W. E. DOW.

ELECTRIC SWITCH.

APPLICATION FILED AUG. 6, 1909.

1,000,158.

Patented Aug. 8, 1911.

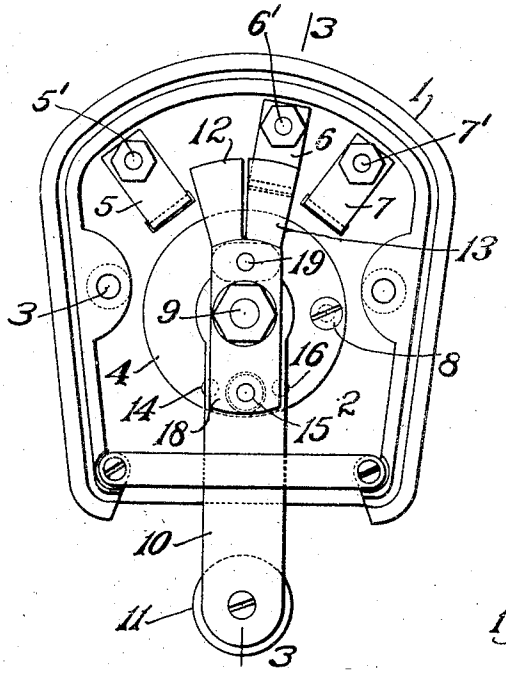

FIG. 1.

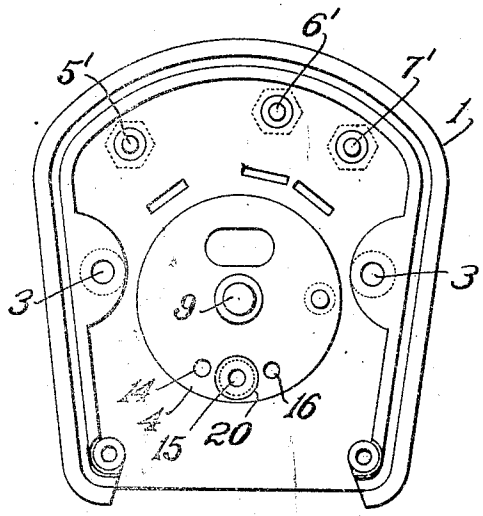

FIG. 2.

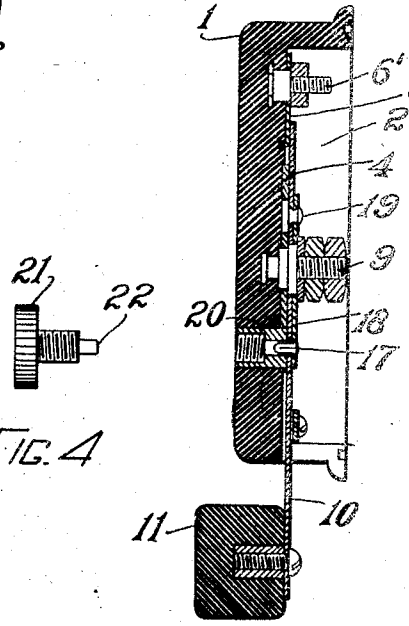

FIG. 3.

FIG. 4.

WITNESSES

Edward Maxwell

M. J. Spalding

INVENTOR

WILLARD E. DOW

BY

Geo. S. Maxwell,

Attorney.

UNITED STATES PATENT OFFICE.

WILLARD E. DOW, OF BRAINTREE, MASSACHUSETTS.

ELECTRIC SWITCH.

1,000,158. Specification of Letters Patent. Patented Aug. 8, 1911.

Application filed August 6, 1909. Serial No. 511,533.

To all whom it may concern:

Be it known that I, WILLARD E. DOW, a citizen of the United States, and resident of Braintree, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Electric Switches, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to electric switches and particularly to a switch for the circuits of an ignition system. In devices of this sort it is desirable to provide for connection and operation under a variety of conditions which vary according to the peculiarities of systems in which they are to be used.

The ignition of explosive gasolene engines has developed to a point where varying conditions necessitate a corresponding variety of requirements and the furnishing of a switch capable of use in such different systems involves a problem of considerable difficulty. It is further desirable in many uses, such as in automobile or power boat, to have a switch capable of being readily and positively worked and so arranged as to be locked securely against accidental operation after the system has been intentionally put out of operation. This is particularly desirable in automobile usage where a car is often left unattended on the street.

To the end, therefore, of providing a simple and effective switch involving the points above enumerated as desirable and having various other features and advantages of structure and use, I have devised my present invention which I will more fully describe hereinafter.

In the specification which follows and in the drawings which form a part thereof I have described and shown an embodiment of my invention well illustrating the principles involved therein. This embodiment is a switch for the ignition system of an automobile engine.

In the description I have employed reference numerals in connection with the several parts which numerals I have also applied to the corresponding parts, as illustrated, in the drawings.

In these drawings:—Figure 1 is a rear elevation of my switch with parts assembled, Fig. 2 a rear view of the box with parts removed, Fig. 3 a central vertical section, and Fig. 4 a detail of the unlocking plug.

1 is a switch box having a recess 2 in its rear face for the protective mounting and housing of the parts.

3—3 are screw or bolt holes for the attachment of the switch to the dash or other convenient part.

4 is a circular wear plate attached to the bottom of the recess 2. Above this plate 4 and radially disposed with reference to it are three contacts 5, 6 and 7 which are bolted to the box 1 by a nut run down on the screw of the binding posts 5^1, 6^1 7^1.

8 is a connection for a ground from the plate 4. Centrally of the plate 4 is a threaded stud 9 holding the plate 4 and providing a pivot for the switch arm 10.

11 is a finger knob of the switch arm at its lower end which projects through the bottom of the box 1, which is slotted to permit its lateral movement in either direction from the center. The upper end of the arm 10 is broadened into a fan shape split to form two blades 12 and 13. Each of these blades is of a width for providing a suitable spring engagement with the contacts 5, 6 and 7. In the plate 4 below its center are set three holes 14, 15 and 16 in an arc concentric with the plate 4. On the switch arm 10 below its center and concentric with the holes 14, 15 and 16 is an opening through which projects a rounded catch 17 on a leaf spring 18 which is slipped over the stud 9 and also riveted to the arm 10 at 19.

The central hole 15 of the triple group in the plate 4 registers with a hole 20 which passes through the box 1 and is provided with a threaded bushing. 21 is a plug having a threaded portion adapted to engage with the threads of said bushing of the hole 20. The plug 21 has an end 22 which, when the plug 21 is screwed in will so prevent the catch 17 from seating in the hole 15 as to make the movement of the arm 10 possible, although leaving enough of a recess to serve to locate the switch at center.

In connecting my switch two general systems only need be considered. With a magneto ignition system, requiring an open circuit to operate, the magneto can be wired to the post 6^1 and the ground wire of the starting batteries and coil connected to the post 7^1. In this system with the switch arm 10 at center the magneto is grounded by the contact of the blade 13 and is rendered in-

operative by the fact of its being so grounded. When the handle is thrown to bring the blade 13 over into the contact 7 and the blade 12 over the contact 6 the engine can be started on the batteries of the circuit from 7 while the magneto circuit connected at 6 is covered by the point 12 and is, therefore, still grounded and inoperative. To stop the battery ignition the arm 10 is returned to center cutting out the battery circuit and grounding the closed circuit magneto through the blade 13. To shift onto the magneto, still leaving out the batteries, the blade 12 is brought over 5 in which position the circuit of the magneto is opened at 6 and made operative for the running ignition.

With magneto systems requiring a closed circuit to operate, the magneto connection is made at 5 and the battery at 7 as before. When the switch is at center it is of course out of contact and inoperative. To start on the batteries it is thrown so that the blade 13 covers the contact 7 then reversed to run on the magneto by bringing the blade 12 over the contact 5. It will be seen moreover that it is possible to connect the two systems as above indicated at the same time and also the battery and still be able in the three positionings of the switch arm to select any one of the three and cut out the others or cut out all three from operation. In each of these positions it will be seen the catch 17 finds a recess affording engagement sufficient to locate the arm 10 properly. At center or dead position this location is made permanent by removing the plug 21. The removal of the plug 21 in either system locks the switch which can only be operated after the plug has been inserted.

Various modifications in form and arrangement of parts and connections may obviously be made, within the limits of the appended claims, without departing from the spirit of my invention.

What I therefore claim and desire to secure by Letters Patent is:

1. In a switch, a movable arm, a support having a recess in the path of said arm, a catch on said arm for engaging said recess and a removable plug for normally partially closing said recess to permit the movement of said arm while leaving a shallow recess sufficient for indicating a position of the arm.

2. In a switch, a movable arm, a support having a recess in the path of said arm, means on said arm for engaging said recess and a removable means for normally partially closing said recess to permit the movement of said arm while leaving a shallow recess sufficient for indicating a position of the arm.

3. In a switch, a movable arm, a support having an opening therethrough and forming a recess in the path of said arm, means on said arm for engaging said recess and a removable means for normally partially closing said opening but leaving a shallow recess to indicate the position but permit the yielding disengagement of said arm.

4. In a switch, a box having an opening therethrough, an arm movably mounted on the inside of said box, the under end of said opening forming a recess in the path of said arm, a yielding catch on said arm for engaging said recess and a removable plug insertible through said opening to partially close said recess leaving a shallow recess to indicate the position but permit the yielding disengagement of said catch on said arm.

5. A switch, comprising a movable contact maker carrying a yieldable pin, a support therefor, a recess in said support in a position to be entered by said pin to fixedly lock said contact maker, and a plug coöperative with said recess to decrease the depth of said recess, the parts being so constructed that said pin may then be disengaged therefrom by lateral impulse imparted to said contact maker.

6. In a switch of the character herein described, the combination of a supporting base, a segmental series of stationary contact points arranged on said base, a movable switch lever pivoted on said base, and means for locking said lever in a dormant position, the same comprising a bolt sliding in said base and engaging an orifice in said lever, means for yieldingly forcing said bolt to its engagement, and means on said base for guiding a plug longitudinally to move said engaging means out of engagement with the switch lever.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLARD E. DOW.

Witnesses:
ALICE H. DOW,
CARLOTTA NIX.