H. E. ROBB.

LOCK.

APPLICATION FILED FEB. 25, 1914.

1,130,337. Patented Mar. 2, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

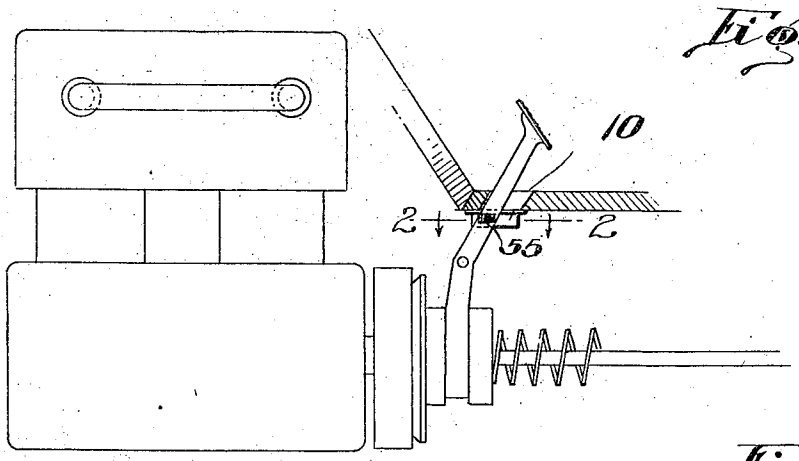


Fig. 7.

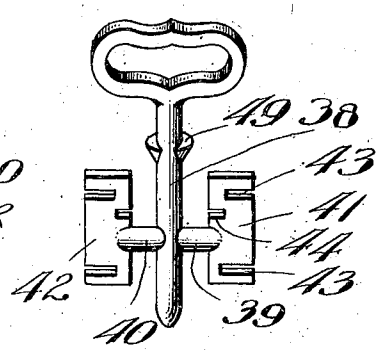


Fig. 2.

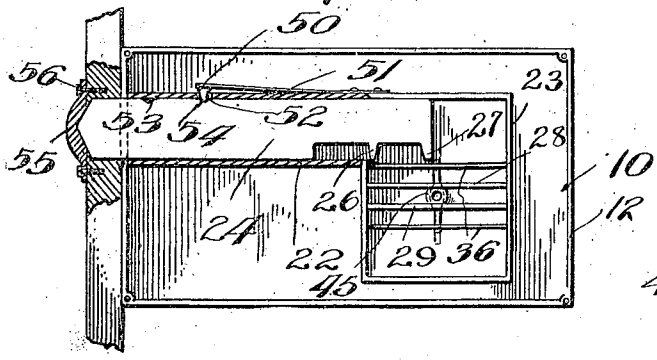
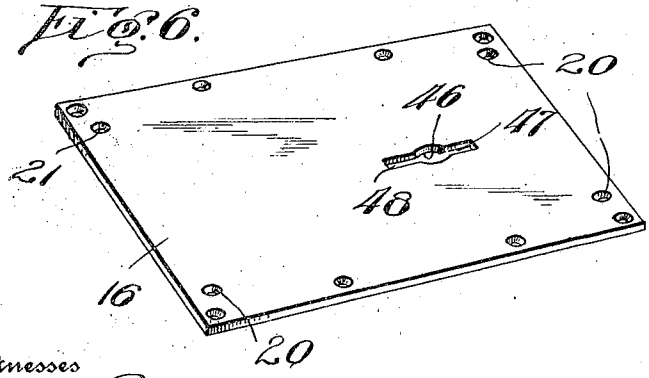


Fig. 6.



Witnesses

W. T. Woodson

Inventor

H. E. Robb

By

Attorneys

H. E. ROBB.

LOCK.

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2 SHEETS—SHEET 2.

Fig. 5.

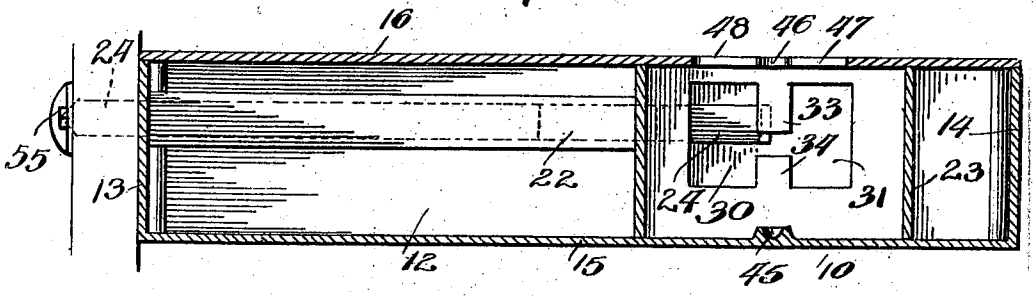


Fig. 4.

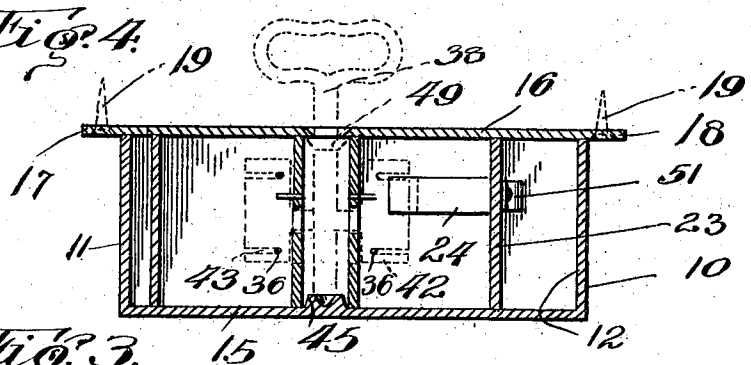
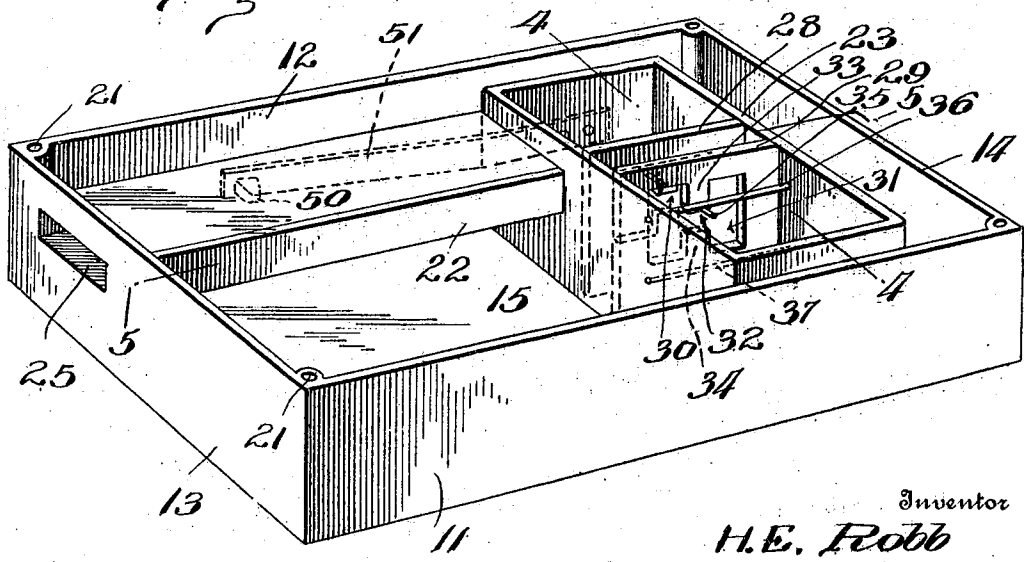


Fig. 3.



Inventor

H. E. Robb

Witnesses

W. T. Woodson

By H. A. Toomey, Attorneys.

UNITED STATES PATENT OFFICE.

HAROLD E. ROBB, OF FLORENCE, SOUTH DAKOTA.

LOCK.

1,130,337. Specification of Letters Patent. Patented Mar. 2, 1915.

Application filed February 25, 1914. Serial No. 821,034.

To all whom it may concern:

Be it known that I, HAROLD E. ROBB, citizen of the United States, residing at Florence, in the county of Codington and State of South Dakota, have invented certain new and useful Improvements in Locks, of which the following is a specification.

The present invention relates to new and useful improvements in safety locks for automobiles such as are employed in guarding against the operating of the machine by an unauthorized person.

An object is to provide yieldable means for holding the bolt in locking relation to the clutch pedal, such yieldable means being of sufficient strength to prevent the bolt from jarring out of place as by the vibration of the engine, but being so engaged with the bolt that it will give way to permit the bolt to be withdrawn when the key is properly applied.

An object of equal importance with the foregoing is to construct the locking device with such regard to proportion, number and arrangement of parts that it may be cheaply manufactured, will be durable and efficient in its action, and may be readily applied to any standard form of automobile without requiring any material changes in the construction thereof.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification, and then more particularly pointed out in the claims, which are appended hereto and form a part of this application.

With reference to the drawings, wherein there has been illustrated the preferred embodiment of this invention as it is reduced to practice, and throughout the several views of which similar reference numerals designate corresponding parts,

Figure 1 is a fragmentary section taken through the floor of an automobile body, illustrating the relation which the lock of this invention assumes with respect to the clutch pedal and floor of the car; Fig. 2 is an enlarged section taken on the line 2—2 of Fig. 1; Fig. 3 is a perspective view of the casing in which the sliding bolt is received. This figure also illustrates the bolt plates and associated bolt pins and rod which are adapted to prevent the use of any counterfeit key in releasing the bolt from engagement with the clutch pedal; Fig. 4 is a section on the line 4—4 of Fig. 3; Fig. 5 is a section on the line 5—5 of Fig. 3; Fig. 6 is a detail perspective view of the cover plate for the bolt casing; and Fig. 7 is a detail view of the key.

As previously explained, the preferred embodiment of this invention consists essentially in a key actuated sliding bolt, a number of block plates and pins which prevent the use of a counterfeit key, and a casing in which the block pins and bolt are received. The lock casing, designated by the numeral 10, is formed from brass, steel, or any other desired metal, and includes the side walls 11 and 12, the end walls 13 and 14, the bottom wall 15, and the cover plate 16. It will be seen upon reference to Fig. 4 particularly that the cover plate 16 is of greater breadth than the member 10, thus producing the laterally extending flanges or ledges 17 and 18, each of which is provided with a number of spaced apertures adapted to receive screws, bolts or similar fastening devices, which, as indicated at 19, are employed in securing the lock casing to the lower face of the car floor. The manner in which the lock casing is attached to the car floor will be readily understood upon reference particularly to Fig. 1. In securing the top plate 16 to the member 10, screws are inserted through the apertures 20 formed at the four corners of the plate and threaded into the threaded bores 21 formed in the corner enlargements which are located at the junction of the end and side walls of the member 10, as in Fig. 3.

Interiorly of the member 10 are arranged two casings, indicated at 22 and 23, the member 22 being substantially rectangular in shape and somewhat elongated inasmuch as it is adapted to serve as a housing in which the sliding bolt 24 may be received. The casing 22 is, of course, open at both ends, one end, indicated at 25, opening through the end wall 13 of the casing 10. The other end of the member 22 opens into the adjacent wall of the casing 23. This last-mentioned casing is adapted to receive the block plates and block pins which prevent, as previously explained, the use of a counterfeit key in withdrawing the bolt 24 from engagement with the clutch pedal. The bolt member 24 is formed from an elongated bar of metal, the rear terminal of which is cut-away at one edge to produce the spaced fingers 26 and 27. These fingers

are adapted to be engaged by the webs of the key member when the key is inserted and properly rotated in a manner to be hereinafter explained.

Within the casing 23, and spaced equidistantly on each side of the center thereof, are secured a pair of parallel vertically extending block plates, indicated by the numerals 28 and 29. These members 28 and 29 are substantially identical in construction, and it will be necessary, therefore, to describe only one of them in detail, the member 29 being chosen in this instance, inasmuch as it is more clearly disclosed in the drawings. As will be seen upon reference to Fig. 3, this plate member 29 is substantially square in outline, and is cut-away at its center to produce two substantially rectangular openings 30 and 31. These openings 30 and 31 communicate with each other through an opening 32. This opening 32 is of less height than the openings 30 and 31, the purpose in thus forming the opening 32 being to produce the stop fingers 33 and 34. Extending laterally from the stop fingers 33 are block pins, indicated at 35. A pair of additional stop pins or ribs 36 and 37 are secured within the casing 23, being arranged in spaced relation to the outer face of the plate 29. The pin 36 is mounted somewhat below the upper edges of the openings 30 and 31, while the member 37 is arranged somewhat above the lower edges of these openings.

It should be remembered that the plate 28 is similar to the member 29, being formed with similar openings and similar block lugs, and also that the upper block lug of the plate 28 carries a lateral block pin, and that a pair of transverse block rods are mounted in spaced relation to the exterior face of the member 26. The purpose in thus duplicating the members 29, 35, 36 and 37 is to prevent the bolt from being manipulated by any key other than one of the type shown in Fig. 7 particularly. Referring now to this figure, it will be seen that the key includes a shank or stem 38, intermediate the length of which are formed two alined laterally extending fins 39 and 40. On the upper ends of these members 39 and 40 are formed two similar webs 41 and 42. Each of the members 41 and 42 is substantially rectangular in shape and is provided adjacent each end with transverse slots 43 which extend inwardly from the outer edge of the web. From the inner edge of each web member, and at a point above the members 39 and 40, are the inwardly extending slots 44. As will be hereinafter described the fins 39 and 40 are adapted to move through the openings 32 of the plates 28 and 29. The webs 41 and 42 are adapted to move through the openings 30 and 31 of the two plates 20 and 29 upon the rotation of the key. The slots 43 receive the block rods 36 and 37, and the slots 44 receive the block pins 35.

A cup member, indicated at 45, is formed on the bottom wall 15 of the casing 10, at a point approximately in the center of the casing 23. This cup member, as shown in Fig. 4, is adapted to receive the lower rounded terminal of the key stem 38, so that when the key is inserted it will be properly centered to bring the webs 41 and 42 in such position that they may readily pass through the openings 30 and 31.

The cover plate, as shown in Fig. 6, is formed with a key hole 46, extending from diametrically opposite points of which are the slots 47 and 48. The key hole 46 is elliptical in shape, and is adapted to receive the elliptically tapered collar 49 which is formed on the stem 38 of the key. The slots 47 and 48 receive the webs 41 and 42 when the key is inserted in the casing 10. It will be apparent that when the key has been turned in the act of manipulating the bolt 24, the upper face of the collar 49 will engage against the lower face of the cover plate 16, as in Fig. 4. The key is thus properly centered and held for rotation about a vertical axis by the engagement of the lower end of the stem 38 in the cup 45, and the engagement of the member 49 with the lower face of the cover plate.

As a means for preventing the accidental withdrawal of the bolt 24 from locking engagement with the clutch pedal, such as might occur as a result of the vibration of the engine, the starting of which will not be prevented by locking the clutch pedal, I have provided a lock pin 50 which is secured to the terminals of a leaf spring 51, and is insertable through an opening 52 formed in the bolt housing 22. The bolt is provided in its edge adjacent the member 52 with a pair of spaced notches or recesses, indicated at 53 and 54. These notches are adapted to receive the pin 50 in the manner shown ir Fig. 2 particularly.

It will now be observed that while there has been provided key actuating means for moving the bolt 24 into or out of engagement with the clutch pedal, there is no means other than the spring pressed locking pin 52 for holding the lock either in locking or spaced relation to the clutch pedal. Inasmuch as the bolt 24 is adapted to be inserted through an aperture or slot formed in the clutch pedal, as shown in Fig. 2, it is necessary to provide some means to prevent an unauthorized person from reaching under the floor of the vehicle and pushing the bolt back into the casing 10, thus withdrawing the bolt from locking engagement with the clutch pedal. In order to guard against such a happening, there has been provided a closure cap 55 wich is secured by means of a screw or simlar fas

tening device to the face of the clutch pedal remote from the casing 10. This cap forms a closure for the bolt receiving opening of the clutch pedal, as will be clearly seen upon reference to Fig. 2.

The actual construction and arrangement of the several elements of the invention being thus disclosed, reference will now be had to the manner in which the various parts of the device operate when it is desired to either lock or unlock the clutch pedal. First assuming that the bolt 24 is in locked position, as shown in Fig. 4: The key is inserted through the cover plate 16 by passing the webs 41 and 42 through the slots 47 and 48, and the stem 38 through the key hole 46. When the lower terminal of the stem is engaged in the cup 45, as in Fig. 4, the operator turns the key in a clockwise direction. When the key is first inserted in the casing 10, the members 41 and 42 are disposed in the space comprehended between the block plates 28 and 29. When the key is rotated, however, it will be seen that the webs will pass through the opposed openings of the plates. When the web 42 is passed through the opening 30′, it will engage the finger 27, and will tend to withdraw the bolt 24 from engagement with the clutch pedal. The web 42, however, will be released from the finger 27 before the bolt 24 has been moved the necessary distance to disengage its terminal from the clutch pedal. By giving the key another turn, however, the web 41 will pass through the opening 30, then through the opening 30′, and will engage the finger 26 which has been moved into the position previously occupied by the finger 27. It being disengaged from the finger 27, the web 41 will have moved the bolt such a distance that its terminal will be disengaged from the clutch pedal, and the pedal may be freely moved to throw the clutch in or out, in the usual manner.

From the foregoing description, it will be appreciated that it is necessary to rotate the key twice to withdraw the bolt from the pedal. The same is true regarding the operation to move the bolt from unlocked to locked position. That is to say, it is necessary to twice rotate the key before the bolt has been moved into complete locking engagement with the clutch pedal. The operation of the fins 41 and 42, and their passage through the various openings of the lock plate, as well as their engagement with the fingers 27 and 28 is substantially identical with the above described operation of the webs when the bolt is withdrawn from the clutch pedal, the only difference being that the key must be turned in a counter-clockwise direction. As previously explained, the stop pin 50 is rounded, and is of such length that, while it will hold the bolt against accidental displacement, it will be forced out of the notches 53 and 54 when the key is rotated to bear against the fingers 26 and 27 with a slight pressure.

In concluding the description of the drawings, attention is directed particularly to the fact that the key consists in two web members, each of which must be provided with two slots which extend inwardly from its outer edge, and one slot extending inwardly from its inner edge, otherwise the block pin 35 and block rods 36 and 37 will prevent the key from being turned. It will be further noted that unless the key applied to the casing consists in two webs, which are spaced from the stem, it will be impossible to rotate the key, inasmuch as the block lugs 33 and 34 would engage in the web extending directly from the stem of the key.

In reduction to practice, it has been found that the form of this invention illustrated in the drawings, and referred to in the above description as the preferred embodiment is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of this device will necessarily vary, it is desirable to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of this invention, as defined in the appended claims.

The opening in the clutch pedal is preferably formed in such a manner as to be in alinement with the locking bolt when the clutch is thrown out or in inactive position. This permits locking of the vehicle while the engine is running, and avoids any possibility of accident through the throwing in of gears by unauthorized persons, even though the engine is running.

What I claim is:

1. In a lock, a casing, a key actuated bolt slidable therethrough, a pair of spaced lock plates arranged within the casing, said plates being adapted to receive a key between them, there being openings formed in the plates, a plurality of lock rods extending in spaced relation to the plates, and lock pins carried by the plates.

2. In a lock, a casing, a key actuated bolt slidable therethrough, a pair of spaced parallel lock plates arranged within the casing and provided with openings through which the webs of a key positioned between the lock plates may be projected, a plurality of lock rods extending in spaced relation to the plates and exteriorly thereof, and lock pins coöperating with the rods to prevent the rotation of a false key between the plates.

3. In a lock, a casing, a key actuated bolt slidable therethrough, spaced parallel plates arranged within the casing, said plates being provided with openings having H-shaped outlines, a plurality of lock rods extending

in parallel spaced relation to the plates and exteriorly thereof, and lock pins projecting laterally from the plates, said lock pins being positioned to coöperate with the lock rods for preventing a false key from engaging the bolt.

4. In a lock, a casing, a key actuated bolt slidable therethrough, spaced plate members arranged in parallel spaced relation to each other and provided with transversely alined substantially H-shaped openings, and a pair of lock pins disposed adjacent each plate member, said pins extending in parallel spaced relation to each other and to the plates and being arranged upon opposite sides of the transverse portions of the openings, said pins being located to prevent a false key from engaging the bolt.

5. A lock including a body casing, an open top casing arranged within the body casing and extending transversely thereof, a bolt slidable along one side of the body casing, and a pair of apertured lock plates arranged within the second mentioned casing, said plates being adapted to receive between them a key which may be rotated to project its webs through the apertures of the plates and into engagement with the bolt to operate the latter.

6. In a lock, a casing, a key actuated bolt, and a pair of spaced lock plates arranged within the casing, said plates being adapted to receive between them a key and being provided with openings through which the webs of the key may pass into engagement with the bolt.

7. In a lock, a casing, a key actuated bolt slidable therethrough, lock plates having openings adapted to accommodate a key, lock rods, and lock pins associated with the plates, and positioned to coöperate with the lock rods to prevent the engagement of a false key with the bolt.

In testimony whereof I affix my signature in presence of two witnesses.

HAROLD E. ROBB. [L. S.]

Witnesses:
E. C. USTRUD,
JULIUS HOGSTAD.