J. MULLAN

KEY EJECTING LOCK

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FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

INVENTOR.

JOSEPH MULLAN.

ATTORNEY.
This invention relates to general purpose locks and more particularly to locks having means for expelling a key when the lock is in open position, and especially for the control of motor vehicle ignition systems and the like wherein the leaving of the key in the ignition lock will be an invitation for some unauthorized person to appropriate the vehicle for his own use.

Various forms of devices have been invented for attachment to automobile ignition keys to cause them to be automatically withdrawn from the lock when the lock and ignition system is in the off and locked position, but these devices have always been found to be bulky and required one device for each individual set of keys. It is therefore an object of this invention to provide a new and improved lock switch that will avoid one or more of the disadvantages and limitations of the prior art.

It is a further object of this invention to provide a key ejecting means built directly into the lock which will eject the key from the lock when the lock is in a predetermined position.

A further object of the invention is to provide a lock having a conventional face which will receive the key for normal operation and eject the key when the operation is completed.

A further object of the present invention is to provide an ignition lock having a spring tensioned reciprocable member or slug in the key slot to be pushed inwardly by the insertion of the ignition key when the switch is closed and to force the reciprocable member or slug towards the front face of the lock and force the key from the lock switch when the switch is in open position.

For a better understanding of the invention its objects and the principles thereof, reference is made to the accompanying drawings, wherein a particular form of the invention is illustrated by way of example. The following description explains the details, while the claims indicate the scope of the invention.

In the drawings:

Figure 1 is a front elevation of a lock without its key;

Figure 2 is a side elevation of Figure 1, with parts broken away to show its inner construction; with the key pressed inwardly in locked position;

Figure 3 is a sectional view taken along line 3—3 of Figure 2; and

Figure 4 is a similar view to that shown in Figure 2, except the spring has expanded and ejected the key from the lock.

Similar reference characters refer to similar parts throughout the drawings.

In the construction shown in the drawings, a lock member 20 of conventional key operable cylinder design having the usual tumblers and mechanical features found in existing locks all of which are believed to be thoroughly understood, is illustrated and will not be described in this application. The lock 20 has a face plate 21 and conventional slot 22 to receive the key 23 and screws 26 to hold the lock in the support 25 after it has been inserted through hole 24 in the support 25. The lock comprises a barrel 28 for enclosing a conventional rotatable lock cylinder to which is attached by screws 27 a collar 29 to which guide members 30 are secured for supporting a key slug 31 which reciprocates inwardly when depressed by the key and compresses a spring 32. The spring 32 has one end 33 attached to one of the guide members 30 and the other end 34 attached to the key slug 31 to eject the key from the lock through the expansion of the spring 32 when the lock is in one position and to compress the spring through the insertion of the key when the lock is in its other position as above described. A casing 35 secured to the barrel 28 and having an outer closed end covers the spring and guide members and protects them from injury.

In the operation of the device, a key 23 is inserted through slot 22 and contacts the slug 31 which is forced inwardly into guide members 30 and compresses the spring 32 to resiliently hold the end of the slug against the end of the key. The key is then turned to operate the lock cylinder and be held in the lock. When the key and lock cylinder are turned back to the starting point the key is ejected from the lock by the slug pressing against the end of the key through the expansion of spring 32.

While but one general form of the invention is shown in the drawings and described in the specifications, it is not desired to limit this application for patent to this particular form as it is appreciated that other forms of construction could be made that would use the same principles and come within the scope of the appended claims. Having thus described the invention what is claimed is:

1. In combination with a lock of the key operable cylinder type, a hollow stationary casing having an open end secured to said lock and stationary therewith, said casing having an opposite closed end, guiding means secured to the
lock cylinder and extending within said casing, a slug separate and independent from the lock and slidable within said guiding means and adapted to be contacted by the key inserted in the lock, and a spring in said casing surrounding said guiding means and having one end secured to said slug and its opposite end secured to said guiding means, whereby the insertion of the key to operate the lock forces the spring outwardly in the casing and the removal of the key from the lock by the spring.

2. The combination set forth in claim 1, wherein the guiding means for the slug consists of a pair of spaced apart guide elements having a space therebetween for guided travel of the slug.

JOSEPH MULLAN.

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The following references are of record in the file of this patent:

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