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W. P. LOUDON

1,657,129

LIGHTING AND IGNITION SWITCH

Filed Jan. 8, 1924

Fig. 1.

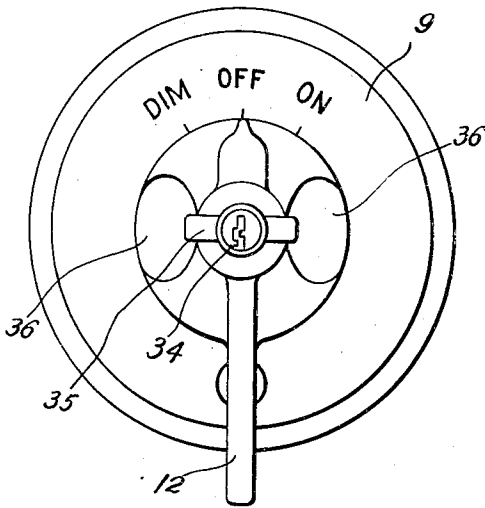


Fig. 2.

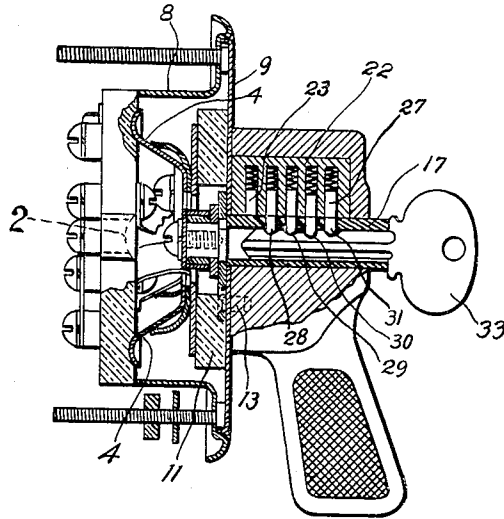


Fig. 3.

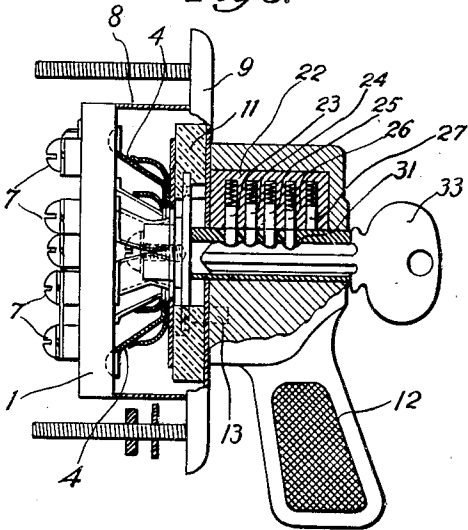


Fig. 4.

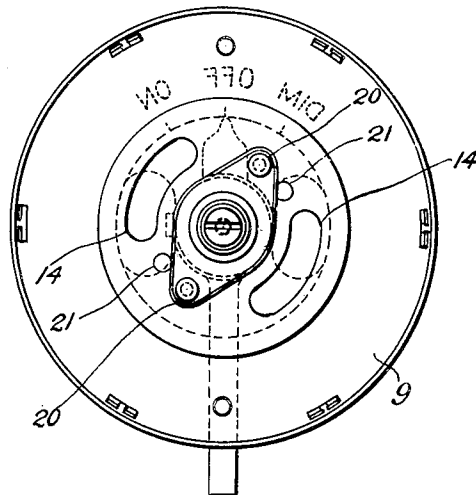


Fig. 5.

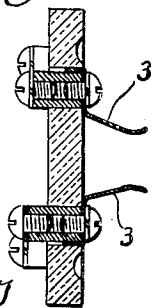
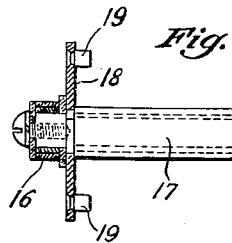


Fig. 6.



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LIGHTING AND IGNITION SWITCH.

Application filed January 3, 1924. Serial No. 684,979.

My invention relates to lighting and ignition switches that are particularly adapted for use in connection with motor vehicles.

My invention has, for one of its objects, to provide a switch mechanism of the above-indicated character in which interlocking means are provided for insuring that the switches may be in certain combinations of positions only.

A second object of my invention is to provide a key-controlled switch mechanism, from which the key may be withdrawn regardless of the position of the switch mechanism.

Another object of my invention is to provide a switch mechanism in which it is not possible to lock the ignition switch in its inoperative position when the lighting switch is in its fully operative position.

In accordance with my invention, I provide a lighting switch comprising a rotatable member having a plurality of positions and an ignition switch comprising a reciprocable member having an operative and an inoperative position. Interlocking means carried by the ignition switch operate to lock the lighting switch in certain positions when the ignition switch is in its "off" position. The ignition switch is controlled by a key, which may be removed in either position of the ignition switch.

In the accompanying drawing,

Figure 1 is a front view of a switch constructed in accordance with my invention;

Fig. 2 is a view, partially in longitudinal section and partially in elevation, of the switch of Fig. 1, the ignition switch being in its "off" position;

Fig. 3 is a view, similar to Fig. 2, the ignition switch being in its closed position;

Fig. 4 is a rear view of the cover plate with the movable ignition switch member in assembled position;

Fig. 5 is a sectional view of the base member of the switch; and

Fig. 6 is a view, partially in elevation and partially in section, of the movable ignition switch member and certain of its associated parts.

Referring to the drawing, a lighting and ignition switch comprises a stationary base member 1, of insulating material, which carries, on its inner face, a plurality of contact members 2 one of which is indicated in Fig.

2, and a plurality of contact fingers 3 for respectively coacting with the contact fingers 4 of the movable lighting switch member 5 and a movable contact member 6 of the ignition switch. Suitable terminal members 7 are provided for connecting the switch members to the ignition and lighting circuits. The switch mechanism is further enclosed by a cylindrical member 8 and a front cover plate 9.

The lighting switch comprises the contact fingers 4 that are arranged substantially radially and are carried by a block 11, of insulating material, that is adjacent to the cover plate 9. The insulating block 11 is connected to an operating handle 12 that is located exteriorly of the plate member 9 by means of suitable pins 13 that extend through corresponding arcuate slots 14 in the cover plate 9, only one of the pins 13 appearing in Figs. 2 and 3.

The ignition switch comprises the stationary contact fingers 3 and a coacting movable cylindrical contact member 16 that is carried by, and insulated from, a cylindrical member 17 that constitutes the barrel of a lock mechanism to be hereinafter more fully described. The barrel member 17 is provided near its inner end with a transverse bar 18 that is rotatable with the insulating block 11 but is longitudinally movable relatively thereto. The bar 18 is provided at its ends with outwardly projecting pins 19 which coact with pairs of recesses 20 and 21 to lock the block 11 and the associated parts of the lighting switch in corresponding positions when the lock barrel is in its outermost position.

A lock mechanism 22, which may be of the well-known Yale or other suitable type and which is enclosed by the central portion of the handle 12, comprises a series of spring-pressed bolts 23, 24, 25, 26 and 27, that are mounted in suitable slots extending radially to the barrel member 17. The barrel member 17 is provided with four bolts 28 to 31, inclusive, that are adapted to be engaged by a suitable key 33. The bolts 28 to 31 are mounted in radially-extending slots that are provided with rearwardly inclined notches at their upper ends.

It may be assumed that the lighting and ignition switch members are in their respective inoperative positions and that it is de-

sired to operate them. The key 33 is inserted in the key slot 34, whereupon the bolts 28 to 31 are caused to assume the positions in which they are illustrated in Fig. 2. It will be noted that the upper ends of the bolts 28 to 31 are now in alinement with the outer cylindrical surface of the barrel 17 and have actuated the bolts 24 to 27 to corresponding positions whereby there is no obstruction to the inward movement of the barrel 17. The barrel 17 is moved inwardly by means of a transverse bar 35, the ends of which are adjacent to recesses 36 provided in the outer portion of the lighting switch handle 12 to permit the bar to be grasped by the operator.

When the barrel 17 and its associated parts are actuated to their extreme inner positions, the parts are in the relations as illustrated in Fig. 3. The contact member 16 engages the coacting contact fingers 3 to complete the ignition circuit. The bar 18 and pins 19 are withdrawn from engagement with the holes 20 of the cover plate 9 whereby the lighting switch may be adjusted angularly to either of its operative positions. The handle 12, the entire lock mechanism and both movable switch members are connected for angular movement as a unit.

The key 33 may be withdrawn from the lock without locking the ignition switch in its "on" position. The switch may be locked by actuating the barrel member to its outermost position by means of the bar 35. It will be noted that, when the key is withdrawn with the barrel in its innermost position, the bolts 23 to 26 drop into the inclined portions of the slots in the barrel 17. The latter may, however, be actuated outwardly, the bolts being actuated upwardly with a cam action until the barrel is in the position illustrated in Fig. 2, whereupon the bolts 24 to 27 drop into the slots in the barrel. The barrel cannot, however, be actuated inwardly until the key is inserted by reason of the engagement of the bolts with the perpendicular shoulders on the outer sides of the respective notches.

The interlocking mechanism is so arranged that the ignition switch can be actuated to its "off" position only when the lighting switch is in the position designated "Dim" or in its "off" position, in which cases the pins 19 register with the holes 21 and 20, respectively. In case the lighting switch is in the position designated "On," when full voltage is applied to the headlights of the vehicle, the barrel 17 cannot be actuated outwardly because the pins 19 engage the inner surface of the cover plate 9.

A lighting and ignition switch constructed in accordance with my invention provides a simple and effective mechanism whereby the lighting switch may be locked in either of two positions when the ignition switch is

open. It is not possible, however, to open the ignition switch when full voltage is applied to the headlights of a vehicle. The key may be removed in either position of the ignition switch and, if the switch is closed, it may be locked at any desired subsequent time by actuation to its open position.

I claim as my invention:—

1. A switch comprising a pair of relatively movable contact members, one of which is reciprocable and the other of which is rotatable, locking means comprising a key for said reciprocable member for permitting its reciprocation with said key in either direction when the key is in operative position, and means in combination with said locking means for controlling the reciprocation of said reciprocable member in one direction by the angular position of said rotatable member.

2. A switch comprising a pair of relatively movable contact members, one of which is reciprocable, and locking means comprising a key for said member for permitting its reciprocation in either direction when the key is in operative position, and means for insuring its reciprocation to one position only when the key has been withdrawn.

3. A switch comprising a plurality of stationary contact members, a reciprocable contact member and a rotatable contact member coacting with the stationary contact members, and means associated with the reciprocable member for locking the rotatable member in certain positions and for locking the reciprocable member in one of its extreme positions upon its actuation thereto irrespective of the presence of the key.

4. A switch comprising a plurality of stationary contact members, an angularly movable contact member coacting with certain of said contact members and having an "off" position and a plurality of operative positions, a reciprocable contact member coacting with said contact members, means movable with said reciprocable contact member for locking the angularly movable member in certain of its positions and key-controlled means for locking the reciprocable member in its "off" position only, the key being removable when the reciprocable member is in either of its positions.

5. A switch comprising a rotatable member having an "off" position and a plurality of operative positions, a reciprocable member that is operable, when in its inoperative position, to lock the rotatable member in its "off" position or one of its operative positions, and a non-rotatable key and a lock for retaining said reciprocable member in its inoperative position.

6. A switch comprising a rotatable light-

ing switch member, a reciprocable ignition switch member, interlocking means for said switch members whereby the lighting switch member may be locked in its inoperative position or in an operative position when the ignition switch member occupies its inoperative position, and a lock mechanism for the ignition switch member, said interlocking means being effective to prevent the actuation of said ignition switch member to its inoperative position when the lighting switch is in a certain position.

7. A switch comprising a rotatable lighting switch member, a reciprocable ignition switch member, interlocking means for said switch members for permitting said lighting switch member to be locked in its inoperative position or in an operative position with the ignition switch member in its inoperative position, means in combination with said locking means for preventing the actuation of said ignition switch member to its inoperative position when said lighting switch member occupies one of its operative positions.

8. A switch comprising a lighting switch member, an ignition switch member, interlocking means between said switch members for permitting said lighting switch member to be locked in its inoperative position or in an operative position when the ignition switch member occupies its inoperative po-

sition, and means in combination with said interlocking means for preventing the actuation of said ignition switch member to its inoperative position when said lighting switch member occupies one of its operative positions.

9. A switch comprising a rotatable lighting switch member, a reciprocable ignition switch member, interlocking means for said switch members whereby the lighting switch member may be locked in its inoperative position or in an operative position when the ignition switch member occupies its inoperative position, and a key-controlled lock for said ignition switch member that is operable to permit its movement in either direction when the key is in position and to permit actuation to its inoperative position only when the key is removed.

10. A switch comprising a reciprocable member having an axially extending slot, a key for said slot, lock mechanism coacting with said key to lock said member in one position, said key being removable in either position of said member and said member being movable to said one position only after the key has been removed.

In testimony whereof, I have hereunto subscribed my name this thirty first day of December, 1923.

WARREN P. LOUDON.