March 6, 1934. T. ECHEVERRIA 1,949,681

LOCK SWITCH

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FIG. 1.

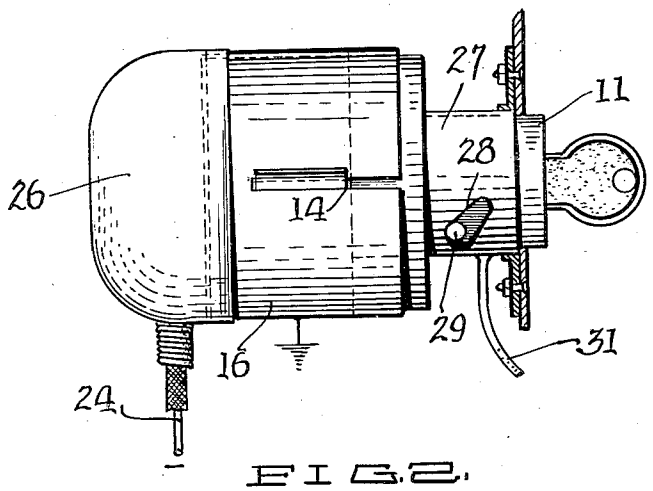
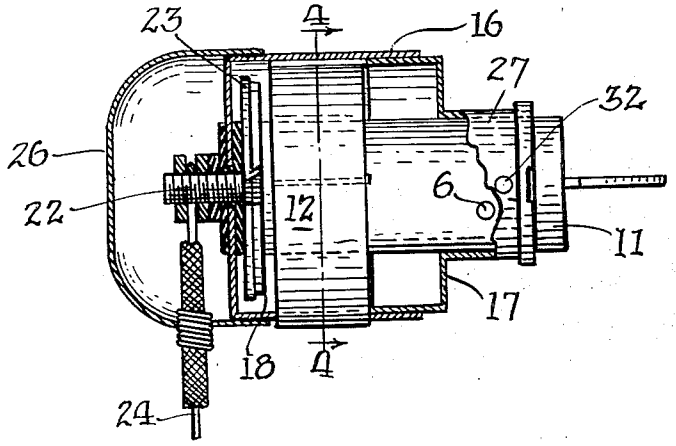


FIG. 2.



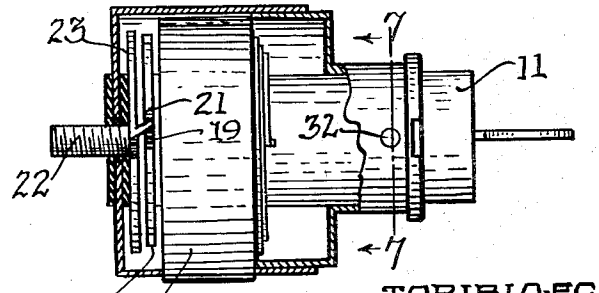


FIG. 3.

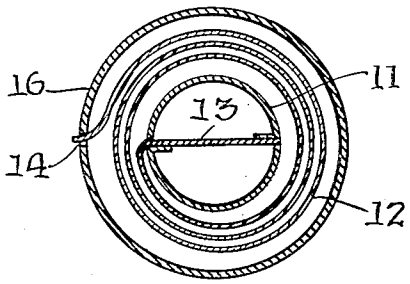
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FIG. 4.



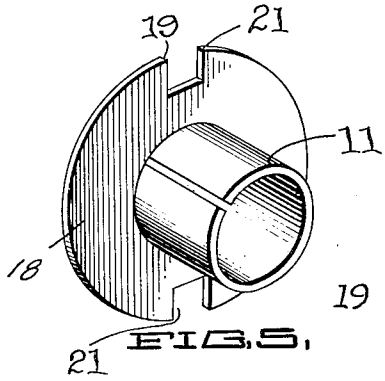


FIG. 5.

FIG. 6.

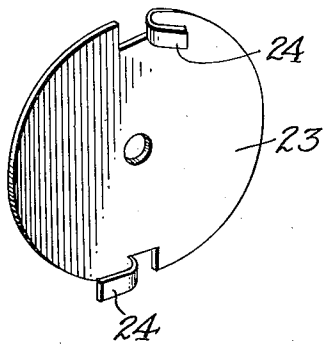


FIG. 7.

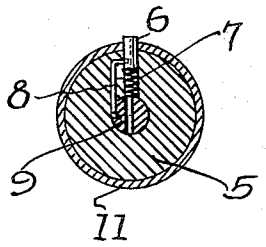
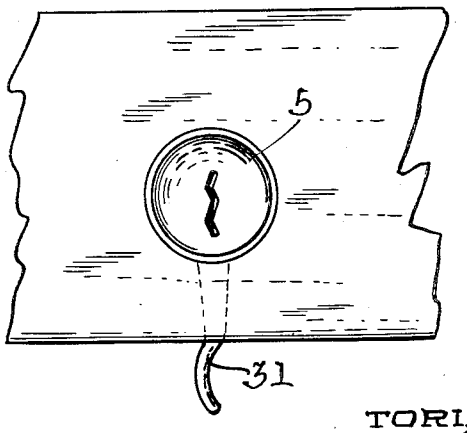


FIG. 8.



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LOCK SWITCH

Toribio Echeverria, San Francisco, Calif.

Application April 25, 1933, Serial No. 667,908

3 Claims. (Cl. 200—44)

This invention relates to improvements in lock switches and has particular reference to a snap switch adapted for use whatever and wherever a storage battery is used.

The main purpose of this safety switch lock device is to split the ground or negative cable connection of the battery and thus eliminate entirely the electricity on the live wires connected to one or more service switches, whenever they are in off position, and consequently eliminate throughout the electrical installation, all danger of fire by short circuits, and also make it more difficult for anyone not having the proper key to operate, to do any malicious tampering of the electrical system.

Another purpose is to keep the battery in storage without branching out its contents while not needed, and this way prevents electrical leakage.

Another object of the invention is to provide a simple switch mechanism which will have a positive contact and one which will snap into circuit closing position when the lock is released.

A further object is to produce a device which may be readily attached to the ordinary instrument board.

A still further object is to produce a device which is simple in construction and one, therefore, which will not become easily deranged.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevation of my combined switch and lock.

Fig. 2 is a top plan view of Fig. 1, with a portion thereof broken away,

Fig. 3 is a fragmentary view similar to Fig. 2, showing the contacts in separated position,

Fig. 4 is a cross sectional view on the line 4—4 of Fig. 2,

Fig. 5 is a front elevation of the movable contact plate, the carrying tube therefor being shown in cross section,

Fig. 6 is a front elevation of the immovable contact plate,

Fig. 7 is a cross sectional view on the line 7—7 of Fig. 3, and

Fig. 8 is a fragmentary view of an instrument board having my lock applied thereto.

Automobile switches commonly termed ignition switches, are usually merely a pair of contacts which are moved into and out of engagement with each other. These contacts often become dirty through the accumulation of dust, grease and other foreign material with the result that poor contact is made and in some instances the contact is not sufficient to deliver the necessary current to the engine. Applicant has, therefore, devised a switch wherein the contacting surfaces have a great area which contacting surfaces are also so formed that a sharp knife-like edge on one contact engages the other contact as well as the engagement of relatively large surfaces. These contacts are also enclosed so that the accumulation of dirt thereon will be minimum.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention, and referring particularly to Fig. 7, the numeral 5 designates a stationary lock barrel in which is mounted a pin 6, adapted to be actuated against the tension of a spring 7 by a pull lever 8 connected to the key actuated member 9. It is of course understood that any means may be employed for actuating the pin 6 when the key is rotated. This barrel 5 is mounted in a tubular member 11. This tubular member 11 has mounted thereon a spring 12, one end of the spring extending through the tubular member 11 and is shown at 13. The opposite end of the spring is bent outwardly so as to pass through a slot 14 formed in the housing 16. Slidable on the tubular member 11 is a cover 17 which slides into the housing 16 and abuts against the side of the end of the spring extending through the slot 14, thus serving to maintain the tubular member and spring in fixed position within the housing.

The tubular member 11 carries a movable contact plate 18, which has slotted openings 19 formed in its periphery, one edge of which opening is beveled as shown at 21. Mounted upon the back of the housing 16 is an insulated bolt 22 which serves to secure the immovable contact plate 23 which has hooked portions 24 bent from the periphery which hooked ends are adapted to pass through the openings 19 of the movable plate 18 (see Figs. 2 and 3). A conductor 24 is connected to the negative side of the battery and to the bolt 22. A cover 26 is preferably placed over the back of the housing so as to enclose the connection of the conductor to the bolt 22. Formed in the extension 27 of the cover 17 is a cam slot 28 which actuates a pin 29 carried in the side of the tubular member 11. A handle 31 extends through the extension 27 and is connected to the tubular member 28. An opening 32 is formed in the extension 27 and is so positioned

The operation of my device is as follows:—

Assuming that the device is installed upon a vehicle, the housing 16 will be grounded and the conductor 24 will be connected to the negative side of the battery. We will now assume that the parts are in the position of Fig. 3, that is, the movable and immovable contact plates 18 and 23 will be separated, the pin 6 will be extending through the opening 32 and the pin 29 will be in the opposite end of the slot 28 from that shown in Fig. 1. The operator now places the key in the key slot and moves the key so as to pull the pin 6 downward into the barrel 5 and as soon as the end of the pin moves out of the opening 32, the spring 12 will tend to unwind and thus rotate the tubular member 11. This will force the beveled edges 21 of the movable contact plate into engagement with their respective hooked extremities 24 of the stationary contact plate. At the same time the spring which has been laterally distorted (see Fig. 3), will move the tubular member toward the left of the drawings and will thus force the adjacent faces of the two contact plates into intimate contact with each other as shown in Fig. 2. Thus we will have a large contact area, as well as a biting contact between the beveled edges and the hooked extremities. When it is desired to break their connection the lever 31 is moved toward the left of Fig. 8 which will rotate the tubular member 11 and cause the pin 29 to exert a cam action on the side of the slot 28, thus rotating and sliding the tubular member with the result that lateral tension, as well as rotary tension, will be placed upon the spring and as soon as the pin 6 has moved into alignment with the opening 32, the pin will spring into the opening 32 and thus hold the contacts out of engagement with each other.

It will thus be seen that I have produced a very simple and efficient switch having all the advantages above set forth.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In a device of the character described, the combination of a tubular member having a movable contact plate secured thereto, said plate having openings formed in its periphery, a housing, an immovable contact plate carried by said housing and insulated therefrom, said contact plate having hooked portions formed adjacent its periphery, a spring member surrounding said tubular member and having one end secured thereto, and having its opposite end secured to said housing, and means for imparting rotary and lateral movement to said tubular member against the tension of said spring.

2. In a device of the character described, the combination of a tubular member having a movable contact plate secured thereto, said plate having openings formed in its periphery, a housing, an immovable contact plate carried by said housing and insulated therefrom, said contact plate having hooked portions formed adjacent its periphery, a spring member surrounding said tubular member and having one end secured thereto, and having its opposite end secured to said housing, means for imparting rotary and lateral movement to said tubular member against the tension of said spring, said means including a cam slot formed in a stationary member surrounding said tubular member, and a pin extending into said slot.

3. In a device of the character described, the combination of a tubular member having a movable contact plate secured thereto, said plate having openings formed in its periphery, a housing, an immovable contact plate carried by said housing and insulated therefrom, said contact plate having hooked portions formed adjacent its periphery, a spring member surrounding said tubular member and having one end secured thereto, and having its opposite end secured to said housing, means for imparting rotary and lateral movement to said tubular member against the tension of said spring, means including a cam slot formed in a stationary member surrounding said tubular member, a pin extending into said slot, and locking means for holding said tubular member against rotation when the contacts of said device are separated.

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