

1,060,769.

Patented May 6, 1913.

FIG. 1.

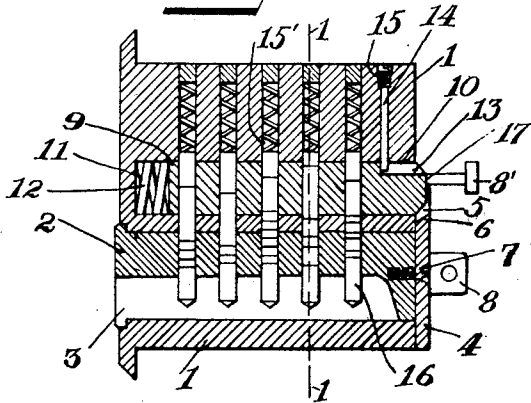


FIG. 2.

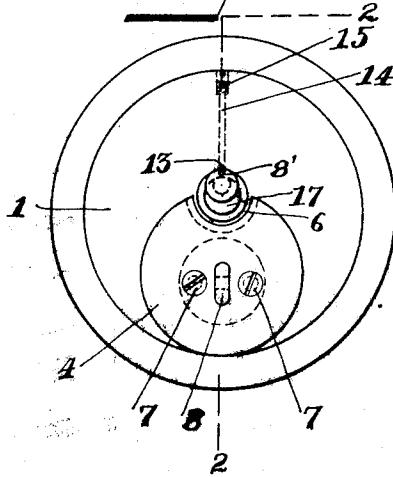


FIG. 3.

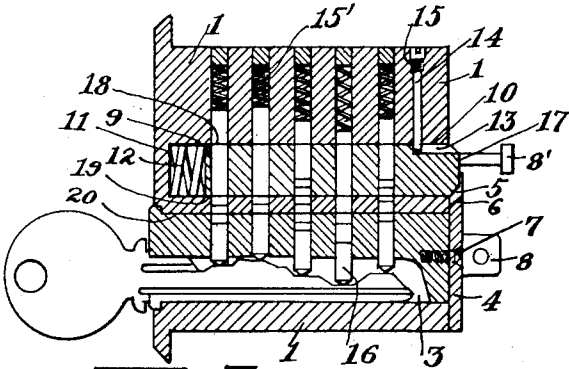


FIG. 4.

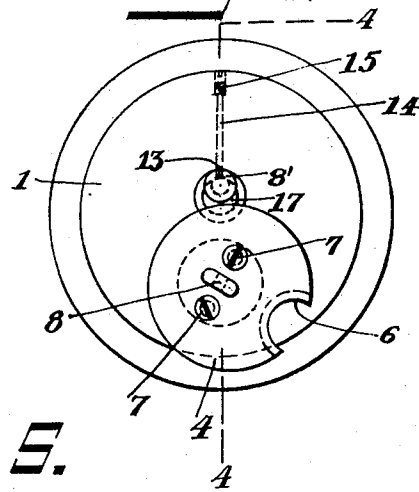


FIG. 6.

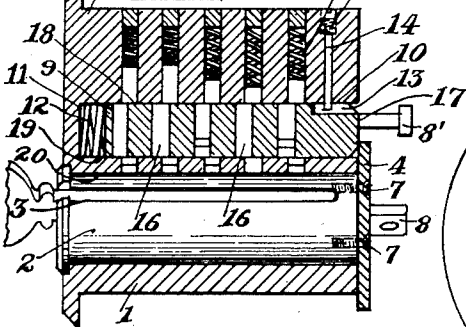
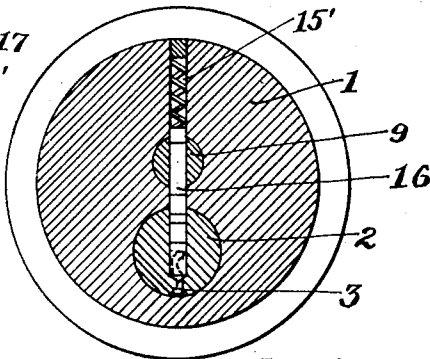


FIG. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

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PIN-TUMBLER MECHANISM.

1,060,769.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES F. KOHLBERGER, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Pin-Tumbler Mechanism, of which the following is a specification.

My present invention relates to a pin tumbler lock mechanism. One of the advantages of my device is that owing to its peculiar construction I increase the number of breaking or registering points of the said pin tumblers, thereby making an increase of the range of permutations or possible tumbler combinations.

Another advantage is the introduction of an extra barrel which may be called the pin tumbler barrel, which is so arranged as to be out of sight, normally, and which increases the security of the lock against tampering.

A further advantage is that the structure of my invention permits of a mutual interlocking of all of the coacting parts, the releasing of the proper members in the device causing the release of the self contained secondary securing means which permit the proper operation of the device.

A further advantage is that the plural securing members are intersected and held by the same tumblers, the operation of the same effecting a release of all of the locked members, and while the primary member might be released by an improper key, the secondary member would prevent the complete cycle of movement, thereby preventing the operation of any mechanism controlled thereby.

Figure 1 is a sectional view taken on line 2-2, Fig. 2. Fig. 2 is a rear elevation of Fig. 1. Fig. 3, is a sectional view similar to that of Fig. 1, showing a key inserted in the key barrel. Fig. 4 is a rear elevation of my device showing the position of the operating parts upon insertion of the proper key. Fig. 5 is a section taken on the line 1-1, Fig. 2. Fig. 6 is a sectional view taken on line 4-4, Fig. 4.

In Fig. 1 my device is shown as having an outer cylindrical portion 1 having rotatably mounted therein a key barrel 2, said key barrel having therein a key slot 3. Attached to the rear end of the key barrel 2 by suitable means is a stop disk 4 which has an opening 5 at its upper end, said opening

being tapered as at 6, Fig. 1, thereby forming a substantially crescent shaped cam face. This disk 4 may be attached to the primary or key barrel 2 by any convenient method, such as screws 7, 7, and has extending from its surface a lug 8 by means of which upon the insertion of the proper key and the rotation of said key barrel, the lug 8 is caused to transmit motion to any suitable lock mechanism, not shown.

Immediately above the key barrel 2 and in close proximity thereto is a secondary or pin tumbler barrel 9, which is slidably supported in a bore 10. In the rear end of this bore 10 is shown a chamber 11 and in the said chamber is located a spring 12. At the front end of the pin tumbler barrel 9 is a pin slot 13 and into which pin slot extends a pin or dowel 14 which has on its upper end a threaded portion 15. This pin or dowel member 14 is for the purpose of maintaining the pin tumbler barrel 9 in its normal inoperative position, and when the said member 9 is pushed forward it positively maintains the said member 9 against rotation when operating in the bore 10. It will be noted that the cylindrical portion 1, Fig. 5, shows that the pin tumbler bores 15' traverse the two barrels.

While the key barrel 2 is intended, as in the well known type of pin tumbler mechanisms, to receive a key and upon the proper setting of the tumblers to be rotated by means of said key, it will be noted that the pin tumbler barrel 9 has an entirely different movement and is intended to be forced backward upon its spring member 11 when the proper key has set all of the spring actuated pin tumblers 16, so that the various breaking points of the said pin tumblers coincide with the circumference of both barrels. When a key is inserted in the key barrel 2, properly setting the pins, the key barrel is then rotatable. Upon the said rotation of the key barrel the cam disk 4 attached at the rear end thereof, rotates therewith and the crescent shaped beveled face 6 of the said disk engages the over-hanging chamfered end portion 17 of the pin tumbler barrel 9, and if the key is a proper one, thereby causing all of the pin tumblers to register at the points 18, 19, and 20, the said barrel 9 is forced back upon its spring 11, Fig. 6, thereby permitting the full rotation of the key barrel and its attached cam disk 4, as shown in Fig. 4, which movement

may be transmitted to any suitable bolt operating mechanism. The backward movement of barrel 9 also shuts off the lower portions of the tumblers between the key barrel 2 and barrel 9, and at the same time barrel 9 is held in its retracted position as long as the cam disk 4 is out of normal position. If, however, the key is an improper one, the said key might possibly set the pin tumblers properly for point 20 of the key barrel, thus permitting the partial rotation of barrel 2, but the pin tumblers would be improperly set for points 18 and 19 of the pin tumbler barrel 9. This would permit of rotating the key barrel enough to allow the crescent shaped cam portion 6 to engage the end 17 of the barrel 9, and owing to the fact that the pin tumblers do not register at points 18 and 19 of the said barrel 9, the overhanging portion of the same would obstruct any further rotation of the disk 4, thereby preventing the key barrel from being rotated further. It will be further noted that if desired, movement may be transmitted to any suitable lock mechanism by either the previously mentioned lug 8 which is affixed to the primary or key barrel 2, or by means of connection 8', Fig. 3, which is shown connected to the actuated secondary barrel 9.

Having thus described my invention, I claim:—

1. In a pin tumbler mechanism of the class described, a pair of pin tumbler secured barrels, said barrels comprised of a primary and a secondary barrel, said barrels not normally in engagement with one another, actuating means carried by said primary barrel and operative to engage and retract said secondary barrel upon the setting of the pin tumblers, and to hold the said secondary barrel in said retracted position until the return of the said primary barrel to its normal inoperative position, and means in operative connection with said secondary barrel for returning it to its normal inoperative position.

2. In a pin tumbler lock of the class described, a casing, a pair of separately mounted movable barrels in said casing, one of said barrels having a rotary motion, the other of said barrels having a longitudinal motion, means on the first said barrel for causing the second said barrel to move longitudinally in one direction, means between said casing and said second barrel for causing opposite longitudinal movement of the second said barrel, and means between said barrels to mutually obstruct one another.

3. In a pin tumbler lock of the class described, a casing, a pair of separately mounted movable barrels in said casing, one of said barrels having a rotary motion, the other of said barrels having a longitudinal motion, means on the first said barrel for

causing the second said barrel to move longitudinally in one direction, means between said casing and said second barrel for causing opposite longitudinal movement of the second said barrel, means between both said barrels to mutually obstruct one another, and means on said second barrel for maintaining the same in operative position.

4. In a pin tumbler lock, a casing having a chambered portion, a key-operated pin barrel rotatable in the casing, a set of pin tumblers in the casing arranged to cooperate with the said barrel, a slide mounted to reciprocate in the casing substantially parallel with the axis of the said barrel, the slide having a set of bores cooperating with said pin tumblers to obstruct the slide and to permit its endwise movement upon proper setting of the tumblers by a key in the barrel, means connecting the barrel with the slide for advancing the slide when released by the tumblers, and means independent of said barrel for returning the slide to normal position when the slide is released from the barrel.

5. In a pin tumbler lock, a casing having a chambered portion, a key-operated pin barrel rotatable in the casing, a set of pin tumblers in the casing arranged to cooperate with the said barrel, a slide mounted to reciprocate in the casing substantially parallel with the axis of the said barrel, the slide having a set of bores cooperating with said pin tumblers to obstruct the slide and to permit its endwise movement upon proper setting of the tumblers by a key in the barrel, means connecting the barrel with the slide for advancing the slide when released by the tumblers, and a spring arranged to return the slide to normal position when the slide is released by the barrel.

6. In a pin tumbler lock, the combination of a casing having a chamber, a key actuated barrel rotatable in the casing, pin tumblers cooperating with the barrel, a slide in the casing provided with bores cooperating with the pin tumblers, the barrel member having a portion fixed thereon arranged to engage directly with the slide to advance the slide when permitted to move by the setting of the tumblers.

7. In a pin tumbler lock, the combination of a casing having a chamber, a key actuated barrel rotatable in the casing, pin tumblers cooperating with the barrel, a slide in the casing provided with bores cooperating with the pin tumblers, the barrel member having a portion fixed thereon arranged to engage directly with the slide to advance the slide when permitted to move by the setting of the tumblers, and means independent of the barrel for returning the slide to normal position when released from the barrel.

8. In a pin tumbler lock, the combination

of a casing, a key-operated barrel rotatable in the casing, pin tumblers in the casing cooperating with the barrel, a slide mounted to reciprocate in the casing and provided with bores cooperating with the pin tumblers, a cam fixed on the barrel and engaging directly with the slide to advance the slide as the barrel swings.

9. In a pin tumbler lock, the combination of a casing, a key-operated barrel rotatable in the casing, pin tumblers in the casing cooperating with the barrel, a slide mounted to reciprocate in the casing and provided with bores cooperating with the pin tumblers, a cam fixed on the barrel and engaging directly with the slide to advance the slide as the barrel swings, and a spring arranged to return the slide to normal position.

10. In a pin tumbler lock, a casing having a cylindrical bore, a key-operated barrel rotatable in said bore, the casing having a second bore offset from said bore, a slide mounted to reciprocate in the second bore, said two members and the casing provided with registering bores, pin tumblers slidable in said bores, means on the barrel for directly engaging the slide to advance it, and means independent of the barrel for returning the slide to normal position.

11. In a pin tumbler lock, a casing having a cylindrical bore, a key-operated barrel rotatable in said bore, the casing having a second bore offset from said bore, a slide

mounted to reciprocate in the second bore, said two members and the casing provided with registering bores, pin tumblers slidable in said bores, means on the barrel for directly engaging the slide to advance it, and a spring for returning the slide to normal position.

12. In a pin tumbler lock, the combination of a casing having a cylindrical bore, a key-operated barrel rotatable in the bore, the casing having a second bore offset from said bore, a slide movable in the second bore, the casing and the said two members being provided with registering bores, pin tumblers operating in said bores, a cam fast on the barrel and directly engaging the slide to advance it in one direction, and a spring for returning the slide to normal position when released by the barrel.

13. In a pin-tumbler lock, a stationary member having a cylindrical bore, a key-operated pin barrel mounted in said bore, the said member having a second bore offset and aside from said bore, a pin barrel mounted in the second bore, said barrels being entered and arranged to be locked by the same pin-tumblers, one of said barrels being operated by the key, and the other said barrel being operated by said key-operated barrel.

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Witnesses:

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