Aug. 4, 1953 G. W. BAUMANN 2,647,937

IGNITION LOCK FOR ENGINES

Filed Nov. 7, 1950

Fig. 1

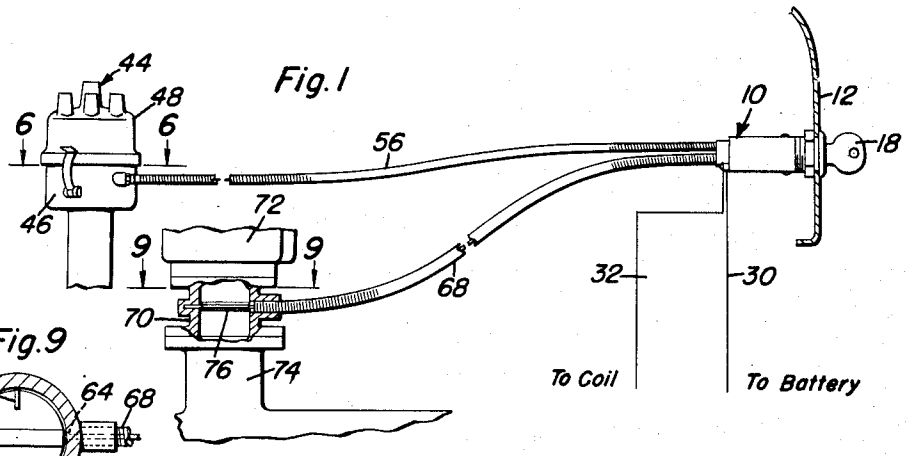


Fig. 9

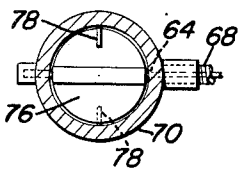


Fig. 2

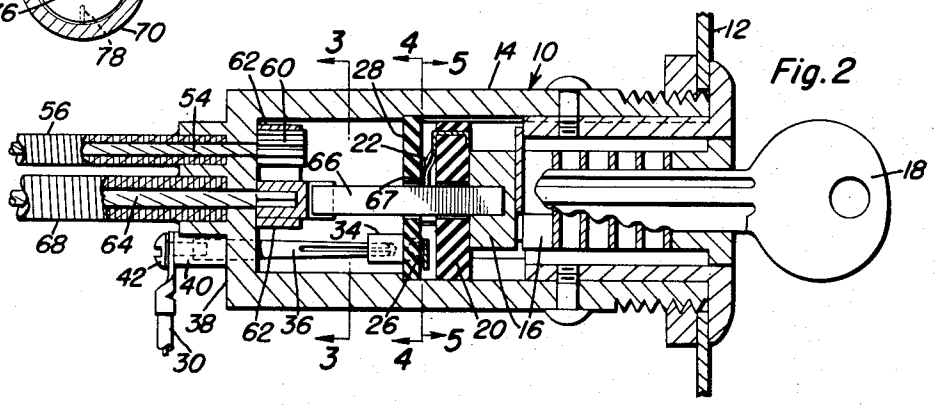


Fig. 3

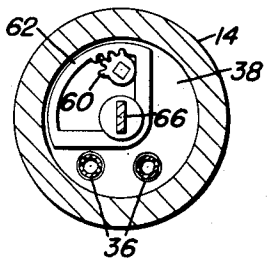


Fig. 4

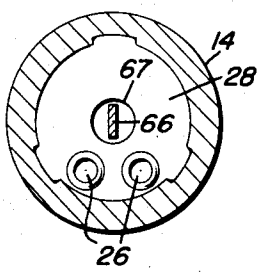


Fig. 5

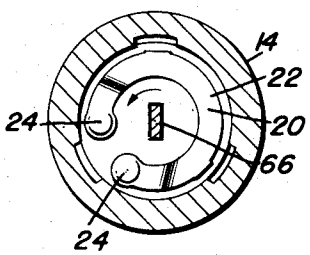


Fig. 6

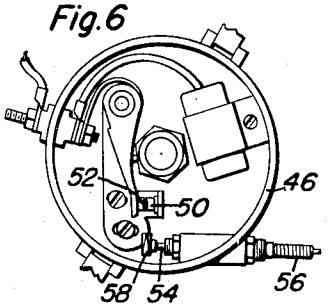


Fig. 7

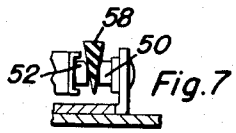
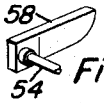


Fig. 8



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IGNITION LOCK FOR ENGINES

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2 Claims. (Cl. 123—146.5)

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This invention relates to new and useful improvements and structural refinements in locks for internal combustion engines such as are used in automobiles, trucks, et cetera, and the principal object of the invention is to substantially minimize, if not completely eliminate, the possibility of such vehicles being stolen or used by unauthorized persons.

The above object is achieved by the provision of locking means which, in response to a turn of a key, open the primary circuit of the ignition coil, electrically isolate the contact points of the distributor, and close a valve between the carburetor and the intake manifold.

Some of the advantages of the invention reside in its simplicity of construction, in its efficient and dependable operation, and in its adaptability for use with internal combustion engines of different types.

With the above more important objects and features in view and such other objects and features as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a side elevational view of the invention;

Figure 2 is a longitudinal sectional detail of the ignition switch, with operative connections to the carburetor and distributor locking means;

Figure 3 is a transverse sectional detail, taken substantially in the plane of the line 3—3 in Figure 2;

Figure 4 is a transverse sectional detail, taken substantially in the plane of the line 4—4 in Figure 2;

Figure 5 is a transverse sectional detail, taken substantially in the plane of the line 5—5 in Figure 2;

Figure 6 is a plan view of the distributor with the cover thereof removed and showing the locking means therein;

Figure 7 is a fragmentary sectional view of the distributor locking means;

Figure 8 is a fragmentary perspective view of the locking insulator of the distributor, and

Figure 9 is a transverse sectional detail, taken substantially in the plane of the line 9—9 in Figure 1.

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the general reference character 10 designates an ignition switch usually mounted upon an

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instrument panel 12, the switch 10 embodying in its construction a cylindrical housing 14 in which is rotatable a conventional lock cylinder 16 actuated by a key 18.

A disk 20 of insulating material is rotatable with the lock cylinder 16 and carries an arcuate contact member 22, the terminals 24 of which are adapted to engage a pair of terminals 26 provided on a stationary plate 28 which is disposed intermediate the ends of the housing 14.

One of the terminals 26 is connected by a wire 30 to a source of current, while the second terminal 26 is connected by a wire 32 to the primary circuit of an ignition coil (not shown). To facilitate these connections, the plate 28 carries a pair of sockets 34 which are in circuit with the respective terminals 26 and are adapted to receive tapered prongs 36 which extend into the housing 14 through the end wall 38 of the latter and are in circuit in insulated posts 40. Of course, two of the posts 40 are provided on the end wall 38 of the housing 14, one post for each prong 36 and terminal 26, and the wires 30, 32 are connected to the respective prongs in the respective posts by suitable screws 42.

It will be apparent from the foregoing that when the switch 10 is in its closed position, the contact member 22 bridges the terminals 26 and electric current may flow through the primary of the coil. However, when the key 18 is rotated so as to open the switch 10, the terminals 24 of the contact member 22 do not engage the terminals 26 and, accordingly, passage of current through the primary of the coil is prevented.

The foregoing arrangement is, of course, of a conventional nature, and the essence of novelty in the invention resides in the provision of means for preventing intake of combustible fuel mixture into the engine and for electrically isolating the contact points of the distributor when the switch 10 is in its open position. The latter will first be described, reference being had to Figures 1 and 6 wherein the general reference character 44 designates a distributor including a housing 46 and a removable cap 48, there being provided within the housing 46 a stationary contact point 50 and a coacting, movable contact point 52.

A flexible drive shaft 54, covered by an armoured casing 56, extends from the switch 10 to the distributor 44 and a wedge-shaped insulator 58 is secured to the drive shaft 54 and is swingable from a substantially vertical, neutral position as shown in Figure 6 to a substantially horizontal position as shown in Figure 7, wherein the insulator 58 is pressed between the contact points

50, 52 for the purpose of electrically isolating the same.

The drive shaft 54 extends into the switch housing 14 through the end wall 38 and has secured thereto a pinion 60 which meshes with the teeth of a segment 62, the latter being mounted upon a second drive shaft 64 which also enters the housing 14 through the end wall 38.

A bar 66 of rectangular cross-section extends from the segment 62 through the plate 28 and through the disk 20 into the lock cylinder 16 so that when the key 18 and the lock cylinder 16 are rotated, the segment 62 and the pinion 60 are rotated therewith. It is to be noted in this connection that the plate 28 is provided with a circular aperture 67, in which the bar 66 is freely rotatable.

When the lock cylinder 16 of the switch 10 is in its closed position, the insulator 58 is disposed vertically or neutrally, but when the switch 10 is open, the insulator 58 enters between the contact points 50, 52 of the distributor, thus preventing the latter from functioning.

The aforementioned drive shaft 64 is also enclosed in an armoured casing 68 and extends to the usual riser 70 between the carburetor 72 and the intake manifold 74, the riser 70 having provided therein a butterfly valve 76 which is secured to the drive shaft 64 and is rotatable between suitable stops 78 projecting into the riser. When the switch 10 is open, the butterfly valve 76 is also in its open position, but when the switch 10 is closed, rotation of the lock cylinder 16 is transmitted by the shaft 64 to the valve 76, thus closing the latter and preventing the admittance of fuel to the intake manifold of the engine.

It will be apparent from the foregoing that by simply turning the key 18 to its locked position, the circuit to the primary of the ignition coil is broken, the contact points 50, 52 of the distributor are electrically isolated and the admission of fuel mixture to the engine is prevented, thus affording a triple safeguard against the possible starting of the engine by unauthorized persons.

It is believed that the advantages and use of the invention will be clearly understood from the foregoing disclosure and accordingly, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this

invention, it is to be understood that minor changes in the details of construction and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

1. In combination with an internal combustion engine including a distributor having a pair of contact points movable toward and away from each other, an ignition coil in circuit with said contact points, a rotary ignition switch between said coil and a source of electric current, a lock comprising an armor covered flexible drive shaft extending into said distributor, a wedge-shaped insulator secured to said shaft and swingable from a neutral position to a position wherein it separates and electrically isolates said contact points, and means operatively connecting said drive shaft to said rotary ignition switch, whereby said insulator may be interposed between said contact points when the ignition switch is rotated to its open position.

2. The device as defined in claim 1 wherein said ignition switch includes a housing, a lock cylinder rotatable therein, a stationary plate provided in said housing, a pair of terminals carried by said plate and connected to said coil and source of current respectively, a contact member rotatable with said lock cylinder from an open position to a closed position wherein it electrically connects said terminals, said means for operatively connecting said shaft to said switch comprising a rotatable coupling member connected to said cylinder, a toothed segment carried by said coupling member, and a pinion rotatable in said housing in mesh with said segment and having the drive shaft connected thereto.

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