June 5, 1934. E. W. HENGST 1,961,419

ELECTRIC SWITCH

Filed Sept. 21, 1932

FIG. 1.

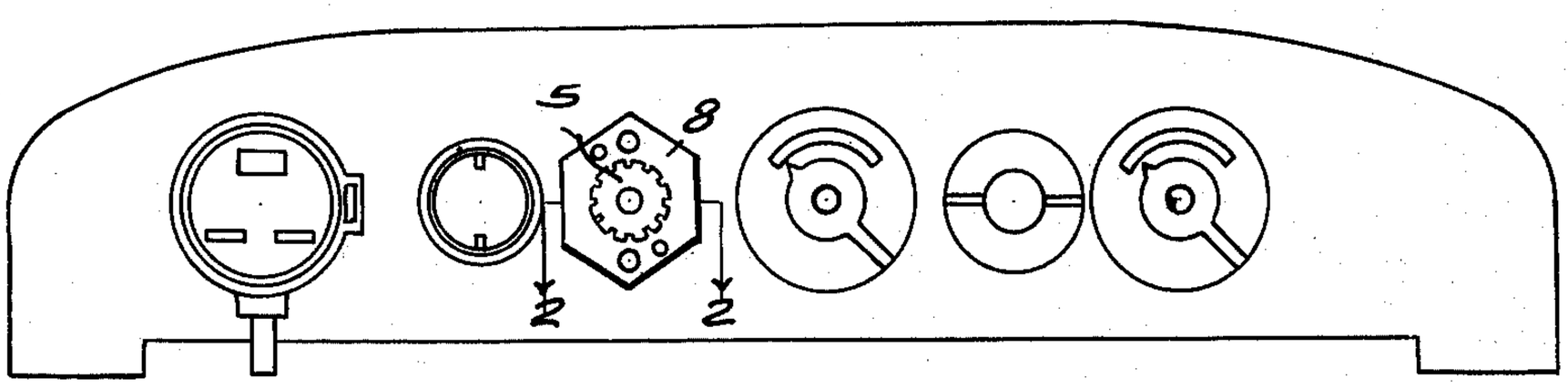


FIG. 2.

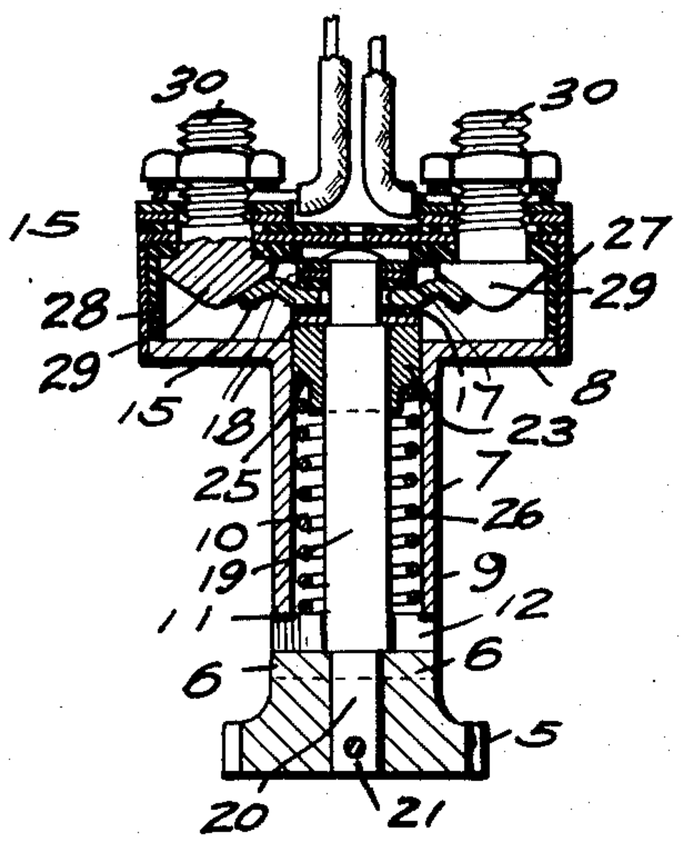


FIG. 3.

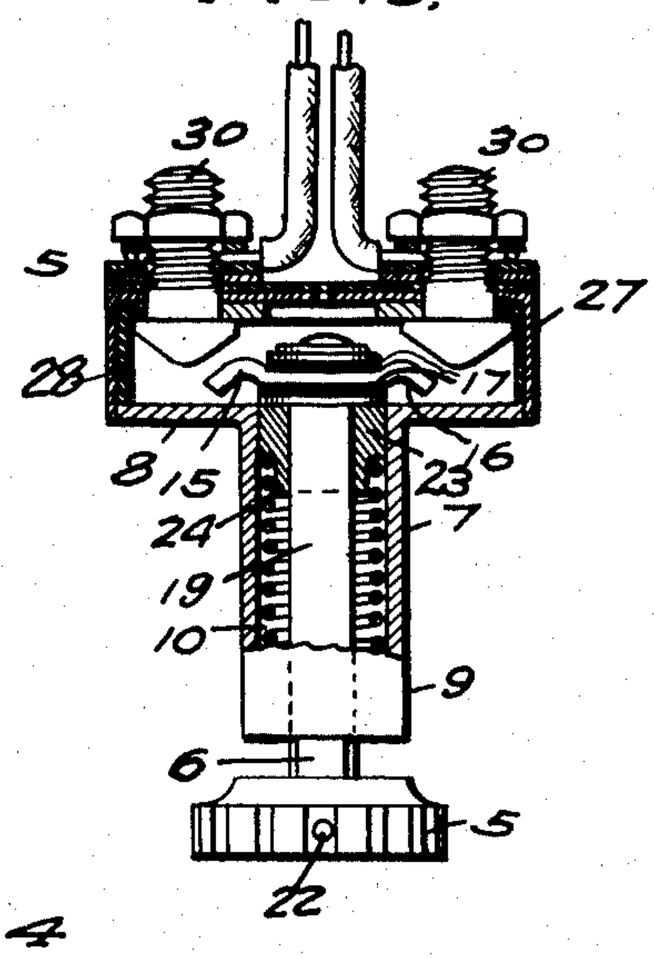
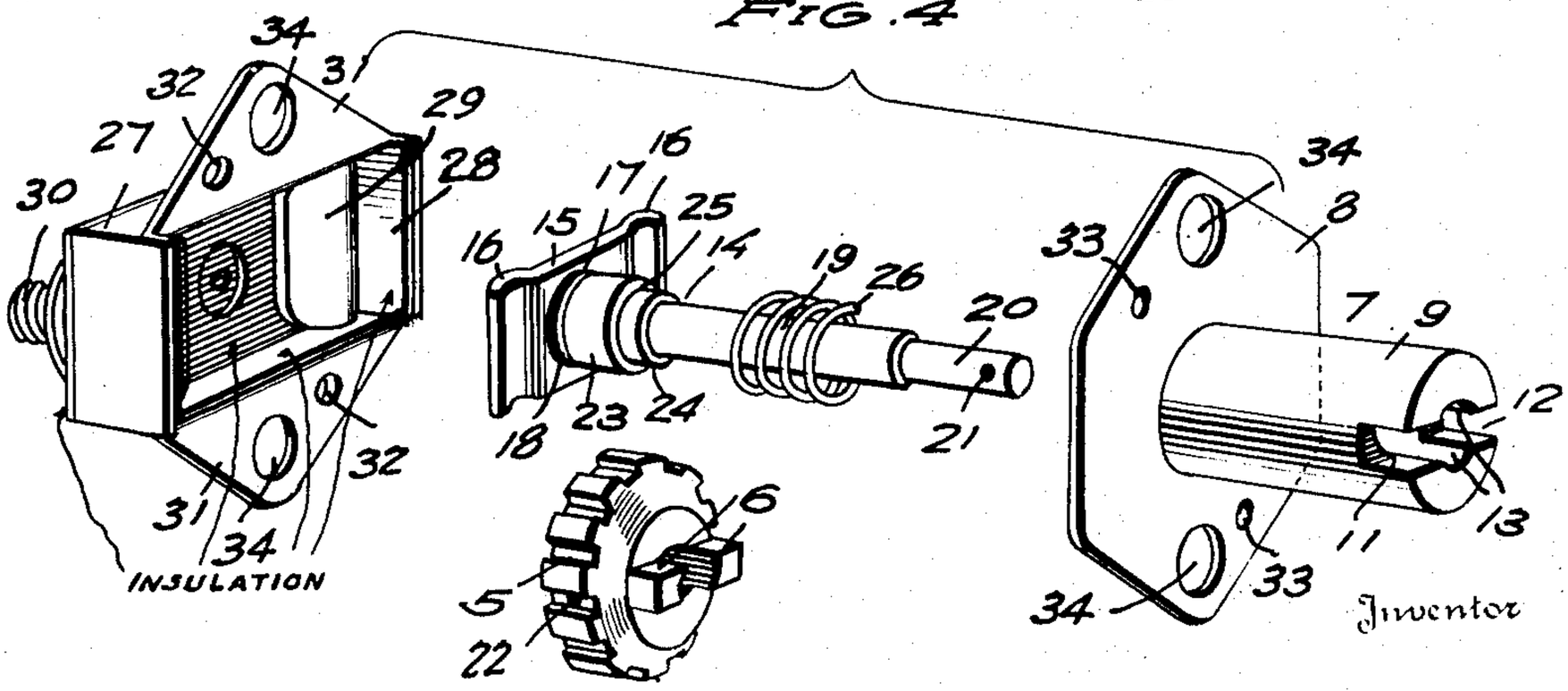


FIG. 4



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UNITED STATES PATENT OFFICE

1,961,419

ELECTRIC SWITCH

Edward W. Hengst, Willoughby, Ohio

Application September 21, 1932, Serial No. 634,227

1 Claim. (Cl. 200—159)

My invention relates to an electric switch.

An important object of my invention is to provide a switch for cutting out of a circuit the battery used in the ignition systems of automobiles, motor boats, or aeroplanes for preventing fire, theft or current leakage when same are not in use.

A further object is to provide a switch which may be cut into the battery ground wire and which will render the battery inoperative when opened.

Another object is to provide a switch of simple construction and of cheap manufacture which may be quickly installed in any battery ignition system.

Other and further objects and advantages will be apparent from the following description and appended claim.

In the drawing:

Figure 1 is a front view of my device installed on an automobile instrument board;

Figure 2 is a section on the line 2—2 of Figure 1, the switch being in closed position;

Figure 3 is a similar view with the parts in the open position, and,

Figure 4 is a view of the parts in disassembled relation.

In the drawing, which illustrates a preferred embodiment of my invention and in which like numerals are used to indicate like parts in all views, the numeral 5 designates the switch knob or button having lugs 6 projecting from its under side. The switch casing is divided into two sections, the upper section, generally designated as 7, has a flat base portion 8 with an upstanding annular casing 9 fixed to the same. The upper casing 7 has a central bore 10 through both plate 8 and casing 9, said bore 10 stopping at 11 near the upper end of the casing 9. A transverse slot 12 is cut in the top of the casing 9 and extends downwards a short distance past the upper end 11 of the bore 10, the faces of the slot being slightly hollowed, as at 13, for receiving the end of a plunger to be described later.

A plunger 14 which works in the switch casing 7 has a rectangular contact 15 rotatably fixed to its lower end, the said contact having its outer ends downwardly curved as at 16. The contact is held against axial movement by insulating washers 17 held between steel washers 18. The stem portion 19 of the plunger has a narrowed upper portion 20 with a hole 21 in the same, corresponding with a hole 22 in the switch button 5.

A bushing 23 is slidable on the stem 19 of the plunger 14 and has an annular upstanding portion 24 formed on its upper end which forms a shoulder 25 which acts as a stop for the end of a coil spring 26. When the switch is assembled the upper end 11 of the bore 10 acts as a stop for the other end of said coil spring.

The lower section of the switch casing generally designated as 27 is formed in a generally rectangular box-like shape lined on its inner walls with insulation 28, and has fixed contacts 29 in its opposite ends spaced so as to be simultaneously touched by the ends of the contact 15 on the end of the plunger 14. The contacts 29 are connected to terminals 30 on the bottom of the casing 27 for receiving wires from the two cut ends of the battery ground wire.

Although the switch is shown in the drawing as being mounted on the instrument board of an automobile, it is to be understood that it could be placed anywhere convenient and also that its use is not limited to an automobile alone.

The lower switch casing 27 has sides bent outwardly, forming flaring projections 31, the said projections having holes 32 corresponding with holes 33 in the upper switch section 7 for receiving screws for fastening the two casing sections together. The two casing sections also have corresponding holes 34 through which bolts or screws may be passed to fasten the assembled switch to a base.

To assemble the device the spring 26 is slid on to the stem 19 and the plunger assembly pushed into the upper casing portion 7 until the narrowed portion 20 of the stem 19 extends through the top of the annular casing 9. The knob 5 is then place on the end of the stem 20, and a pin is passed through the holes 21 and 22 of the stem and knob, thus holding the knob rigidly on the stem. The two switch casing members 7 and 27 are then brought together and connected by means of screws or bolts passed through the holes 32 and 33 of the respective members.

Figure 2 shows the switch closed, the contact 15 on the plunger resting against the stationary contacts 29 and the lugs 6 of the switch-knob 5 resting in the transverse slot 12 of the annular casing 9. To attain the open position shown in Figure 3, the knob 5 is raised against the tension of the spring 26 until the lugs 6 are out of the slot 12, then the knob is given a half turn in either direction and released. The lugs 6 then ride on the end of the annular casing 9 (clearly shown in Figure 3) and the contact 15 is held away from the contacts 29. To close the switch

the knob 5 is given a half turn and the contracted spring 26 snaps the lugs 6 down into the slot 12, thus bringing the contacts together again.

It is to be understood that the device as shown is to be taken as a preferred embodiment and that changes in shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, what I wish to claim is:

A cut out switch for a battery of an internal combustion engine, comprising a switch casing, stationary contacts carried therein, a lining of insulating material for said casing, a second casing detachably secured to said switch casing, an upstanding cylindrical portion on said second casing, the lower portion of said cylindrical portion having a relatively large bore and a reduced bore leading therefrom to the upper end thereof, a transverse slot of a lesser diameter than said reduced bore in the upper end of said cylindrical portion and extending into said larger bore, a plunger carried by said cylindrical portion, and adapted for a sliding and rotating fit in said reduced bore, the upper end of said plunger being reduced and extending outwardly of said cylindrical portion a substantial distance, a switch knob removably mounted on said reduced end of said plunger, lugs on the lower face of said knob and adapted to fit into said slot, a bushing mounted on said plunger adjacent the other end thereof and having a diameter equal to said larger bore and slidable and rotatable therein, a reduced portion on the inner face of said bushing and comprising a spring seat, a coil spring carried in said larger bore and adapted to be compressed between said spring seat and the upper end of said enlarged bore when said plunger is slid upwardly, contacts carried by the inner end of said plunger and adapted to bridge said stationary contacts when said plunger is in its normal position and said contacts being adapted to be retained in open relation to each other by raising said lugs out of said slot and imparting a quarter turn to said knob and plunger assembly.

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