H. G. VOIGHT.

LOCK.

APPLICATION FILED JAN. 7, 1916.

1,216,752. Patented Feb. 20, 1917.

Fig. 1.

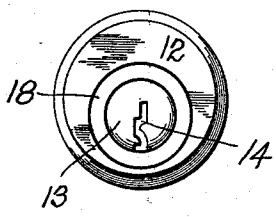


Fig. 2.

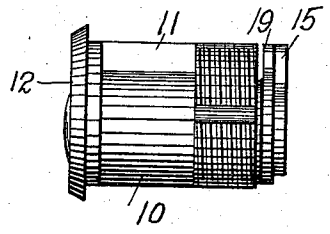


Fig. 3.

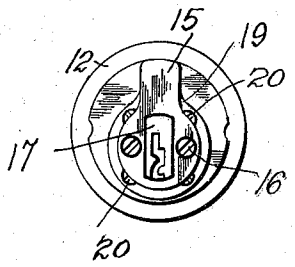


Fig. 4.

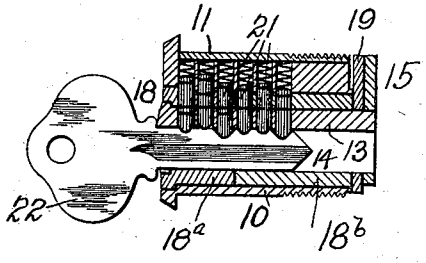


Fig. 5.

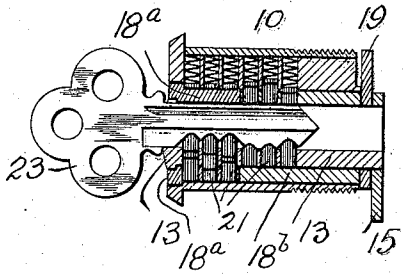


Fig. 6.

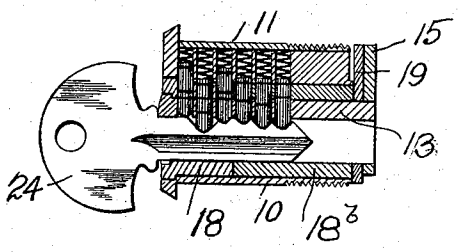
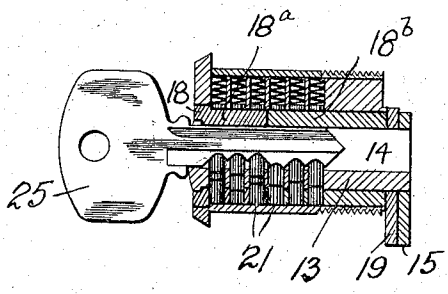


Fig. 7.



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UNITED STATES PATENT OFFICE.

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LOCK.

1,216,752. Specification of Letters Patent. Patented Feb. 20, 1917.

Application filed January 7, 1916. Serial No. 70,789.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing in New Britain, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a full, clear, and exact description.

This invention relates to locks, and more particularly to master keyed pin tumbler cylinder locks.

In some buildings such as hotels, for example, each cylinder lock is adapted to be actuated by a number of different keys. A hotel lock is usually adapted for actuation by a master (maid's) key, a grand master key, a display key, and an emergency key, in addition to the ordinary change or guest key. Considerable difficulty is encountered in making the changes for all of these various keys in the locks of a large building. In many pin tumbler locks, the differences between some of the key changes (determined by the depth or thickness of the pin tumbler sections) are so slight that a key will operate a lock which it is not intended to operate, and therefore the security of the lock system as a whole is very materially decreased.

The primary object of my present invention is the provision of a pin tumbler cylinder lock in which the changes for the various keys can be readily made and readily differentiated from each other, and in which the total number of possible changes which can be made without encroaching on the security of the lock system is very large.

Another object of the invention is to provide an improved pin tumbler lock of the multiple rollback type. More particularly it is aimed to provide a lock in which each key actuates its proper rollback or rollbacks, while at the same time the pin tumblers are lined up or racked in a substantially different manner from that in which they are racked by other keys. In other words, my object is to coördinate the key changes with the multiple rollback operation in an improved manner.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing,

Figure 1 is a front elevation of a lock embodying my invention;

Figs. 2 and 3 are a side view and a rear view respectively;

Fig. 4 is a longitudinal section with the change key inserted in the lock;

Fig. 5 is a longitudinal section, showing the master key inserted and turned through one hundred and eighty degrees;

Fig. 6 is a view similar to Fig. 4, showing the display key; and

Fig. 7 is a view similar to Fig. 5, showing the operation of the emergency key.

In the form shown, my improved lock has the usual casing 10, pin tumbler extension 11, and face plate or escutcheon 12. Rotatable in the face plate and casing is the usual key plug or barrel 13 eccentrically located with respect to the face plate and provided with the customary key-way or key slot 14. The key plug 13 extends beyond the rear end of the casing, as shown in Fig. 4, and carries at that point a dog cam or rollback 15. Preferably, the rollback 15 is secured to the key plug by screws 16, and non-rotatively embraces a rectangular extension 17 at the extreme rear end of the key plug, but this is not a feature of great importance. Surrounding the key plug 13 is a sleeve 18 which is rotatable concentrically with respect to the key plug. This sleeve is divided intermediate of its ends by a transverse division line into a forward sleeve section 18^a and a rear sleeve section 18^b. At the rear of the cylinder lock, the sleeve section 18^b carries a dog or rollback 19 similar to the rollback 15, said rollback 19 secured to the rear face of section 18^b by screws 20. As the sleeve sections and key plug are concentric to each other, the rollbacks 15, 19 are obviously arranged for concentric rotation.

Connecting the key plug, sleeve sections and casing are pin tumblers 21 of the usual pattern divided into sections in the customary manner. In the particular form shown, there are six pin tumblers in all, and three of these engage sockets in the key plug, sleeve section 18^a and pin tumbler extension 11, while the other three engage sockets in the key plug, sleeve section 18^b and pin tumbler extension 11. The keys are cut so that

one key will rack the pin tumblers so as to rotate the key plug individually, while another key is cut to rotate the key plug and one of the sleeve sections, while another key rotates the key plug and the other sleeve section. In the particular example illustrated, the change key 22, shown in Fig. 4, is bitted to rack the pin tumblers along the line of the key plug so that when the key is inserted, the key plug may be rotated individually thereby rotating the rollback 15, while the sleeve sections and rollback 19 remain stationary. The master key 23 (shown in Fig. 5) should rotate the rollback 15 in substantially the same manner as the change key, but, in this case, the key racks the three forward tumblers along the line of sleeve section 18^a rather than the line of the key plug so that at the front of the lock the key plug and sleeve section 18^a rotate together, while at the rear of the lock the key plug rotates in the sleeve section 18^b in the manner previously described. The grand master key is not shown in the drawing, but it may have, for example, the same general operation as the master (maid's) key, as shown in Fig. 5.

In the particular form shown, the display key 24 (shown in Fig. 6) rotates the rear section 18^b of the sleeve with the key plug so as to rotate rollbacks 15, 19, together as a unit, but the forward sleeve section 18^a remains stationary. Here the three front pins are racked along the line of the key plug, while the three rear pins are racked along the line of the sleeve section 18^b, the sections of the three rear pins being so arranged as to lock the section 18^b to the rear key plug, while the sections of the first three pins are arranged to lock the forward section 18^a to the casing. The emergency key 25 (shown in Fig. 7) operates the rollbacks 15, 19 together as in the case of the display key, but, in this instance, the forward sleeve section 18^a is released from the casing by the pin tumbler sections and locked to the key plug so that both sleeve sections and the key plug rotate together as a single unit, the pin tumblers being racked to part along the outer circumference of both sleeve sections.

By the described construction and arrangement, the key changes may be readily and clearly distinguished from each other, and the total number of possible changes is extremely large, while at the same time each key operates its own proper rollback or rollbacks in the desired manner.

Without limiting myself to the precise construction shown, I claim:

1. In a cylinder lock, the combination of a casing, a key plug rotatable therein, a rollback fixed to the rear end of the key plug, a sleeve section surrounding the key plug at the rear part thereof, a rollback fixed to said sleeve section in front of said first rollback, a second sleeve section surrounding the key plug in front of the first sleeve section, a group of pin tumblers coöperating with the key plug, first sleeve section and casing, a second group of pin tumblers coöperating with the key plug, second sleeve section and casing, a change key to operate the key plug individually and thereby actuate its rollback individually, a master key to operate the key plug and the front or second sleeve section so that the key plug rollback is rotated individually, a display key to rotate the key plug and the rear sleeve section so that both rollbacks are rotated together, and an emergency key to rotate the front sleeve section as well as the rear key section, key plug and both rollbacks; substantially as described.

2. In a cylinder lock, the combination of a casing, a key plug rotatable therein, a pair of sleeve sections, a rollback fixed to the key plug, a rollback fixed to one of said sleeve sections, a pin tumbler coöperating with the key plug, casing and one of said sleeve sections, a second pin tumbler coöperating with the key plug, casing and the other sleeve section, two keys bitted to rotate said key plug rollback individually, one of said keys operative on the key plug alone, and the other on the key plug and one of said sleeves, and two keys to operate both of said rollbacks together, one of said keys bitted to rotate the rollback-carrying sleeve section, and the other bitted to rotate both of said rollback sections as well as the key plug; substantially as described.

In witness whereof, I have hereunto set my hand on the 4th day of January, 1916.

HENRY G. VOIGHT.

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