This invention relates to steering post locks of the type in which the locking of the post controls the opening and closing of the ignition circuit.

The principal object of the present invention is to provide a simple and efficient lock and in which the ignition cannot be closed without unlocking the steering rod, and in which the ignition cannot be opened without simultaneously locking the car.

In the drawings:

Fig. 1 is a view partly in section taken at right angles to the axis of the steering post.

Fig. 2 is a similar view at right angles thereto.

Fig. 3 is a top plan view with the top of the swivel box removed.

Fig. 4 is a section taken on line 4—4 of Fig. 2.

The housing for the steering post lock consists in a main member 20 and a smaller saddle or cover member 21, these two members having a smooth bore between them snugly engaging the steering post tube or jacket. Bolts 23 permanently secure the two halves of the housing together, and also afford the means for securing the housing to the steering post jacket. The housing and its bolts are at the present time well recognized articles of manufacture and further description of them is believed unnecessary.

The major portion 20 of the housing has tapered sides 24 and 25, a plane face 27 and a tapered rear face 28 having the usual seven degree draft in order to permit drop forging.

A two diameter cylindrical bore opens to the front face 27, the smaller portion of the bore receiving the barrel 30 of a cylindrical lock of the type having a slightly enlarged head 32, which head rests on the shoulder formed in the bore, but not filling the larger bore. The cap 35 rather snugly fits within the larger portion of the bore. Both the cap 35 and the lock are permanently secured in the housing by means of a pin 38.

The locking bolt 40 is adapted to pass through a hole in the steering post, as is fairly common practice, and this bolt 40 has a preferable integral head 41, which receives semi-permanently a small pin 42, by means of which a lever arm 43 secured to the rotating cylinder of the lock, retracts the bolt 40 against its spring 45.

I find it convenient to mount in a cylindrical bore, opening to the top of the housing, a hollow cylindrical plug 46 secured in place in the housing by bosses 47. The large central bore of this plug receives the head 41 of the locking bolt 40. The pin 42 passes through a slot 50 in the plug 46, this slot being centrally disposed on a plane face of the plug which provides space for the arm or lever 43 which operates the bolt and also permits the installation of the plug bolt and pin in the housing as a unit.

A detent 70 is pivoted at 71 to the casing and is provided with a notch adapted to engage an edge of the key for the lock 30, there being a spring shown diagrammatically at 71, surrounding the pivot 71 to hold the notch of the detent against the key when the steering post is unlocked, and for holding the detent against the stop 74 at other times. This detent, as customary, in the art, is manually operated and is a "safety first" feature to prevent accidental locking of the steering post when the driver does not wish it locked.

A second means for securing the same end, namely, that of preventing accidental shooting of the steering post locking bolt, is provided by a peculiar configuration of the lever 43 which is secured to the rotatable cylinder of the lock. Referring now particularly to Figure 4, 77 is a small slot in the lever 43 snugly receiving a generally rectangular extension 78 of the cylinder whereby rotation of the cylinder insures rotation about its axis of the lever 43. To insure such cooperation, I find it convenient to provide a screw or other fastenings 79 to secure the lever to the cylinder. In retracting the bolt the pin 42 rides on the smooth surface of the lever (as shown in Figure 4) until it reaches nearly the end of its unlocking movement. At this point the pin 42 rides over the rounded projection 82 and is then received in the rounded notch 83 between the projection 82 and a similar but longer projection 84.

This forms a very efficient means for preventing accidental shooting of the bolt. When the pin 42 is in the recess 83, any jar given the bolt 40 in a direction which might tend to shoot it to locking position is transmitted by the lever 43 to the wall of the housing, and the harder the blow, the more firmly the parts will bind. The only manner in which the bolt can be shot when the pin is in the recess 83 is by turning the key and causing the pin to first rise over the projection 82.

In order to position the housing on the steering post tube or jacket, I provide a boss 90 on the main portion of the housing and a similar and opposite boss on the smaller section of the housing, these two bosses 90 and 91 fitting in circular holes in the jacket. By this rather simple means, I very efficiently prevent a rotat-
ing movement of the housing about the tube or jacket with a consequent dislocation of the locking bolt with respect to the hole in the steering post tube. It will be noted that the locking bolt 40 passes centrally through the boss 90.

The ignition switch is mounted in a bakelite casing 100 having a bore 101 therein to receive a metallic cup-like plungor 102 capable of moving into engagement with the spring contacts 104 and 105 to which, respectively, the lead-in wires 106 and 107 are connected. The plug 46 has a small opening 110 therein to receive a spindle 111 having a head 112 between which and the bottom of the bore in the plug 46 is a small spring 114 of such size as not to interfere with the heavy spring which urges the bolt 40 into locked position. The spindle 111 is insulated from the metallic cup-like member 102 by disks 115 of insulating material. Movement of the bolt 40 to unlocking position will cause the head 41 of the bolt to engage the head 112 of the spindle, raising it until the member 102 makes engagement with the two contacts 104 and 105 closing the ignition circuit when the bolt 40 is entirely withdrawn. There is considerable play between the heads 41 and 112 to insure against rise of the contact making member 102 until such time as the bolt 40 is entirely withdrawn from the opening in the steering rod and is retracted into the boss 90. Obviously the locking of the steering post breaks the connection between the contacts 104 and 105 as soon as the spring 114 is free to move the head 112 downwardly toward the bolt 40.

What I claim is:

1. In a device of the character described, a housing, a bolt movable within said housing, a key operated lock mechanism for moving said bolt, a member lying in the path of said bolt, means for yieldingly holding said bolt and said member separated, a contact carried by said member adapted to open and close the ignition circuit and means pivoted on said housing for locking said lock mechanism in the position it assumes on closing said circuit.

2. In a device of the character described, a housing, having a two diameter bore therein, a hollow plug fitting the larger bore of the housing, a bolt slidably mounted in the smaller bore, a head within the larger bore and in the hollow of the plug, a spring in said plug engaging the head of the bolt to urge same into locking position, means for retracting the bolt, a member slidably mounted in said plug and lying in the path of movement of the head of the bolt, means for urging said member in a direction to contact with said bolt, and a contact member carried by and insulated from said member and adapted to open and close the ignition circuit.

3. In a steering post locking device, a housing surrounding the steering post tube and having a plurality of bores therein arranged at right angles to each other, one of said bores being of two diameters, a lock in one of said bores, a lever on the end of said lock, a bolt within the smaller diameter of the other bore, a head on said bolt, a spring in said head, said pin lying in the path of said lever, a stem co-axial with said bolt and having a head lying in the path of the head of said bolt, a switch casing mounted on top of said housing, a plurality of contact members in said casing insulated from each other and connected to the ignition circuit, and an electrically conducting member secured to said stem and adapted to be moved into position to electrically connect the two contact members when the bolt is retracted by means of said lever into position to engage said stem.

4. In a steering post lock, a steering post, a housing surrounding said post, a bolt within said housing, means for withdrawing the bolt against its spring pressure a switch mounted on said housing, a member extending thru said housing into the path of said bolt so as to be engaged thereby upon withdrawal of the bolt to operate said switch and means pivoted to said housing for locking said first means against accidental release.

5. In a steering post lock, a steering post, a housing surrounding said post, a bolt within said housing, a manually operated lock mechanism for retracting said bolt from locking engagement with said post, a shaft slideably thru a wall of said housing and having one end in the path of said bolt, an ignition circuit switch mounted on said housing, means carried by said shaft for closing the ignition circuit upon retraction of said bolt, and spring pressed means for automatically locking said lock mechanism in bolt retracting position.

6. In a steering post lock, a steering post, a housing surrounding said post, a spring pressed bolt within said housing positioned radially of the steering post axis, means for manually with drawing said bolt against its spring pressure, a switch detachably mounted on said housing, a member coaxial with said bolt extending thru said housing into the path of said bolt so as to be engaged thereby upon withdrawal of the bolt to operate said switch and a spring pressed detent pivoted on said housing for engaging and locking said means to thereby prevent accidental release of said bolt into post engaging position.

7. In a locking device, a housing having two bores therein at right angles to each other, a locking bolt in one bore, lock mechanism in the other bore, means operatively connecting the lock and bolt, an ignition circuit including two spaced contacts and means spaced from but in the path of movement of said bolt for closing the ignition circuit by bringing said contacts into electric engagement with one another.

8. The device of claim 7 in which the spaced means is yieldingly urged toward the locking bolt.

9. The device of claim 7 in which the spaced means and the locking bolt are urged in opposite directions by spring means.

10. The device of claim 7 in which the spaced contacts are carried by a casing detachably secured to the housing and the spaced means simultaneously engages both contacts.

11. In a steering post lock, a steering post tube, a steering post within said tube, a housing surrounding said post and projecting in part thru said tube, a spring pressed locking bolt extending thru said projecting portion to lock the post and tube against relative rotation, a key operated means for retracting said bolt from its post engaging position, means for locking said retracted means in retracted position, a spring pressed member spaced from said bolt but yieldingly held in the path of movement of said bolt when withdrawn from the steering post, and means carried by said member for making and breaking the ignition circuit upon movement of said member.

12. A steering mechanism and an ignition circuit, and coordinated means for rendering the mechanism and the circuit inoperative, said
means including a longitudinally movable bolt and a spring for moving the bolt in one direction for rendering the mechanism inoperative, a spring pressed push pin co-operating with the bolt for rendering the circuit inoperative when said bolt is moved in said one direction and spring actuated means for locking said bolt at the limit of its movement in the opposite direction at which limit said circuit is rendered operative by co-operation of the bolt and pin.

13. A steering mechanism and an ignition circuit, and coordinated means for alternately rendering the mechanism and the circuit operative and inoperative, said means including a longitudinally movable bolt for rendering the mechanism inoperative and a spring pressed push pin co-operating with the bolt for rendering the circuit inoperative and means for locking said bolt in circuit and mechanism operative position whereby said bolt is prevented from rendering the steering mechanism inoperative except at the will of the operator.

14. In a lock, a cylinder having a slot therein to receive a key, a pivoted spring pressed detent having a notch adjacent said slot and adapted to latch the key as the key is turned in unlocking direction whereby said key may not be turned to locking position until said detent is moved away from the key, and means for manually shifting said detent out of contact with said key.

15. In a steering post lock, a casing, a detent pivoted to the casing and provided with a notch adapted to engage an edge of the key for the lock, a stop on the casing, a spring for holding the notch of the detent against the key when the post is unlocked, and for holding the detent against said stop when the post is locked.

16. In an automobile lock, a casing having an opening therein to receive a key, a detent pivoted to the casing and provided with a notch adapted to engage an edge of a key in said opening, said detent being spring pressed in a direction to swing the detent over said opening and a stop on said casing for preventing said detent from covering the opening when the key is removed.

17. In an automobile lock, a casing, a cylinder therein having a slot for receiving a key, spring actuated means pivoted on said casing for engaging a key and a stop for preventing said means from covering said slot.

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