

J. B. PARKER.
ELECTRIC SWITCH.
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1,393,822.

Patented Oct. 18, 1921.

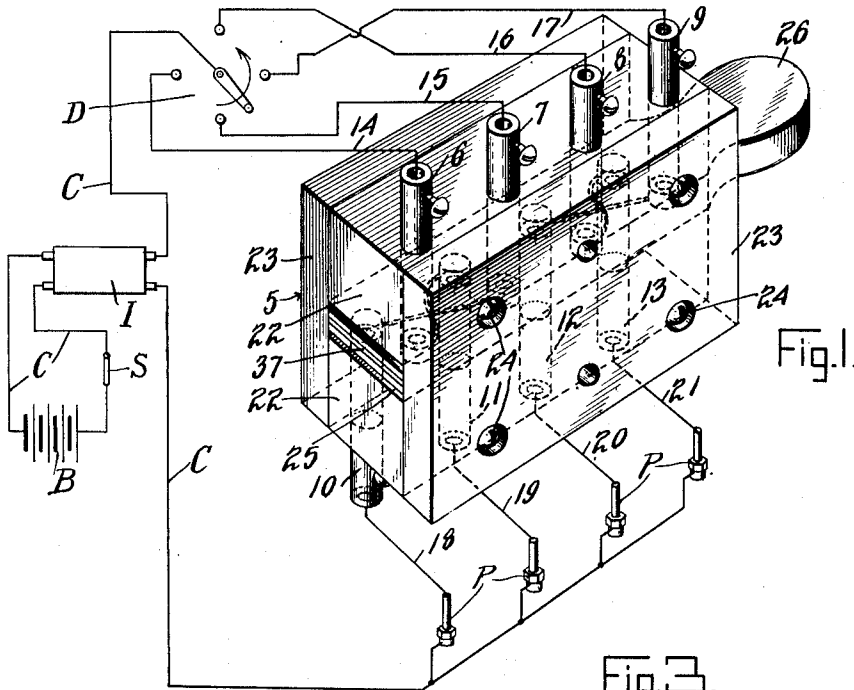
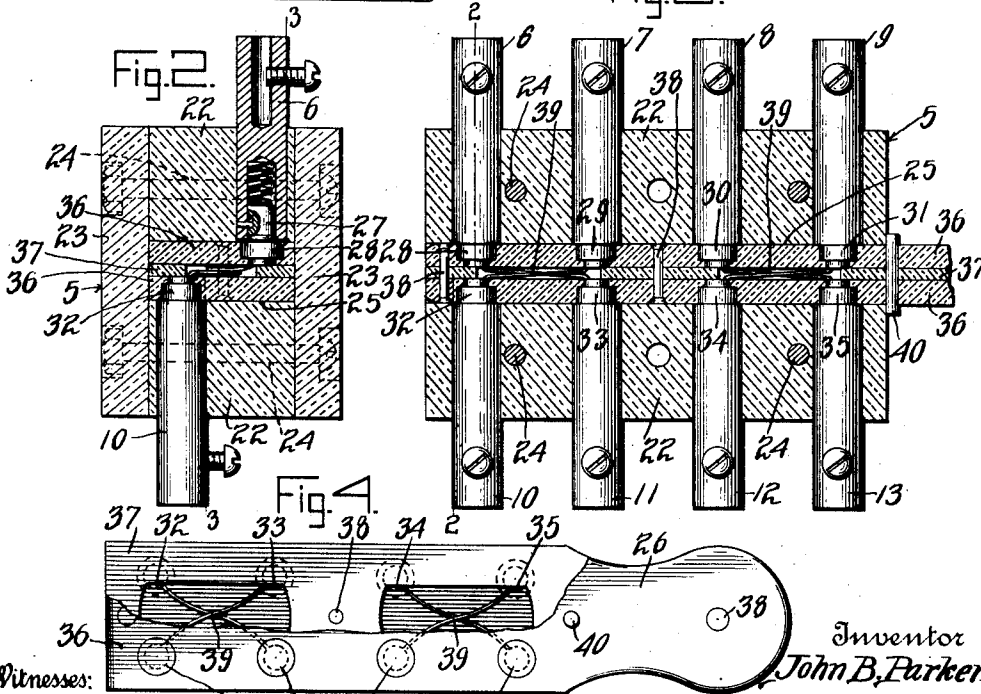


Fig. 1.



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UNITED STATES PATENT OFFICE.

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ELECTRIC SWITCH.

1,393,822.

Specification of Letters Patent.

Patented Oct. 18, 1921.

Application filed May 14, 1917. Serial No. 168,550.

To all whom it may concern:

Be it known that I, JOHN B. PARKER, a citizen of the United States, residing at Brookland, in the District of Columbia, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

The present invention relates to electric switches, or circuit controlling devices, and consists in the combinations and arrangements of elements hereinafter described and particularly set forth in the accompanying claims.

The invention has for its purpose to provide a switch for electric circuits, involving a plurality of contacts and a member carrying a plurality of conductors for connecting the respective contacts, the construction being such that correct circuits are established only when a switch member having the proper arrangement of conductors is employed, and which contacts, if connected in any other relation, will render the system inoperative.

A further purpose of the invention resides in constructing an electric switch of this character on the permutation principle, whereby all the switches of the same type in a given lot or series will each have its own particular member, or "key," to the end that each switch may be properly operated with such key alone, and by no other.

The switch is designed with special reference to automobiles driven by internal combustion engines, and is proposed to be located in the ignition system thereof between the distributor and the cylinder spark plugs, with the switch contacts connected to the conductor terminals from the distributor contacts and the engine cylinders, for proper ignition in the cylinders only when the proper "key" is used; but which, with any other key inserted, would produce sparking entirely out of correct sequence, and thus completely vitiate the system.

In the foregoing respects the device is designed to serve where it is desired to have the control of an electric circuit system vested solely in the care of a single person. And in the instance of the automobile mentioned, the use or theft of the car would be prevented, inasmuch as the ability to run the engine resides with only the holder of the "key."

The invention is disclosed by way of illus-

tration in the accompanying drawings, wherein:

Figure 1 is a perspective view of the switch and shows its application (in diagram) to the ignition system of an automobile,

Fig. 2 a cross section on line 2—2 of Fig. 3,

Fig. 3 a vertical section on line 3—3 of Fig. 2, and

Fig. 4 a plan view, partly broken away, of the key.

Referring to the construction in detail and with like reference characters designating corresponding parts in the different views shown, the device consists of a suitable supporting member 5, having two sets of sockets (6, 7, 8, 9, and 10, 11, 12, 13) that connect respectively with conductors (14, 15, 16, 17 and 18, 19, 20, 21) leading to the contacts of the distributor D and the spark plugs P of the engine cylinders (not shown). The battery B connects with and completes the circuit through the distributor and spark plugs by the conductors C, and the usual induction coil I and switch S are provided as shown.

The member 5 is constructed from a pair of similar pieces, or blocks 22, of appropriate material, *e. g.* hard rubber connected by two side pieces 23, of similar material and the parts are assembled and secured by the bolts 24 to provide a key-way 25 for the key 26 that operates the switch. Said bolts are counter-sunk at either end to give a smooth and even finish to the exterior of the device. The member 5 may be secured to the dash of the car, or in any other location.

The several socket pieces are fitted in and secured to the blocks 22 in any approved manner, and each socket is provided with a spring tensioned plunger or contact 27 (see Fig. 2) that projects into the key-way to be engaged by their complementary conductors (28, 29, 30, 31 and 32, 33, 34, 35) carried by the key for producing ignition in the cylinders of the engine in proper sequence.

The key 26 is constructed from two similar pieces 36, of non-conducting material, preferably of fiber composition, and a relatively thin strip 37, of high tension insulating material, is secured between the parts 36 by pins 38, or in any preferred manner. The contacts (28 to 35), on the key, are con-

connected together in pairs by conductors 39, (to wit, 28 and 33, 29 and 32, 30 and 35, 31 and 34) and this arrangement is arbitrarily selected, and connections made with the sockets accordingly, for producing sparking by the spark plugs for the correct cycling of the multi-cylinder engine. A stop pin 40 is secured to the key for limiting the insertion of the key within the key-way. The conductors 39 are inclosed by or embedded in the body of the key, thus avoiding wear or injury and resulting in a uniform appearance of the keys regardless of the particular connections established by said conductors.

It will be obvious that the conductors of the key may be grouped or connected in pairs, and all combinations made within the limits of the number of contacts involved; and in this manner switches of a given type may be made with different keys, each designed for operating its own switch and no other. The device is adapted for use with any other multi-circuit electrical system which it is desired to control, viz. electric time recorders, lighting systems, locks for houses, vaults, etc.

It is obvious that those skilled in the art may vary the details of construction and arrangement of parts without departing from the spirit of my invention, and I therefore do not wish to be limited to such features except as may be required by the claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a multiple switch, the combination of two sets of conductor terminals of the same number each, and a key having a like number of conductors with contacts and arranged for connecting the respective terminals of said sets in pairs in any selected grouping.

2. In a multiple switch, a series of contacts, a second series of contacts in opposed relation to the first series, and a key member adapted to be inserted between the said two series of contacts, said key member being provided with conductors arranged to connect the contacts of one series severally to those of the other series in any selected one of all the combinations possible in such connections.

3. In a transposing switch, two sets of opposed contacts and a removable key member between the said sets of contacts, said key member having separate conductors connecting each contact of one series with a selected contact of the other series, said conductors being correspondingly transposed within the body of the key member.

4. In a multiple switch, two series of contacts insulated from one another, means for

attaching conductors to said contacts, and a member of insulating material adapted to be inserted between the said series of contacts, said member having embedded therein conductors with exposed terminals adapted when the member is inserted to connect the contacts of one series severally with those of the other series in any predetermined transposed relation.

5. A series of multiple-switches comprising two spaced rows of contacts insulated from one another and a key member adapted to be inserted between the rows of contacts and provided with conductors arranged to connect the contacts of one row severally with the contacts of the other row in any selected combination, the elements of the series differing one from another by including different combinations in the pairs of connected contacts.

6. A multiple switch for controlling the ignition system of a multi-cylinder explosion engine, consisting of an insulating member having two opposed sets of contacts, and a removable key between said sets of contacts and having conductors for cross-connecting said contacts in pairs in any selected, unobvious grouping, whereby the ignition circuits will be broken on the removal of the key, and said circuits may be properly completed only on insertion of the proper individual key.

7. In a transposing switch, a frame of insulating material, two opposed sets of terminals supported thereby, each terminal having a resiliently mounted contact member at the inner extremity thereof, a key-way between the opposed terminals, and a key adapted to be inserted therein and provided with conductors having exposed extremities to engage the said contact members, said conductors being embedded in the key and arranged to connect the opposed terminals in pairs in predetermined relation.

8. An electric switch comprising an insulating body provided with an internal key-way of uniform section and open at one end, yieldably mounted contacts at opposite sides of the key-way and substantially flush with the walls thereof, a key of insulating material adapted to fit said key-way and provided with conductors embedded in the key and arranged to connect said contacts in predetermined pairs, and stop means for accurately locating said key in the key-way in position to make the desired connections.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN B. PARKER.

Witnesses:

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