Jan. 17, 1928. 1,656,854

F. E. BEST

LOCK

Filed April 13, 1925

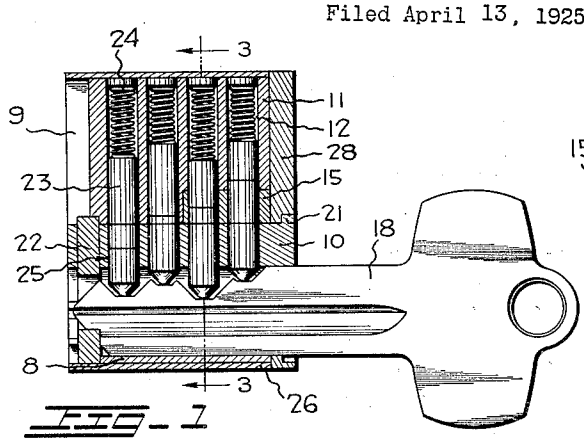


FIG. 1

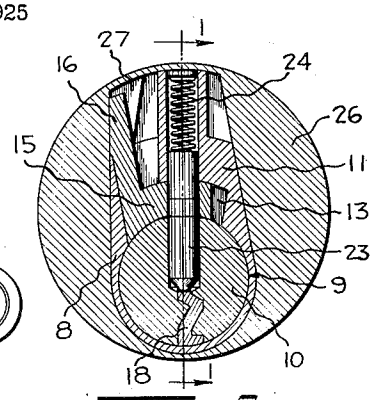


FIG. 3

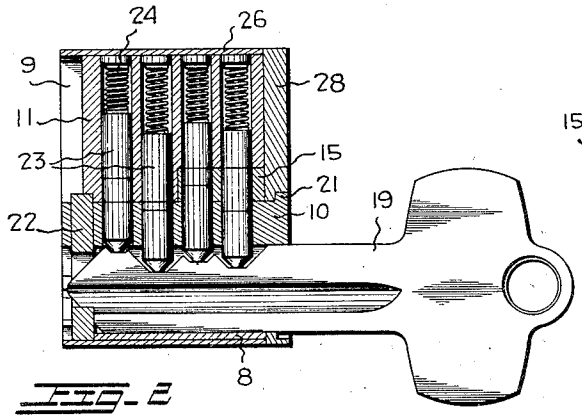


FIG. 2

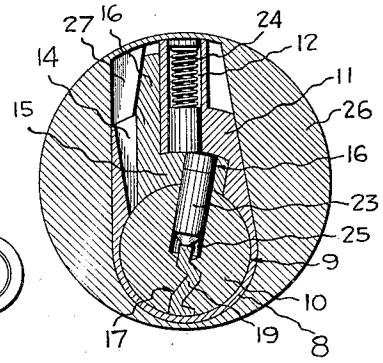


FIG. 4

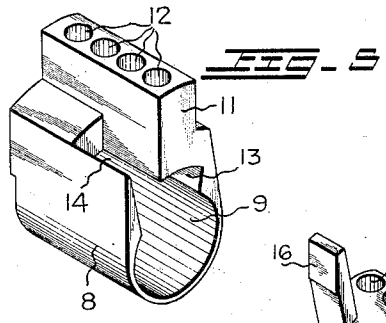


FIG. 5

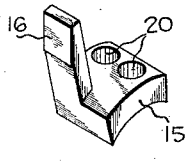


FIG. 6

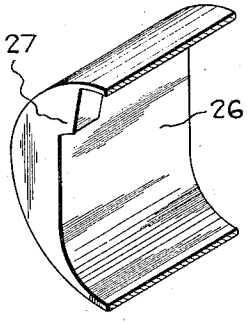


FIG. 7

Frank Ellison Best.

INVENTOR

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UNITED STATES PATENT OFFICE.

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LOCK.

Application filed April 13, 1925. Serial No. 22,778.

My invention relates to improvements in pin tumbler locks of the lock controlled assembly type in which a lock core may be removably locked within a lock housing by key operated means.

The object of my invention is to provide a lock of this class having simplified means for locking the lock core within the lock housing, said means comprising a block arranged to be inserted between the key plug and the key plug housing, said block having a locking lug arranged to project outwardly through the key plug housing to lock the lock core within a core case or housing.

Another object is to provide a lock of this class in which the usual sleeve that surrounds the key plug is replaced by a block member of greatly simplified construction.

The present invention differentiates from my prior Patent No. 1,384,022 issued July 5, 1921 by dispensing with the sleeve that surrounds the key plug and using in place thereof a block or segmental locking member that is inserted in a suitable recess in the housing alongside of the key plug.

Other and more specific objects will be apparent from the following description taken in connection with the accompanying drawings.

In the drawings Figure 1 is a view in longitudinal section substantially on a broken line 1—1 of Fig. 3 of a pin tumbler lock constructed in accordance with my invention, showing the tumbler pins aligned by a key on one shear line so that the key plug may be rotated to perform the usual locking function.

Fig. 2 is a similar view showing the tumbler pins aligned on a second shear line so that a locking member may be operated to lock the lock core into, or unlock said lock core from a case or housing.

Fig. 3 is a sectional view substantially on broken line 3—3 of Fig. 1 showing the locking member in an engaged or lock position relative to the core case or housing.

Fig. 4 is a similar view showing the locking member in a disengaged or unlocked position.

Fig. 5 is a detached isometric view of the key plug housing.

Fig. 6 is a detached isometric view of the locking member.

Fig. 7 is a detached isometric view showing one half of the core housing or case wherein the lock core is arranged to be removably disposed.

Like reference numerals designate like parts throughout the several views.

This lock comprises a key plug housing 8 having a longitudinally arranged tubular bore 9 for the reception of a cylindrical key plug 10 and having on its upper side an extension 11 wherein are provided a plurality of tumbler pin receiving holes 12. The key plug housing 8 is recessed as at 13 at one end above the bore 9 and has a slot 14 that extends inwardly from the same end leaving an opening from the recess 13 to the outside of the housing 8 alongside of the extension 12.

The recess 13 is shaped to receive a locking block 15, Fig. 6 having a locking lug 16 that extends outwardly through slot 14. The block 15 is curved both on the inside and the outside to fit the curvature of the key plug and the curvature of the wall of recess 13 both of which are arcuate with a center of curvature at the center of the bore 9. The block 15 is of less width than the slot 13 so that space is afforded for rotary movement of said block within housing 8 through an angle of substantially fifteen degrees.

The key plug 10 is provided with a longitudinally disposed key way 17 for the reception of keys 18 or 19, and has diametrically arranged tumbler pin receiving holes 20 arranged to register with the tumbler pin receiving holes 12 in the key plug housing 8. The key plug 10 has a head 21 at the front end and is provided at the rear end with a throw member 22 which also serves as a key stop and as a means for preventing removal of the key plug.

Segmental tumbler pins 23 urged inwardly by compression springs 24 are provided in the tumbler pin receiving holes 12 and 20 and extend into suitable tumbler pin receiving holes 25 in the key plug 9, the segments of said tumbler pins being capable of alignment to form one shear line at the periphery of the key plug Fig. 1, and another shear line, Fig. 2, at the periphery of the key plug as respects the two rear stacks of tumbler pins and at the outer periphery of the block 15 as respects the two front stacks of tumbler pins. The key 18 shown in Fig. 1, is bitted to align all of the tumbler pins to form a shear line on the periphery of the

key plug 10 while the key 19, Fig. 2 is differently bitted as respects the two notches farthest removed from the end to align said tumbler pins to form a shear line at the outer periphery of block 15.

When key 18 is inserted and the tumbler pins 23 aligned on the periphery of key plug 10 said key plug may be rotated in the usual manner to perform the usual locking and unlocking function without movement of the block 15 which block 15 is locked to housing member 8. By inserting key 19 and aligning the tumbler pins as shown in Fig. 2, the block 15 and key plug 10 may be turned together through a limited angle within the housing 8 thus moving the locking gate 16 into a locked or unlocked position.

The lock core, comprising housing 8, key plug 10, and block 15, is arranged to be inserted into a core case or housing 26 that has a shoulder 27 behind which the locking gate 16 may engage when it is in the position shown in Fig. 3. The core case 26 is shown as a cylindrical housing but it may be of any desired external shape so long as the receptacle in the same is shaped to receive the lock core and to afford a shoulder for cooperating with the locking lug 16.

A face plate 28 is rigidly secured to the housing 8 and forms a seat for the head 21 on the front end of the key plug.

By insertion of the key 18 the lock is operated in the usual manner to perform the usual locking function while by insertion of key 19 the block 15 and locking lug 16 may be turned far enough to engage lug 16 with, or disengage lug 16 from the shoulder 27 thus permitting the lock core to be quickly and easily locked into, or released and removed from, core case 26. In the usual operation of the lock the block 15 is locked relative to the housing 8 by the two end tumbler pins 23 as shown in Figs. 1 and 3. The block 15 is herein shown as being long enough to have two tumbler pin stacks pass therethrough, but it will be understood that the length of said block may be varied so that one or more tumbler pins, as desired, may pass through said block.

The use of the block 15 eliminates the necessity for providing a relatively thin, accurately made sleeve around the key plug 15 thus simplifying the construction of the lock.

In the appended claims I have used the term "block" or "segmental locking member" to designate the part 15 and to differentiate said part from a sleeve, it being understood that the block or segmental locking member is not a sleeve and does not extend around the key plug but is only a segment that is interposed between the key plug and the housing.

The foregoing description and accompanying drawings clearly disclose a preferred embodiment of my invention but it will be understood that this disclosure is merely illustrative and that numerous changes in the device may be made within the scope and spirit of the following claims.

I claim:

1. In a pin tumbler lock, the combination with the usual key plug and housing therefor, of a segmental locking member operatively disposed between said key plug and said housing and extending outwardly through said housing.

2. In a pin tumbler lock, the combination with the usual key plug and housing therefor, of a segmental locking member operatively disposed between said key plug and said housing and extending outwardly through said housing, said locking member cooperating with said key plug and said housing to form two different shear lines.

3. In a pin tumbler lock, the combination with the usual key plug and housing therefor, of a segmental locking member operatively disposed between said key plug and said housing and extending outwardly through said housing for locking the same within a core case, said segmental locking member being shorter than said key plug and cooperating with said key plug and said housing to form two different shear lines.

4. In a pin tumbler lock, the combination with the usual key plug and key plug housing interconnected by tumbler pins, of a segmental locking member operatively disposed between said key plug and said key plug housing and cooperating with a part of said tumbler pins to form two shear lines and a locking lug on said locking member extending outwardly through said housing.

5. In a pin tumbler lock a tubular key plug housing, a key plug rotatable therein, said key plug housing having a recess at the side of said key plug, a segmental locking member operatively disposed in said recess, a core or lock case for said key plug housing and a lug on said locking member projecting outwardly through said housing for locking the same within said core or lock case.

6. In a pin tumbler lock, a tubular key plug housing, a key plug rotatable therein, tumbler pins operative in said key plug and said key plug housing, a segmental locking member, said housing having a recess at one side of said key plug in which said locking member is operatively disposed and certain of said tumbler pins extending through said locking member whereby two shear lines relative to said locking member will be formed, a core or lock case for said key plug housing and a lug on said segmental locking member for locking said key plug housing within said core or lock case.

7. In a pin tumbler lock a tubular key

plug housing having a recess in its inner wall and a slot connected with said recess and extending to the outer wall, a key plug rotatable in said key plug housing, a segmental locking member disposed within said recess, tumbler pin stacks provided in said key plug housing and said key plug, some of said tumbler pin stacks extending through said locking member and being capable of forming a shear line at either the outer or the inner surface of said locking member and a locking lug on said locking member extending outwardly through the slot in said key plug housing for locking engagement with a core or lock case.

8. In a pin tumbler lock a housing having a tubular bore and having a notch extending inwardly from one end thereof, and having a slot that intersects said notch and extends inwardly, an extension on said housing having tumbler pin holes arranged radially of said bore, a key plug rotatable in said bore said key plug having tumbler pin holes arranged to register with the tumbler pin holes in said extension, tumbler pin segments in said holes arranged to form a shear line at the circumference of said key plug, a locking block operable in said notch in said housing and having limited rotary movement therein, said block having holes through which certain of said tumbler pins pass, which tumbler pins are capable of forming a shear line at both the inner and the outer surface of said block, a locking lug extending outwardly through said slot and a casing having means with which said locking lug may engage.

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