Jan. 20, 1931. E. N. JACOBI 1,789,756

LOCK

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FIG. 1

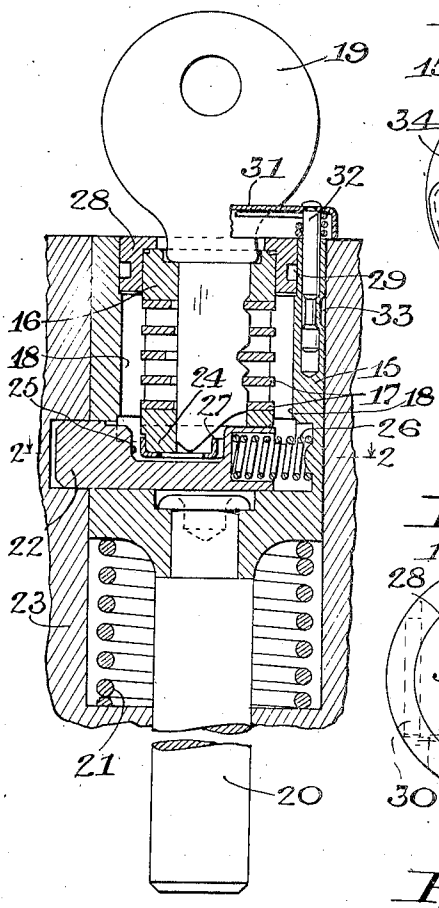


FIG. 3

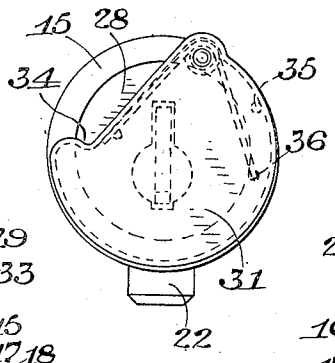


FIG. 6

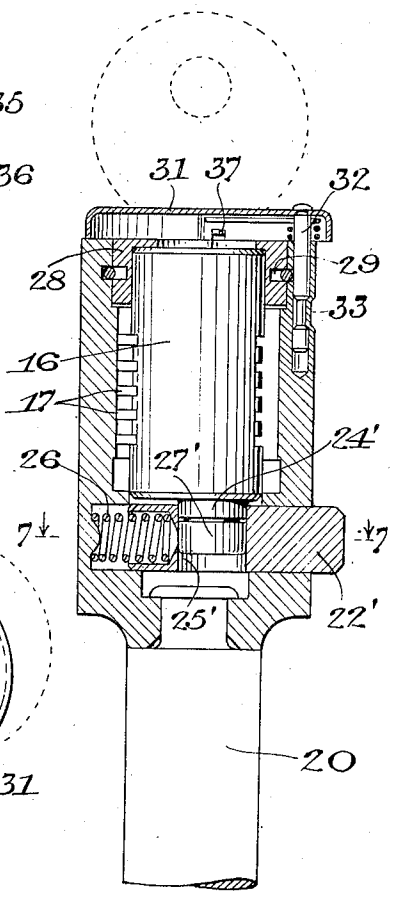


FIG. 4

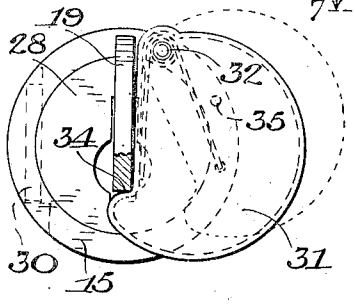


FIG. 5

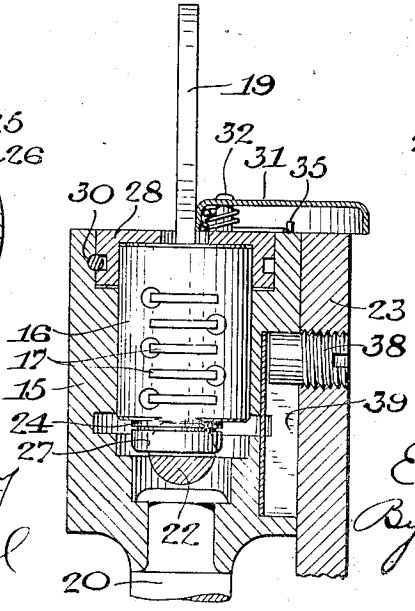


FIG. 2

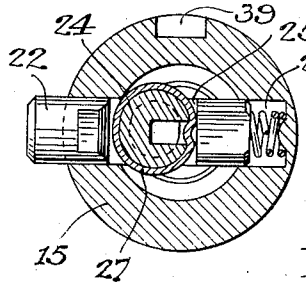
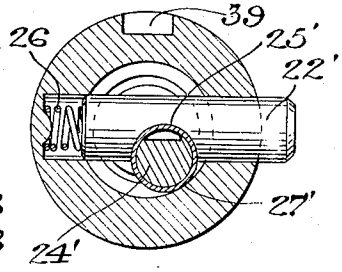


FIG. 7



WITNESSES

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LOCK

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FIG. 8

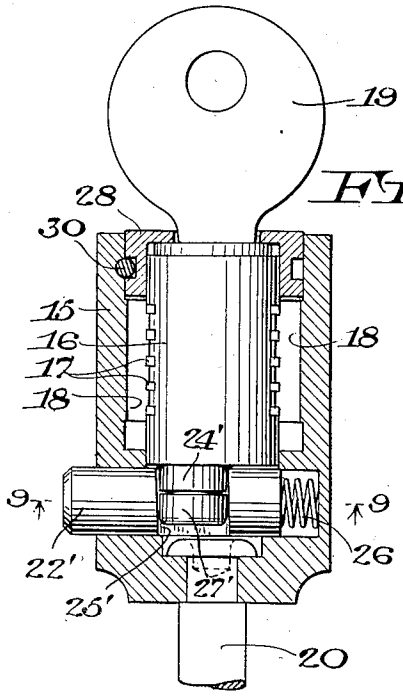


FIG. 9

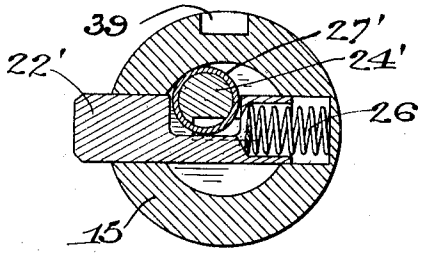


FIG. 11

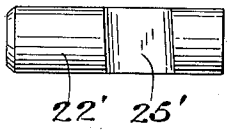


FIG. 10

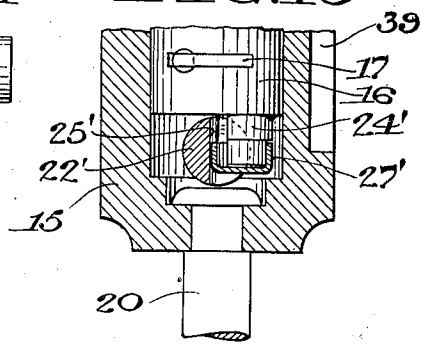


FIG. 12

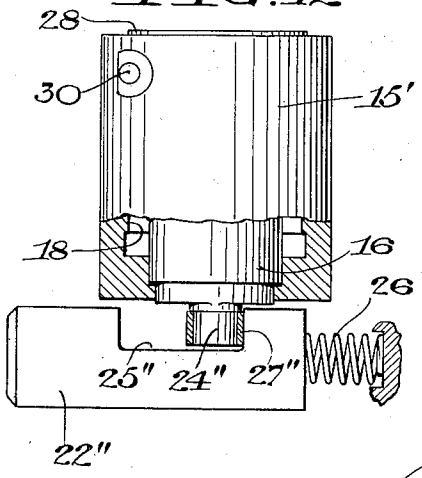


FIG. 13

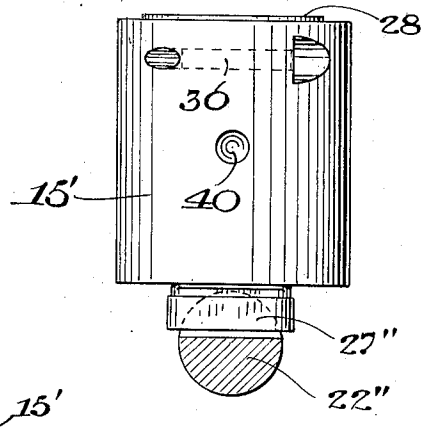
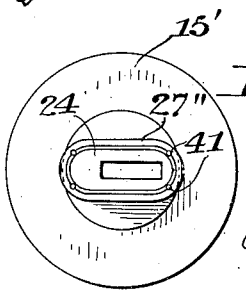


FIG. 14



WITNESSES

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UNITED STATES PATENT OFFICE

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LOCK

Application filed December 23, 1925. Serial No. 77,294.

This invention has for its object to provide a lock having its wearing surfaces sheathed with hard metal so as to increase the life and durability.

Another object of the invention is to provide a lock with a die cast lock barrel whereby uniformity is obtained at low cost of manufacture, the cam or wrist-pin thereof being provided with a hard metal sleeve or cap to take the wear.

Another object of this invention is to provide a lock with a swinging cover to protect it from dust and to constitute a guide for assisting in placing the key in the lock.

Another object of the invention is to improve upon details of construction of locks of this character.

With the above and other objects in view the invention consists in the lock as herein claimed, its parts and combinations of parts and all equivalents.

Referring to the accompanying drawings in which like characters of reference indicate similar parts in different views.

Fig. 1 is a central longitudinal sectional view of one form of lock constructed in accordance with this invention;

Fig. 2 is a transverse sectional view thereof on the plane of line 2—2 of Fig. 1;

Fig. 3 is a plan view thereof with the cover closed;

Fig. 4 is a similar view with the cover opened by the key which is guided into the key slot thereby;

Fig. 5 is a longitudinal section on a plane at right angles to the plane of Fig. 1;

Fig. 6 is a central sectional view of a modification of the lock;

Fig. 7 is a transverse sectional view thereof on the plane of line 7—7 of Fig. 6;

Fig. 8 is a longitudinal sectional view of another modification of the lock;

Fig. 9 is a transverse sectional view thereof on the plane of line 9—9 of Fig. 8;

Fig. 10 is a detail sectional view thereof on a plane at right angles to the plane of Fig. 8;

Fig. 11 is a detail view of the lock bolt;

Fig. 12 is a sectional elevation of another modification;

Fig. 13 is a similar view taken at right angles to that of Fig. 12 with the lock bolt sectioned, and

Fig. 14 is a bottom view thereof.

In these drawings, 15 indicates a lock-case and 16 is the lock barrel mounted to rotate or oscillate therein and provided with tumblers 17 to engage in opposite recesses 18 of the lock-case to prevent the lock barrel from turning when the key 19 is removed but adapted to be withdrawn flush with the surface of the lock barrel by the different sized bits of the key so that the lock barrel may be turned by the key when the key is in position.

In the form of lock shown in Figs 1 to 5 inclusive the lock-case 15 forms the head of a vertically moving lock-bar 20, which, when depressed against a spring 21, performs a locking engagement as with the gear shift rods of a gear shift mechanism for automobiles and the like, the locking bolt 22 projecting from the side of the lock-case to engage a recess in the guide or housing 23 to hold the lock-bar in its depressed locking position.

The lock barrel is preferably die cast for uniformity and inexpensive cost of manufacture and is formed with a cam or wrist-pin projection 24 on its lower end engaging in a groove 25 of the locking bolt, whereby the turning of the lock barrel by means of the key 19 causes the withdrawal of the locking bolt 22 against the pressure of its coiled spring 26. A flat surface on the top of the locking bolt engaging the end of the lock barrel prevents the locking bolt from turning.

It is an object to make this wrist-pin or cam 24 as large as possible so as to obtain the requisite strength and consequently it includes a portion of the key slot and, as the metal of which the die cast lock barrel is made is unsuitable for withstanding wear, particularly when reduced to sharp corners as in this manner, a hard metal sheathing 27 surrounds the cam or wrist-pin to form the bearing surface thereof engaging the locking bolt. As shown in Figs. 1 and 2, this sheathing may be in the form of a flanged ring having a driven fit on the cam or wrist-pin and preferably indented where

it crosses the key slot to prevent it from working loose. The hard metal sheathing protecting the alloy die casting at the part subjected to greatest wear materially prolongs the life of the lock.

Although the lock barrel has a working fit in the lock-case for practically its full length except where the lock-case is grooved to provide the tumbler recesses 18, it is given an additional protected bearing by having a harder metal cap 28 fixed on its upper end and rotatably mounted in the stepped bore of the lock-case. The cap 28 covers the end of the lock barrel and contains the key-hole registering with the key slot through the lock barrel and is held in place against removal and to take the end thrust of the lock barrel by having a groove 29 surrounding it, through which is passed a tangent pin 30.

A dust cover 31 is pivotally mounted on a pin 32, which is secured to the lock-case by fitting in a longitudinal opening in the wall thereof and by having the wall of said opening swaged or indented into a recess of the pin, as shown at 33. The cover is of such shape as to conform to the outline of the lock-case except that at one edge it is provided with a straight portion against which the flat key may fit for swinging the cover to its open position, and a projecting shoulder 34 at the end of said straight portion against which the edge of the key bears so that as the key swings the cover it is guided thereby to the keyhole, as shown in Fig. 4. The cover is closed by a spring and its closed position is determined by the engagement of its side flange with a stop pin 35, the spring being formed of a wire coiled about the pin 32 with one end anchored in an opening 36 in the end of the lock-case and the other end engaging the flange of the straight edge of the cover and held against displacement by a lug 37 bent up from said flange.

In operation the key is used as a means for swinging the dust cover and is guided thereby to the key opening and its insertion in the lock barrel causes the withdrawal of the tumblers as usual so that the tumbler with its cap 28 may be turned by means of the key to withdraw the locking bolt 22, permitting the lock-case to spring upwardly and withdraw the lock-bar 20 from its locking engagement with the gear shift rods or other parts controlled thereby. This upward movement of the lock-case is preferably limited by a set-screw 38 in the housing 23 projecting into a vertical slot 39 in the wall of the lock-case. When it is desired to again lock the mechanism it is only necessary to press the lock-case downwardly against its spring by means of the key and then turn the key and remove it, the locking bolt 22 returning to its locking engagement as the result of the turning movement of the lock barrel and the dust cover returning to its closed position automatically.

In the modifications shown in Figs. 6 and 7, and in Figs. 8 to 10 inclusive, the wrist-pin 24′ engages a groove 25′ in the side of the locking bolt 22′ instead of in a transverse slot across the top of the bolt as before and this engagement prevents the locking bolt from turning. The hard metal sheathing for the wrist-pin or cam in this construction is preferably in the form of a cup 27′ bent up from a sheet metal disk, as shown.

In that modification shown in Figs. 12, 13 and 14, the lock-case 15′ does not move and is held from movement by the engagement of a screw, not shown, in an opening 40 in the side thereof, and the cam or wrist-pin 24″ is of an oval shape with a hard metal sheathing in the form of an oval shaped band 27″ fitting thereon and held in place by staking with a prick punch at various points, as shown at 41. The locking bolt 22″ of this construction is not carried by the lock-case, but forms a part of the mechanism with which the lock is associated and the groove 25″ in the top thereof engaged by the cam or wrist-pin 24″ is of sufficient length to receive the cam or wrist-pin when the latter is turned to a position in alignment with the locking bolt, the two positions of the locking bolt being determined by the turning of the cam or wrist-pin therein through an angle of 90°.

Although the lock is described as pertaining to a gear shift mechanism for automobiles, it is to be understood that it is not limited to any particular purpose but is capable of general use.

What I claim as new and desire to secure by Letters Patent is:

1. In a lock, a lock-case, a lock barrel fitting therein and provided with an integral projection on its end forming a cam, a locking bolt having a slot receiving the cam, and a hard metal sheathing surrounding the cam and fixed thereto.

2. In a lock, a lock-case, a lock barrel fitting therein comprising a die casting with an integral projection forming a cam at its end, a hard sheet metal flanged band surrounding the cam, and a locking bolt having a groove receiving the cam and engaged by the flange.

3. In a lock, a lock-case, a lock barrel fitting therein having an integral projection forming a cam on its end, there being a key slot through the lock barrel and the cam, a hard metal covering for the cam projecting into the key slot, and a locking bolt having a slot receiving the cam.

4. In a lock, a lock-case, a lock barrel fitting therein and provided with an integral projection forming a cam on its end, a hard sheet metal flanged sheathing surrounding the cam, and a locking bolt fitting in the lock-case having a transverse slot receiving the sheathed cam and engaged by the flange.

5. In a lock, a lock-case, a lock barrel fitting therein and provided with an integral projection on its end forming a cam, a hard sheet metal sheathing surrounding the cam, a locking bolt fitting in the lock-case and having a recess to receive the cam, there being a flat surface on the locking bolt bearing against the end of the lock barrel to prevent the locking bolt from turning.

6. In a lock, a lock-case, a lock barrel fitting therein and provided with an integral projection forming a cam on its end, there being a key slot through the lock barrel and the cam, a hard sheet metal sheathing surrounding the cam indented to form a projection entering the key slot of the cam, and a locking bolt having a slot to receive the sheathed cam.

7. In a lock, a lock-case, a lock barrel fitting therein and provided with an integral projection forming a cam on its end, there being a key slot through the lock barrel and the cam, a flanged ring having a driven fit on the cam and indented where it crosses the key slot, and a locking bolt having a slot receiving the cam.

8. In a lock, a housing, a lock-case slidably mounted therein, a spring bearing on the lock-case for sliding it, a lock-bar carried by the lock-case, a die cast lock barrel fitting in the lock-case having an integral projection forming a cam on its end, a hard sheet metal flanged band surrounding the cam, and a spring-pressed locking bolt slidably mounted in the lock-case and engaging a recess in the housing to hold the lock-case against the pressure of the spring, said locking bolt having a slot to receive the cam and engaged by the flange.

9. In a lock, a lock-case, a lock barrel fitting therein and provided with an integral projection on its end forming a cam, a locking bolt having a slot receiving the cam, and a hard metal sheathing surrounding the cam and part of its end.

In testimony whereof I affix my signature.

EDWARD N. JACOBI.