Aug. 1, 1950 P. L. RIGGS 2,517,506

COMBINED IGNITION AND STARTER SWITCH

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Fig. 1.

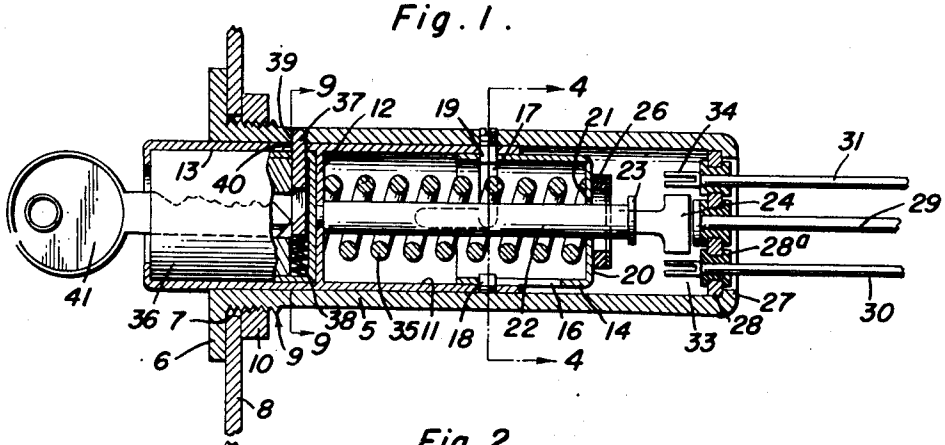


Fig. 2.

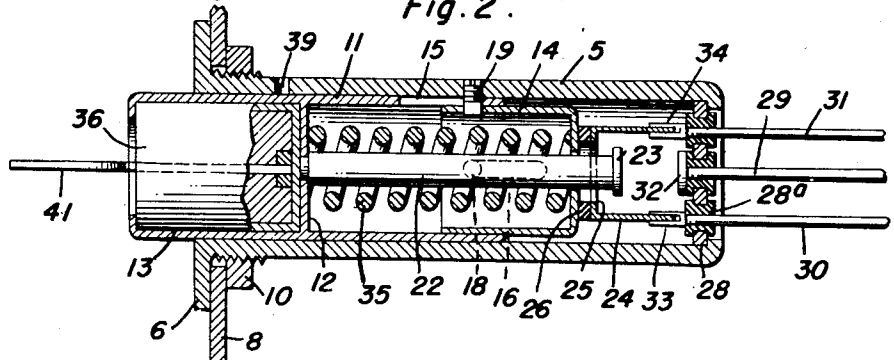
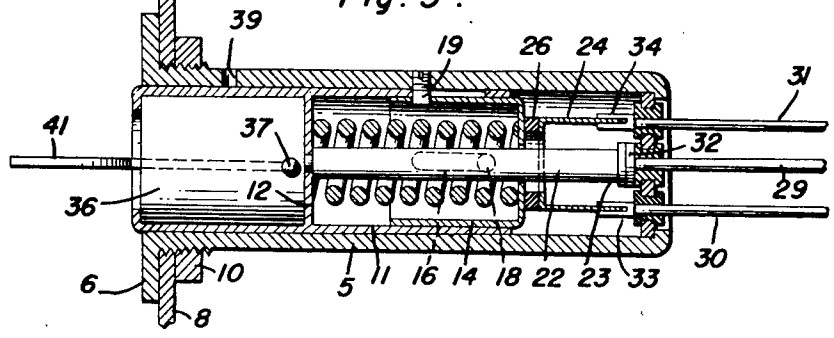


Fig. 3.



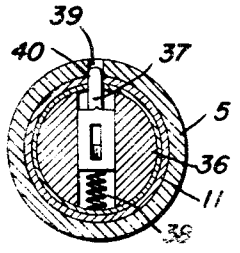


Fig. 9.

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Fig. 4.

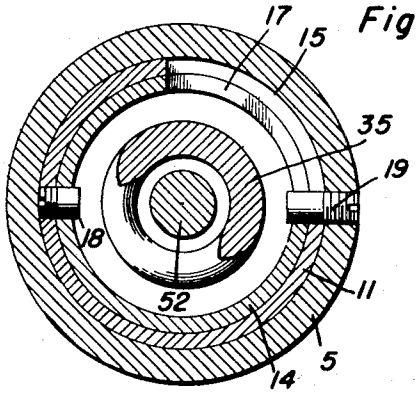
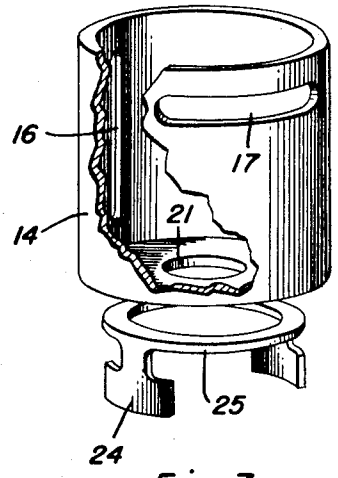


Fig. 6.



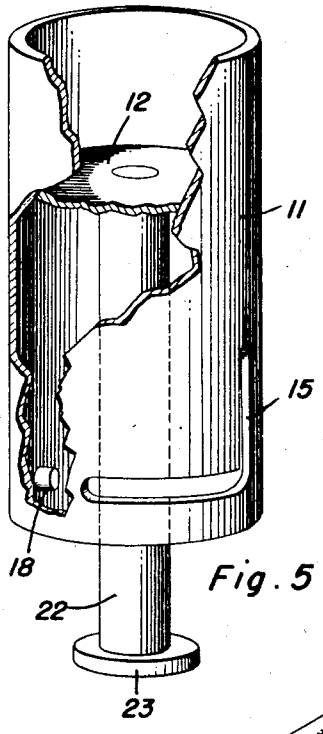


Fig. 5.

Fig. 7.

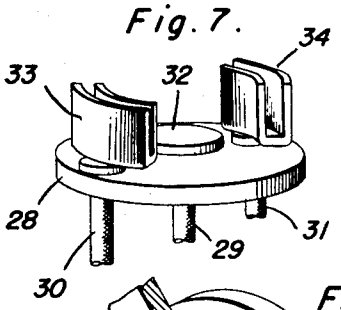
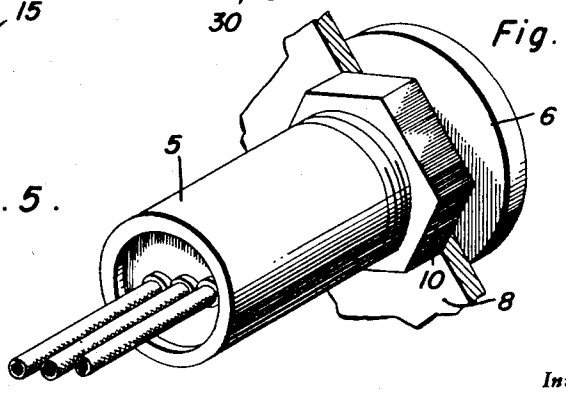


Fig. 8.



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COMBINED IGNITION AND STARTER SWITCH

Phillip L. Riggs, Norfolk, Va.

Application January 27, 1948, Serial No. 4,584

3 Claims. (Cl. 200—4)

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The present invention relates to new and useful improvements in combined ignition and starter switches and more particularly to a key controlled switch of this character.

An important object of the invention is to provide a multiple switch for controlling the ignition and starter circuits of an automobile or other motor vehicle and including a slidable and rotatable barrel operable to initially close the ignition circuit by a rotary movement of the barrel and to subsequently close the starter circuit by a sliding movement of the barrel and further to provide a key controlled lock for the switch.

A still further object is to provide a device of this character of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a longitudinal sectional view of the switch housing showing both the ignition and starter circuits in open position,

Figure 2 is a similar view showing the ignition circuit in closed position,

Figure 3 is a similar view showing both circuits in closed position,

Figure 4 is an enlarged transverse sectional view taken substantially on the line 4—4 of Figure 1,

Figure 5 is an enlarged perspective view of the outer barrel of the lock and with parts broken away and shown in section,

Figure 6 is a similar view of the inner barrel and with parts broken away and shown in section,

Figure 7 is a perspective view of the stationary contacts for the ignition and starter circuits,

Figure 8 is a perspective view of the inner end of the assembled switch, and

Figure 9 is a transverse sectional view taken substantially on a line 9—9 of Figure 1.

Referring now to the drawings in detail wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention, the numeral 5 designates a tubular switch housing having an annular flange 6 at its front end and placed in an opening 7 of the instrument panel 8 of a motor vehicle with the flange 6 abutting the outer surface of the instrument panel. The

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housing 5 is externally threaded adjacent its front end to receive a nut 10 positioned at the rear of the instrument panel to clamp the housing in a horizontal position therein.

An outer barrel 11 is rotatably and slidably mounted in the housing 5 and is formed with a transverse partition 12 to provide a chamber 13 in its front end and is open at its rear end to slidably receive an inner barrel 14 therein.

The outer barrel 11, adjacent its rear end is formed with an L-shaped slot 15 and the inner barrel 14 is formed at one side with a longitudinal extending slot 16 and at a substantially diametrically opposite side with a circumferential slot 17.

A stud 18 threaded into the outer barrel 11 is received in the longitudinal slot 16 to connect the barrels for uniform rotary movement and to provide for a sliding movement of the outer barrel 11 relative to the inner barrel 14. A second stud 19 is threaded through the housing 5 and is received in the slots 15 and 17.

The rear end of inner barrel 14 is partially closed as shown at 20 to provide a central opening 21 through which a stem 22 is slidable, the front end of the stem being suitably secured to the partition 12 and extends longitudinally through the barrels 11 and 14. The rear end of stem 22 is formed with an annular contact 23.

A pair of arcuate contacts 24 project rearwardly at diametrically opposite sides of a ring 25 and which is suitably secured to the rear end 20 of barrel 14 by an insulation ring 26.

The rear end of housing 5 is formed with an internal annular flange 27 to the inside of which is suitably secured a disk 28 having a circuit wire 29 positioned centrally therein and connected to the usual starter motor (not shown) and also having a pair of circuit wires 30 and 31 extending therethrough adjacent diametrically opposite sides of the disk 28, the circuit wire 30 leading from a battery (not shown) and the circuit wire 31 being connected to a coil (not shown) of the usual ignition system.

The wires 29, 30, and 31 are suitably insulated from the disk 28 by insulation sleeves 28a.

A stationary contact 32 is formed at the inner end of wire 29 and arcuate channel shaped stationary contacts 33 and 34 are suitably connected to the inner ends respectively of wires 30 and 31.

A coil spring 35 is positioned in the barrels 11 and 14 with one end bearing against partition 12 and its other end bearing against closed end 20 of inner barrel 14, the barrel 14 being held against sliding movement by stud 19 so that the

spring normally projects the front end of barrell 11 forwardly of the instrument panel 8.

A lock casing 36 is suitably held in chamber 13 and includes a laterally slidable locking bolt 37 projected outwardly by a coil spring 38 in locking engagement with aligned openings 39 and 40 respectively in the housing 5 and barrel 11 to lock the barrel 11 against movement in its forwardly projected position and with both the ignition and starter circuits in open position, as shown in Figure 1. The bolt 37 is controlled in a usual manner for unlocking movement by a key 41 when inserted in the lock casing. The key also operates to turn the barrel 11 after unlocking bolt 37.

In the operation of the device, the contacts 24 are held out of engagement with contacts 33 and 34 and the contact 23 held out of engagement with contact 32 by spring 35 and the switch barrels 11 and 14 locked in circuit open position by bolt 37.

The insertion of key 41 in lock 36 unlocks bolt 37 to free the barrel 11 for rotary and sliding movement. The key is first turned to rotate barrel 11 and which in turn rotates barrel 14 by reason of their connection by pin 18 and contacts 24 are moved into engagement with contacts 33 and 34 to close the ignition circuit. During this action pin 19 travels in the circumferential part of slot 15 to a position at the rear end of the longitudinal part of said slot.

Key 41 and the outer end of barrel 11 are then pressed inwardly which causes pin 19 to travel in the longitudinal part of slot 15, the barrel 14 being held stationary and pin 18 travels in longitudinal slot 16 of barrel 14, so that rod 22 with contact 23 at its rear end engages contact 32 to close the circuit for the starter. Releasing inward pressure on key 41 and barrel 11 will enable spring 35 to slide barrel 11 outwardly to open the starter circuit while the ignition circuit remains closed.

To open the ignition circuit it is necessary to turn key 41 and barrel 11 in a reverse direction to remove contacts 24 from engagement with contacts 33 and 34.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

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

1. A combined ignition and starter switch comprising inner and outer interconnected and relative slidable barrels having uniform rotary movement, each of said barrels carrying at least one movable contact, a casing slidably receiving the barrels, stationary contacts carried at the inner end of the casing respectively engageable by the movable contacts, means connecting the inner barrel to the casing to hold the inner barrel against sliding movement, the contact of the inner barrel being moved into circuit closing position with one of the stationary contacts by a rotary movement of said inner barrel, and a lock including a key operated bolt carried by the outer barrel engaging the casing for locking both barrels, said key rotating the barrels by a turning movement of the key to initially move the contact of the inner barrel into circuit closing position, and said outer barrel being slidable to subsequently move its contact into circuit closing position.

2. A combined ignition and starter switch comprising inner and outer interconnected and relative slidable barrels having uniform rotary movement, each of said barrels carrying at least one movable contact, a casing slidably receiving the barrels, stationary contacts carried at one end of the casing respectively engageable by the movable contacts, means connecting the inner barrel to the casing to hold the inner barrel against sliding movement, the contact of the inner barrel being moved into circuit closing position with one of the stationary contacts by a rotary movement of said inner barrel, a lock including a key operated bolt carried by the outer barrel for locking engagement with the casing for locking both barrels, said key rotating the barrels by a turning movement of the key to initially move the contact of the inner barrel into circuit closing position, the contact of said outer barrel being moved into its circuit closing position by an inward sliding movement of the outer barrel in the casing, and spring means projecting the outer barrel to move its contact into circuit open position.

3. A combined ignition and starter switch comprising a stationary casing, inner and outer telescoping hollow barrels enclosed in the casing, an internal pin in the casing, a circumferential slot in the inner barrel and a slot in the outer barrel including communicating circumferential and longitudinal portions, both of said slots receiving the pin, said inner barrel being rotatable and non-sliding on the pin and said outer barrel being both rotatable and slidable on the pin, a pin and slot connecting the inner and outer barrels for rotation as a unit, each of said barrels having at least one switch contact at its inner end for movement therewith, stationary contacts in the adjacent end of the casing, in the path of circuit closing movement of said first named contacts the inner barrel moving its contact into circuit closing position by a rotation thereof and the outer barrel moving its contact into circuit closing position by a sliding movement thereof and key controlled locking means for the outer barrel locking the same to the casing with the contacts in circuit open position.

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