a slot 15 for alinement with the fence 5 when moved by a ward of the key, and with a slot 16 for alinement with said fence when moved by a master key for the purpose of moving a plurality or all of the change tumblers.

By mounting the master or lifter tumbler upon an independent pivot or axis, there is no danger of the same shifting or affecting the operation of the change-key tumblers, and if desired it can be removed without affecting the operation of the lock by an ordinary change-key, by slipping a spacing element to equal its thickness between the change tumblers and the rear portion of the bolt when it has been removed.

The keys are guided by the usual slotted key-post 17 suitably mounted in the case and journaled in the wall and cover plate of the same, which post may or may not have the usual roll-back 12, and the several change tumblers are provided with the usual springs 18 tending to hold said tumblers in such position as to prevent retraction of the bolt. When the master tumbler is employed as a change tumbler, it will be provided with a suitable spring such as indicated at 19.

While my invention has been applied and is shown in connection with a rim lock, it will be understood that its use is not limited to locks of this character, as it may be employed in connection with any form of lifter tumbler having the described function.

I claim:

1. In a master-key tumbler lock, the combination with a case body and case cover thereof, of a post fixedly secured therein, change tumblers pivotally mounted on said post, a master-tumbler independently pivoted in said casing at a point fixed with relation to the pivotal support of the change tumblers, and a sweep or lifter carried by said master-tumbler for engagement with said change tumblers.

2. In a master-key tumbler lock, the combination with the casing, of a post fixedly secured therein, a plurality of change tumblers carried by said post, said tumblers being notched at one end and provided with engaging surfaces parallel to the walls of said notches, said engaging surfaces and notches bearing a fixed relation, and an independently mounted master-tumbler having a projecting portion for contact with the engaging surfaces of said change tumblers.

3. The combination, in a master-key tumbler lock, of a casing, a bolt having a fence, a series of pivotally mounted change tumblers, a master-tumbler mounted independently of the mounting for the change key tumblers, said master-tumbler having a sweep, each of said change tumblers having at one end a notch to receive the fence, and engaging surfaces in fixed relation to said notch with which the sweep of the master-tumbler contacts so that when the latter is actuated it will bring the notches in the tumblers in alinement for the reception of the fence.

4. In a master-key tumbler lock, the combination of a casing, a plurality of change tumblers pivotally mounted therein, each tumbler having at the same end a projection and a notch, said projections being of different lengths and each having an engaging surface parallel to the walls of the notch, the notches of the respective tumblers being spaced the same distance from the engaging surfaces of the projections of the respective tumblers, and a master-tumbler having a projection for operative contact with said engaging surfaces.

5. In a master-key tumbler lock, the combination with a casing, a cover therefor, a staff or post journaled at its respective ends in said casing and cover, a master-tumbler carried by said staff, a plurality of change tumblers pivotally mounted in the lock casing on an axis independent of that of said staff, said change tumblers being notched at their ends opposite their pivotal connection, a sweep or lifting element carried by the

master-tumbler for coaction with a plurality of the change tumblers, and a bolt, said master-tumbler being disposed between said change tumblers and the bolt and the latter having a fence with which the notches of the change tumblers are brought into alinement.

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

FRANK SOLEY.

Witnesses:
MURRAY C. BOYER,
WM. A. BARR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."