

May 14, 1929.

F. N. ROEHRICH

1,712,640

KEY LOCK

Original Filed Jan. 26, 1927

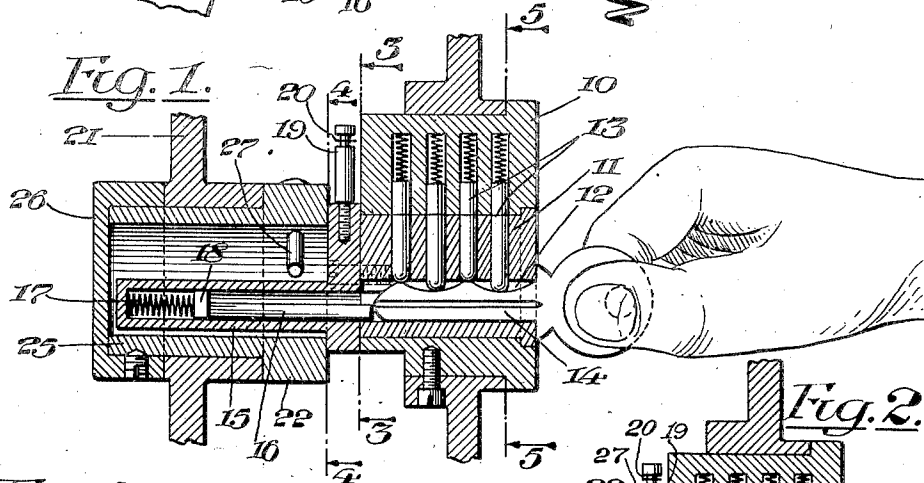
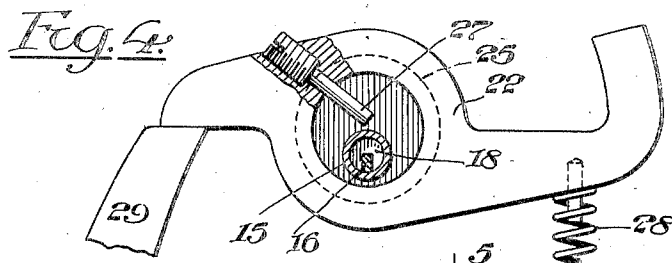
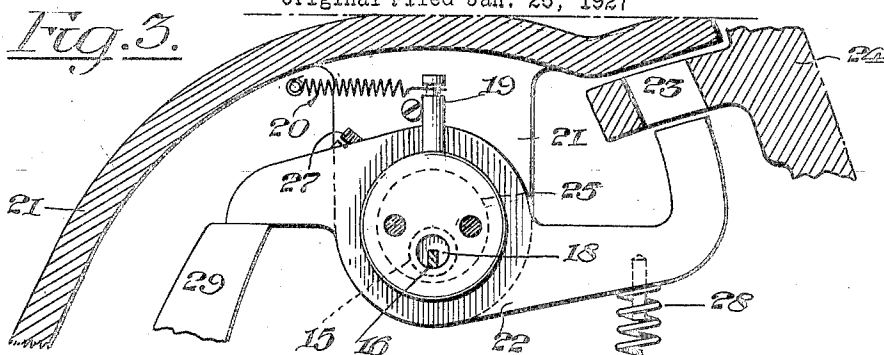
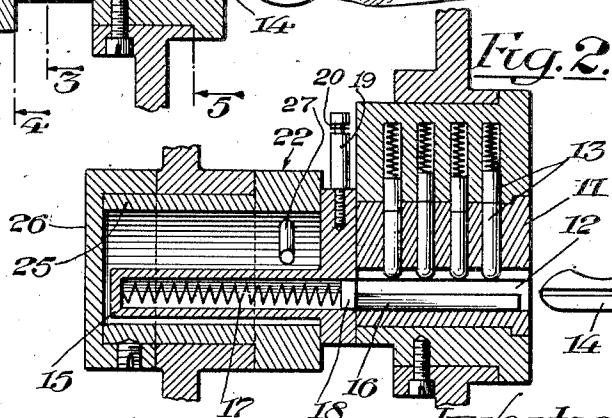
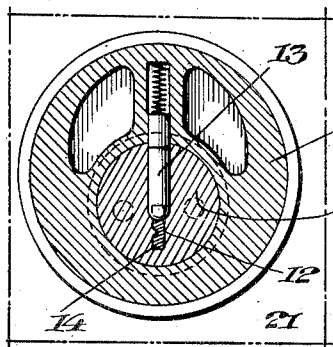


Fig. 5.



Inventor:
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by his Attorney
John P. Nolan 716-1

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UNITED STATES PATENT OFFICE.

FRANK N. ROEHRICH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF FOUR-FIFTHS TO WILLIAM H. LOUD AND ONE-FIFTH TO HENRY J. LAUDA, BOTH OF JERSEY CITY, NEW JERSEY.

KEY LOCK.

Original application filed January 26, 1927, Serial No. 163,643. Divided and this application filed October 19, 1927. Serial No. 227,071.

This invention relates to key-operated locks, and more particularly locks of the general Yale type; the object of the invention being to provide simple and efficient means which permits the ready manual insertion and operation of the key, yet is effective automatically to eject the key from the keyway of the lock when the key is manually released at the conclusion of the operation.

The invention comprises the combination with a lock, including a rotary actuating element having a keyway therein, of a spring-pressed key ejector which is movable within and longitudinally of the keyway.

The invention also comprises novel features of construction and combinations of parts which will be hereinafter described; the scope of the invention being then defined in the appended claims.

In the drawings—

Figure 1 is a transverse vertical section of a lock embodying a form of my invention, showing the key as inserted and the ejector as pushed back from the keyway preparatory to the turning of the key.

Fig. 2 is a similar view upon the completion of the locking operation, showing the ejector as shot into the keyway and indicating a portion of the ejected key.

Fig. 3 is a vertical section adjacent the back of the lock casing, as on the line 3—3 of Fig. 1.

Fig. 4 is a similar section through the guide extension of the rotary barrel of the lock, as on the line 4—4 of Fig. 1.

Fig. 5 is a similar section of the lock through the casing and barrel, as on the line 5—5 of Fig. 1.

The type of lock herein illustrated embodies a fixed cylindrical body 10, and a rotatable barrel 11 therein formed with a keyway 12 arranged eccentrically of the barrel, which body and barrel are provided with a series of relatively arranged spring-pressed plungers, 13, which normally lock the barrel to the fixed body, yet are movable into unlocking relation by the action against the free ends of the respective plungers, of the appropriately formed edge of a key, as 14, when the key is forcibly inserted in the keyway. Thereupon, by the manipulation of the key the barrel can be turned to the

right or left to effect the actuation in relation to a suitable keeper, of a latching or locking element operatively connected with the barrel.

According to my present invention, in its preferred form, the inner end of the barrel 11 is formed with a hollow extension 15 having its bore in longitudinal alignment with the keyway of the barrel, and an ejector bar 16 of appropriate cross-section is slidably arranged in the bore and keyway. A suitable spring 17 confined in the bore presses against a head 18 on the inner end of the bar 16 and tends to maintain the bar normally within the keyway throughout substantially the entire length of the latter. Hence, coincidentally with the insertion of the key in the keyway and the consequent release of the lock barrel by the action of the key against the opposing plungers, the bar 16 is bodily pushed back into the extension against the force of the spring 17, as seen in Fig. 1, thereby permitting the turning of the barrel by means of the key in the usual manner. This done, if the key be manually released, the spring, expanding, will press the bar 16 quickly forward in a manner to eject the key from the lock, thus obviating any liability of the careless leaving of the key in the lock by the user. The lock barrel 11 is preferably provided at its inner end with a projecting pin 19 to which and to an adjacent part of the structure on which the lock is mounted, is attached a suitable retracting spring 20 which tends normally to return the barrel to key-receiving position.

In the present instance the lock body 10 is represented as mounted in the transmission housing 21 of an automobile for example, and the locking element comprises a lever 22 which is adapted by actuation of the barrel to be moved into and out of locking engagement with the apertured lug 23 of a gear shift lever 24.

The lever 22 has a hub 25 which is rotatably seated in a bearing formed in the adjacent wall of the housing concentric with the barrel 11, which hub encircles the extension 15 of the barrel. A cap 26 on the outer end of the hub bears against the adjacent wall of the housing and maintains the locking lever in proper relation to the

lock barrel. Extending through the wall of the hub 25 and into the path of the eccentric extension 15 is a pin 27 against which the extension abuts during its rotation with the
 5 lock barrel and thereby moves the pin 27 and the locking lever in a manner to disengage the latch arm from the keeper 23 of the gear shift lever.

The locking lever 22 may be held in unlocked position against the action of a suitably-disposed spring 28 by means of a movable restraining arm 29 which is operable by connections under the joint control of the seat and door of a car, as described in Letters Patent of the United States No. 1,675,465, dated July 3, 1928, of which this application is a division.

While I have herein shown and described my invention as applied to a key-actuated
 20 lock for use in connection with an essential control element of an automobile, it is to be understood that my invention may be employed in connection with a lock for any purpose. Moreover, my invention is not
 25 limited to the specific form of mechanism herein illustrated, as the same may be modified within the principle of the invention and the scope of the appended claims.

I claim—

30 1. The combination with a lock, including a rotary actuating element having a keyway

therein eccentrically thereof, and a guide extension in alignment with the keyway, of a key ejector movable within and longitudinally of the extension and keyway, a spring
 35 pressing said ejector normally toward the outer end of the keyway, a locking member adjacent the rotary element, means maintaining said locking member normally in
 40 locking position, and means on said locking member engageable by the extension to move the locking member to releasing position.

2. The combination with a lock, including a rotary actuating element having a keyway therein eccentrically thereof, and a
 45 guide extension in alignment with the keyway, of a key ejector movable within and longitudinally of the extension and keyway, a spring pressing said ejector normally toward the outer end of the keyway, an oscillatory
 50 locking member mounted concentrically of the rotary element and encircling the extension, means maintaining said locking member normally in locking position, and means on said locking member engageable
 55 by the extension to move the locking member to releasing position.

Signed at Jersey City, in the county of Hudson and State of New Jersey, this 8th day of October, A. D. 1927.

FRANK N. ROEHRICH.