July 15, 1952 J. MULLAN 2,603,082

LOCK AND KEY EJECTOR

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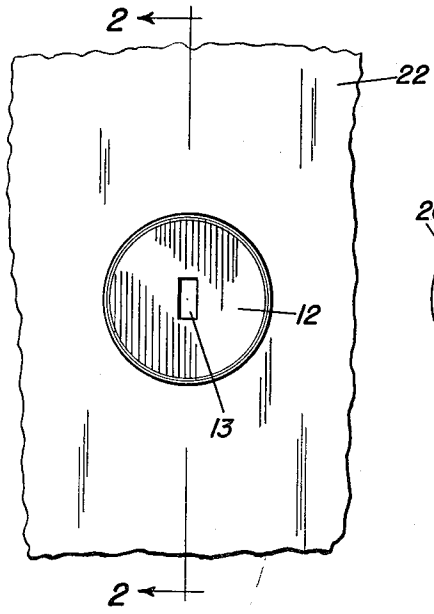


FIG. 1.

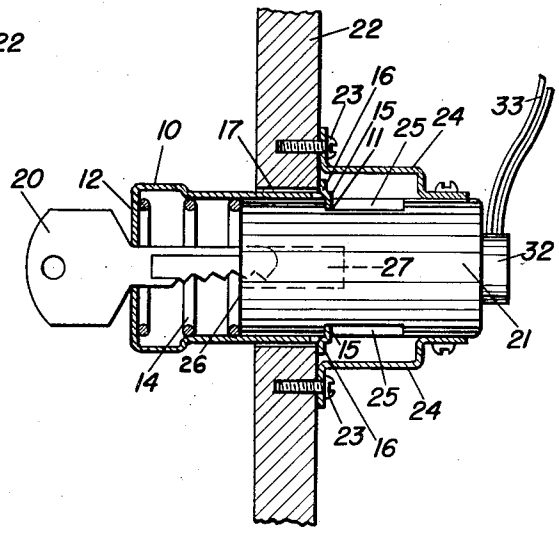


FIG. 2.

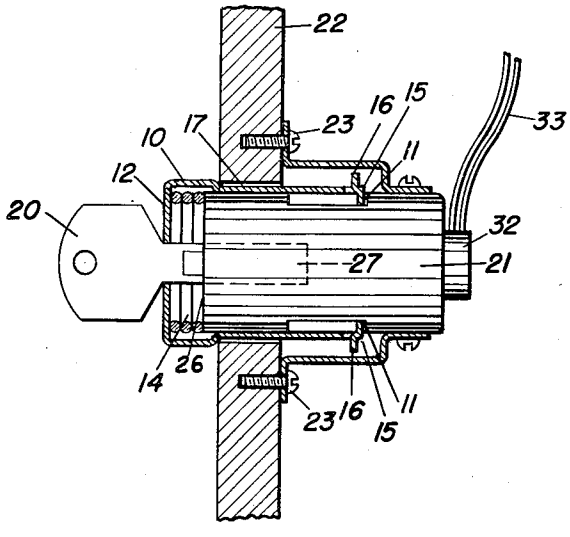


FIG. 3.

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LOCK AND KEY EJECTOR

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1 Claim. (Cl. 70—388)

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This invention relates to locks and more particularly to those used for the control of ignition and like purposes on a motor vehicle.

It has among its objects to provide a new and improved lock device that will avoid one or more of the disadvantages and limitations of the prior art.

Another object of the invention is to provide a new and improved lock device that will facilitate the removal of the key when the latter is in unlocking position.

A further object of the invention is to provide an unusual form of key entrance to a lock that will protect it, indicate its unlocking position, and give it features not available in the ordinary use of the conventional lock.

Another object of the invention is to provide a lock that will eject the key therefrom when in unlocked position.

Other objects will become apparent as the invention is more fully described.

In the conventional lock, the key is normally insertable directly into the key hole. In this invention the lock portion about the key hole is surmounted by a resilient sleeve that projects beyond the lock and covers the key hole, and indicates that the key is not in position. The sleeve receives the key first through a dummy key hole when used for operating purposes, and is pushed towards the lock so the key will be directed into the proper key hole with ease, ready to operate the lock. After unlocking, when the key is brought back to its original insertion position, the sleeve will, under the action of a spring, eject the key from the lock into the hand of the user. The furniture or structure about the lock is to be adapted to receive this sleeve and allow it to actuate and reciprocate as described.

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 claim indicates the scope of the invention.

In the drawings:

Figure 1 is a front elevation of the lock and key ejector with the key removed;

Figure 2 is a sectional side elevation of Figure 1 with the key ejected from the lock through the outward movement sleeve; and

Figure 3 is a similar view to Figure 2 except the key is held by the lock and the sleeve is depressed.

Similar reference characters refer to the same parts throughout the drawings.

In the construction shown, a lock unit consists of a hollow cylindrical sleeve 10, open at its inner end 11, and closed at its outer end with a disc-like cap 12. The cap 12 has a dummy

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key hole 13 arranged in it for the key 20 of a lock 21. The lock 21 is of conventional key operable cylinder type for an ignition switch 32 and wiring 33 of an automobile, and is installed in the dash board 22. The lock 21 is of barrel form held in position on the dashboard 22 by bolts 23 screwed into brackets 24, fastened thereto. The slots 25 are arranged longitudinally in the wall of the lock 21 to receive the prongs 15 of the sleeve 10 and guide its sliding operation and prevent the removal of the sleeve 10 from the lock 21. Inside the sleeve and located between the head or cap 12 of the sleeve and the face 26 of the lock is a coil spring 14. This spring tends to keep the sleeve projected outwardly from the face of the lock. Pressure against the head of the sleeve by the pushing in of the key 20 compresses the spring and allows the key to push the sleeve over the barrel of the lock 21 until the key enters the key slot 27 of the lock 21. The sleeve is limited in its inward movement by the closing travel of the coil against the face of the lock. Its outward movement is limited by the bent lugs 15 on the open end edge, as they catch in the grooves or slots 25 on the sides of the lock, or by the lugs 16, also formed on the same edge, and adapted to hit against the inner face of the dash board 22. Either arrangement may be used according to whichever is more desirable at installation.

The method of attaching the lock to the dashboard seems to be obvious, since the bolts 23 hold it in place rigidly. The hole 17 in the dashboard is made large enough for the sleeve to reciprocate therein without too much play. The sleeve is made relatively thin and light as long as it is strong enough for its functions and wear. The head 12 is preferably enlarged and knurled to make it more artistic in appearance and form a stop to its inward movement. The slots 25 act as guides for the sleeve and keep it from turning on its axis.

The device may be supplied with the lock as a part thereof or it may be provided as a separate unit to be mounted on a lock already intended for the dashboard. In the latter instance it consists mainly of the sleeve, the lugs of which are bent into place after insertion through the dashboard, so the sleeve will be kept in place. The spring of course is placed in position before the lugs are bent.

The device while simple is a very effective convenience. It is inexpensive. It prevents the key from staying in the lock when the lock is in unlocked position. This is important as it prevents unauthorized manipulation of lock while the operator of the vehicle is absent. It also makes sure that the engine will not be kept running accidentally. Other advantages will occur to the user as he employs this arrangement.

The key however will stay in pushed-in-position in the lock, when it is turned on, and stay there until reversed into unlocked position. The sleeve, by its appearance on the dash board always gives a visual indication of the lock position, whether locked or unlocked. It being so conspicuous especially when "unlocked" position that it advises the user or observer effectively and quickly.

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 claim.

Having thus described the invention, what is claimed is:

In combination with a lock of the key operable cylinder type, a sleeve slidably mounted on the lock, said sleeve having a closed end which projects outwardly from the lock, resilient means in said sleeve between its closed end and the lock for biasing the sleeve to an outward position but allowing reciprocation of the sleeve on the lock, the closed end of the sleeve having a key hole aligned with the keyhole of the lock, whereby the key may be inserted in the first keyhole and be guided to the second one for operating the lock when the sleeve is pushed against the pressure of the resilient means, and the key may be automatically released when in inoperative position in the lock, and means for limiting the movement of said sleeve in either direction of reciprocation, wherein the means for limiting movement of the sleeve comprise prong elements carried by the sleeve and received and guided in slots provided on the periphery of the lock.

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