Sept. 18, 1928.

1,685,022

G. E. CLEAVER

PIN TUMBLER LOCK

Filed June 11, 1927

Fig. 1.

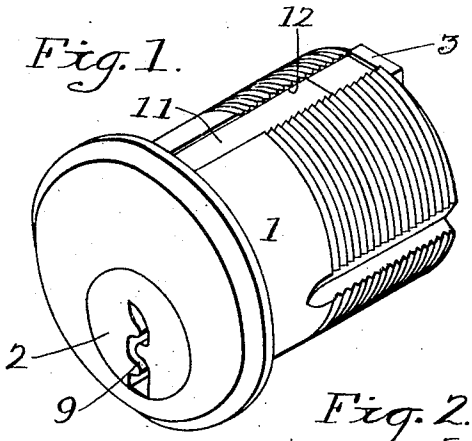


Fig. 2.

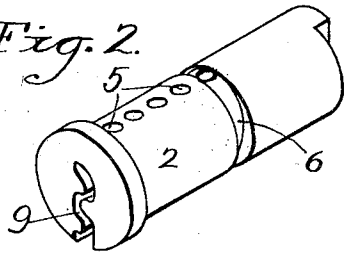


Fig. 3.

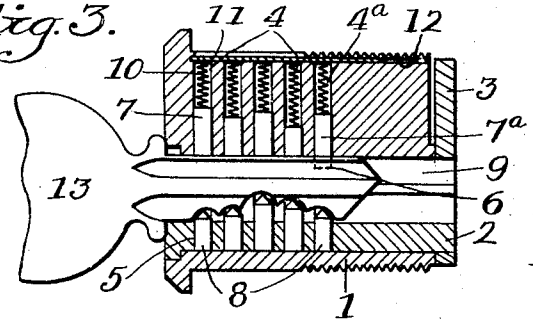


Fig. 4.

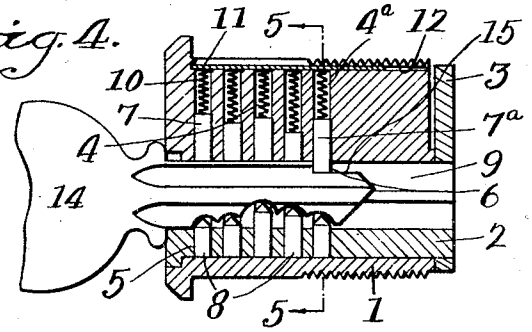
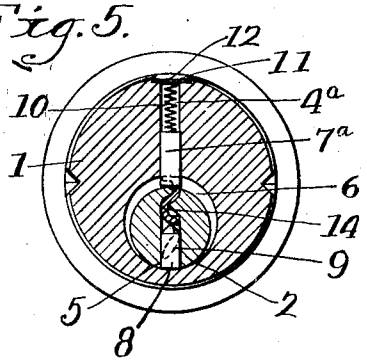


Fig. 5.



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UNITED STATES PATENT OFFICE.

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PIN-TUMBLER LOCK.

Application filed June 11, 1927. Serial No. 198,170.

This invention relates to improvements in pin tumbler cylinder locks, and the invention resides in certain novel structural features hereinafter more fully described conferring on the lock certain desirable functions not heretofore obtained in like manner.

In the attached drawings:

Figure 1 is a view in perspective of a well known form of cylinder lock embodying my invention;

Fig. 2 is a view in perspective of the rotary plug;

Figs. 3 and 4 are longitudinal sectional views showing the use of the different keys, and

Fig. 5 is a section on the line 5—5, Fig. 4.

With reference to the drawings, the lock comprises the usual cylindrical casing 1, in a cylindrical bore in which is mounted for rotation the key plug 2. The key plug 2, as shown in Figs. 3 and 4, projects beyond the rear end of the cylinder and has attached thereto a latch or bolt-engaging dog or cam 3. As illustrated, the casing has a longitudinal series of pin chambers 4, while the plug 2 has a series of chambers 5 which correspond in position with the chambers 4, and the plug also has a peripheral and eccentric slot 6 registering with the innermost pin chamber 4^a of the casing. As clearly illustrated, the peripheral recess 6 extends around the major part of the circumference of the plug, but merges into the normal periphery of the plug at the line of the chambers 5.

Each of the chambers 4 is provided with a pin tumbler section 7, the tumbler section of the chamber 4^a being designated by the reference numeral 7^a, and the chambers 5 of the plug 2 carry a set of pin tumbler sections 8. The plug 2 is provided with a key slot 9, and the keys are formed with bits which cooperate with the tumblers 7 and 8 in well known manner to permit or prevent rotation of the plug in the casing. A spring 10 in each of the chambers 4 is confined between the tops or outer ends of the tumbler sections 7 and a retaining plate 11 which is slidably mounted in a dovetailed groove 12 at the surface of the casing.

One type of key for use in connection with this lock is shown in Fig. 3. The bits of this key are so formed that the outer ends of the tumblers 8 are brought flush with the periphery of the plug so that the key with the plug may be rotated in the casing. It will be noted, however, that as the plug is turned, the tumbler 7^a in the chamber 4^a passes down into the slot 6, and when the plug has been turned to a predetermined extent, this tumbler section 7^a engages the side of the key and prevents further rotation of the plug. Under these circumstances, the tumbler 7^a acts as a limit stop for the plug in both directions.

A second type of key 14 is shown in Fig. 4. This key is similar to the key 13 in so far that the bits are such as to bring the outer ends of the tumblers 8 flush with the periphery of the plug. The back of the key 14, however, at the outer end is cut away as indicated at 15 so that as the plug with the key is rotated the key fails to engage the tumbler 7^a, so that full or continued rotation is permitted. In this instance, the tumbler 7^a fails to function as a limit stop for the plug.

It will be apparent that the principle of the invention as embodied in the lock shown in the drawings may be amplified and varied without departure from the essential features of the invention.

I claim:

1. In a pin tumbler lock, the combination with a casing having a pinway comprising a plurality of tumbler chambers, of a plug rotatably mounted in the casing and having a plurality of tumbler cavities corresponding and adapted to register with the chambers of said casing, said plug having at least one eccentric peripheral recess in circumferential alignment with a tumbler cavity and the corresponding casing chamber, and a key-receiving slot intersecting the said cavities and intersected by said peripheral recess, and tumblers in the cavities and in the casing chambers including a section adapted to enter the eccentric recess of the plug when the latter is turned.

2. In a pin tumbler lock, the combination with a casing having a pinway comprising a plurality of tumbler chambers, of a plug rotatable in the casing and having a plu-

rality of tumbler cavities corresponding with and adapted to register with the said chambers and having also a key slot intersecting said cavities, said plug having also a peripheral recess in alignment with one of the tumbler chambers and also intersected by said keyway, tumblers in said cavities and chambers including a section adapted to enter the said peripheral recess when the plug is rotated, and a cam secured to the projecting end of said plug at the rear of the casing.

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