Dec. 14, 1926. 1,610,835

A. E. WESTBURG ET AL

ELECTRIC SWITCH

Filed Sept. 17, 1925

Fig. 1.

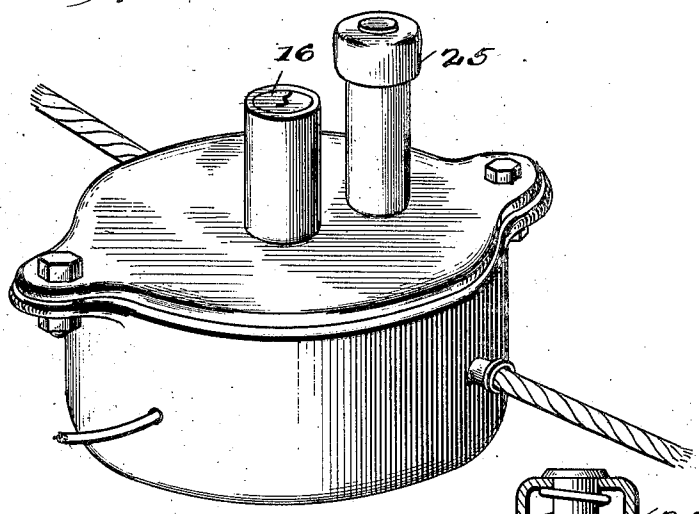


Fig. 2.

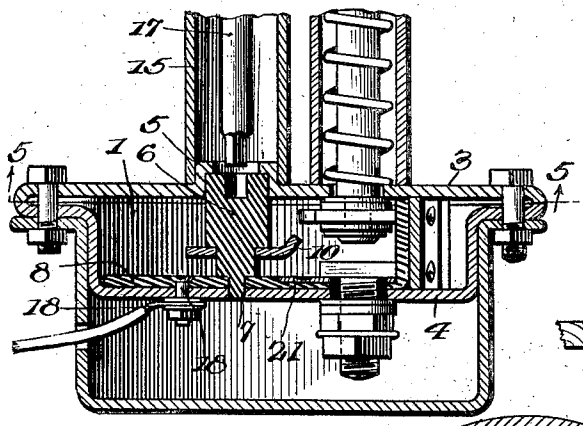


Fig. 3.

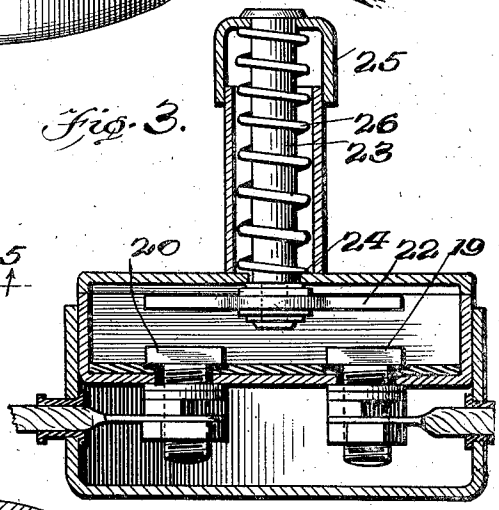
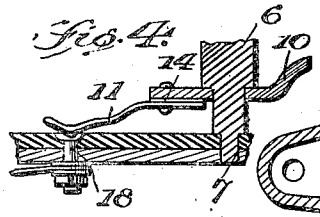


Fig. 4.



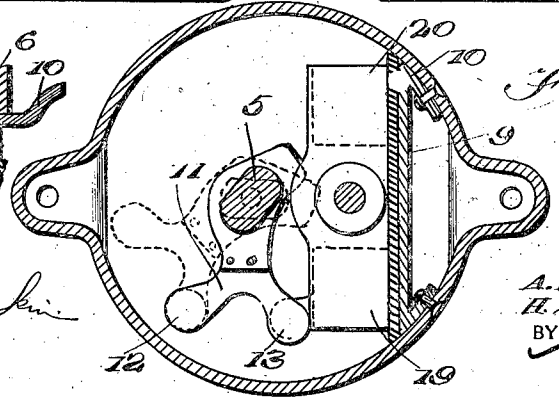


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

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ELECTRIC SWITCH.

Application filed September 17, 1925. Serial No. 56,942.

This invention relates to electric switches and proposes a novel switch construction particularly applicable to electrical starting and ignition systems associated with the internal combustion engines of auto vehicles.

One of the objects of the invention is a novel key operated cut off switch in the ignition current cooperably arranged with respect to the starting switch, so as to render the latter inoperative when the key operated switch is turned to "off" position.

Other objects of the invention will appear, as the following description of an illustrative embodiment thereof proceeds.

In the drawings,

Figure 1 is a perspective view of a switch unit, embracing the novel features of my invention,

Figure 2 is a longitudinal section,

Figure 3 is a section taken at right angles to that shown in Figure 2,

Figure 4 is a section showing a detail of the cut-off switch,

Figure 5 is a section taken along the line 5—5 of Figure 2.

Referring now in detail to the several figures the numeral 1 represents a casing having parallel top and bottom walls 3 and 4. The top wall is preferably formed with a cylindrical extension 5 having a bore which forms the upper bearing for retaining the upper end of the spindle 6. The lower end of said spindle is reduced in diameter, and is journalled in an axially aligned aperture 7 in the bottom wall 4 and in the fiber plate 8 which lines the bottom of the casing. The shoulder formed at the base of the reduced end of the spindle bears against the fiber plate 8, preventing endwise movement of the spindle.

The lower part of the spindle 6 is of non-round uniform cross section, as shown at 9 in Figure 5 and supports a locking bar 10 carrying a resilient switch blade 11 provided with a pair of contacts 12 and 13. The switch blade is insulated from the locking bar by means of the fiber washer 14.

The casing 1 is provided with a tubular extension 15 carrying a rotatable key slot 16, of a shape peculiar to a particular key. Beneath the key slot is a rotatable lock shaft 17 having a noncircular lower end 18 adapted to fit into a correspondingly shaped recess in the spindle 6. The lock shaft 17 is normally held out of engagement with the spindle by means not shown but may be depressed by a key inserted through the key slot, until it interengages with the spindle, whereupon it may be turned, throwing the switch blade 11 from the full line position shown in Fig. 5 to the dotted line position, and vice versa.

The fiber plate 8 is provided with a terminal 18, in circuit with the cowl switch, not shown in the ignition system and with one pole of the battery. It is also furnished with a pair of massive contacts 19 and 20, the former being connected with the outer pole of the storage battery and the latter with the starter.

The fiber plate is likewise provided with a terminal 21, electrically connected to the contact 19. The terminals 18 and 21 are so positioned as to register with the contacts 12 and 13 of the switch blade 11, when the latter is in full line position. All of the aforementioned terminals are carefully insulated from each other and from the metallic parts of the casing.

The casing 1 is provided with a vertical wall, lying to one side of the contacts 19 and 20, against which a fiber plate rests, the latter constituting a guide for the contact plate 22 of the starting switch, to inhibit rotation of said plate. The starting switch includes a post 23, extending through an aperture 24 in the top wall of the casing and is surmounted by a cap 25 which telescopes over a tubular housing formed as part of the casing. Said housing is preferably of slightly larger diameter than the aperture 24, so that the part of the top wall 3 which immediately encircles the aperture, forms an annular ledge within said housing against which abuts the lower end of a spring 26. Said spring surrounds the post 23 and abuts against the inner end of the cap, biasing the cap and the post normally outwardly.

When the cap and post are depressed by the foot of the operator the contact plate 22 of the starting switch descends, and if the blade 11 of the cut off switch is in the "on" position indicated in full lines in Fig. 5, there will be no impediment to the circuit closing movement of the starting switch, for the locking bar 10 will then be out of the path of travel of the contact plate 22, but when the blade 11 of the cut off switch is in the dotted line, or "off" position, the locking bar lies in the path of the descending contact plate 22, preventing the latter from making engagement with the contacts

19 and 20, so that the circuit cannot be closed. The terminals 18 and 21 are preferably cupped, to detain the switch blade 11 either in "on" or "off" position.

The casing 1 is preferably formed with apertured lugs 27 and 28 through which bolts may be passed for securing the switch in place, and a lower cover 29 may be provided for protecting the several terminals which are exposed externally of the casing.

While we have in the foregoing description disclosed a preferred and practical embodiment of our invention, it is to be understood that it may be exemplified in other forms without transcending the scope of the appended claims.

We claim:

1. A combined starting and cut-off switch comprising a reciprocable contact plate, contacts with which said plate may engage for establishing an electrical circuit when said plate is brought to an extreme position, a rotary locking bar adapted to be brought in position for engaging the reciprocable contact plate and locking said plate against movement when in its non-engaging position with relation to its associated contacts, and means whereby the rotary locking bar may establish a second electrical circuit when in its non-locking position with respect to the contact plate.

2. A combined starting and cut-off switch comprising a reciprocable contact plate, contacts with which said plate may engage for establishing an electrical circuit when said plate is brought to an extreme position, a rotary locking bar adapted to be brought in position for engaging the reciprocable contact plate and locking said plate against movement when in its non-engaging position with relation to its associated contacts, contact fingers carried by the locking bar, and contacts arranged for engaging said fingers for establishing a second electrical circuit when the locking bar is in non-locking position with respect to the reciprocable contact plate.

3. A combined starting and cut-off switch comprising a casing, a plunger operably supported by the casing, means whereby an electrical circuit may be established when said plunger is moved to an extreme position, a spindle supported for rotary movement within said casing, a radially extending locking bar carried by the spindle and adapted to be brought into position for locking the plunger in its non-engaging position with respect to its associated contacts, a plate of insulation in bottom of casing, fingers carried by the locking bar, and contacts arranged upon the plate of insulation adapted to be engaged by the fingers of said locking bar to establish another circuit when said locking bar is in its non-locking position with respect to said plunger.

4. A combined starting and cut-off switch comprising a casing, a plunger operably supported by the casing, means whereby an electrical circuit may be established when said plunger is moved to an extreme position, a spindle or shaft supported for rotary movement within said casing, a locking bar carried by the spindle and extending radially therefrom, said bar being adapted to be brought into position for locking the plunger against movement in a direction for establishing an electrical circuit, fingers carried by the locking bar, and contacts arranged to be engaged by said fingers and establish a second electrical circuit when said locking bar is in its non-locking position with respect to said plunger.

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