J. GORDON, JR.

SWITCH.

APPLICATION FILED MAY 10, 1911.

1,046,384.

Patented Dec. 3, 1912.

Fig. 1.

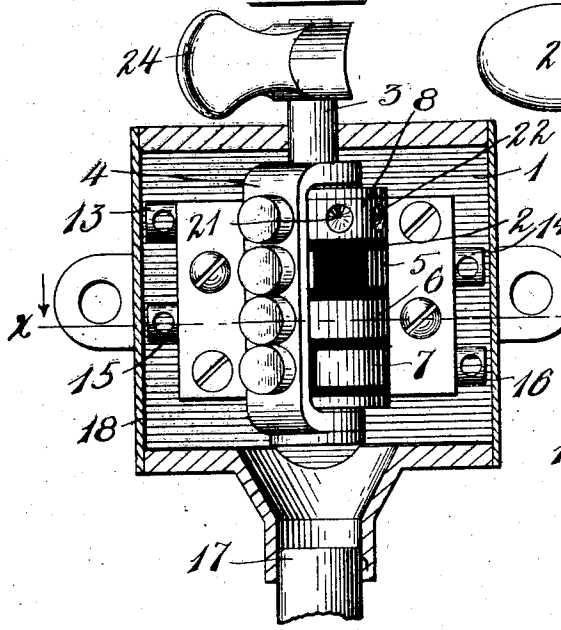


Fig. 2.

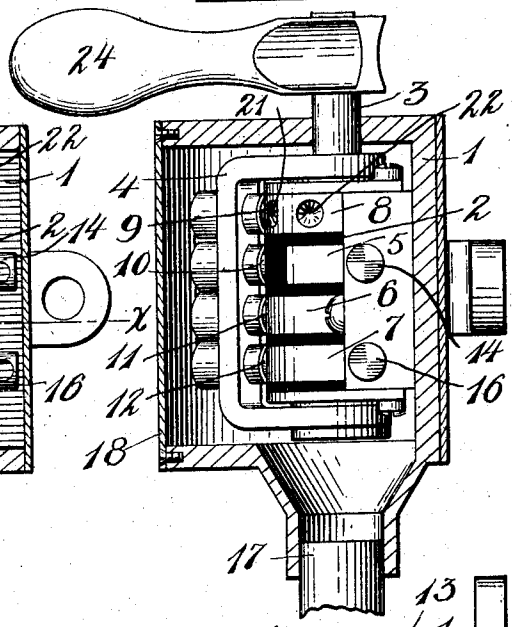


Fig. 3.

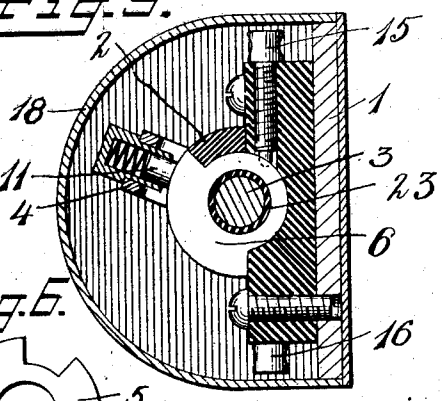


Fig. 4.

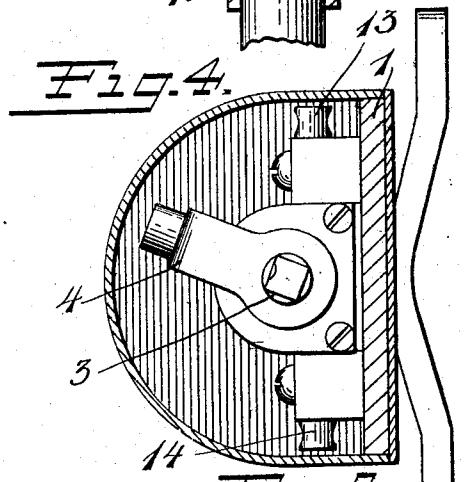


Fig. 6.

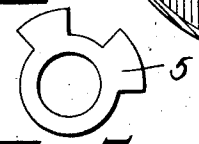


Fig. 5.

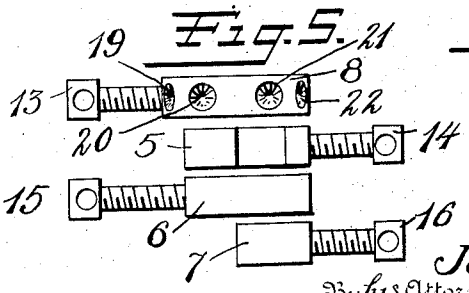


Fig. 8.

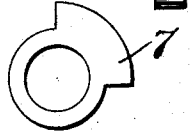
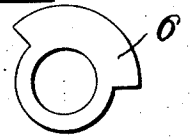


Fig. 7.



Witnesses:

Chas. A. Pratt

Ida M. Kunziker

Inventor

JOHN GORDON JR.

By his Attorneys

Parker Burnett & Parker

UNITED STATES PATENT OFFICE.

JOHN GORDON, JR., OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO THE SIRENO COMPANY, OF NEW YORK, N. Y., A FIRM.

SWITCH.

1,046,384. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed May 10, 1911. Serial No. 626,268.

To all whom it may concern:

Be it known that I, JOHN GORDON, Jr., a citizen of the United States, residing at East Orange, Essex county, State of New Jersey, have invented certain new and useful Improvements in Switches, of which the following is a full, clear, and exact description.

My invention relates to improvements in switches for electrical circuits.

The object of the invention is to provide a simple and effective switch construction, which is exceedingly compact and by which various combinations of circuits may be controlled at will.

In the drawings, Figure 1 is a front elevation of my improved switch, the casing being shown in section; Fig. 2 is a side elevation, said casing being shown in section; Fig. 3 is a section on the plane of the line x—x, Fig. 1, looking down. Fig. 4 is a plan view of the parts as shown in Fig. 1, the handle and upper parts of the casing being broken away; Fig. 5 is a detail view; Figs. 6, 7 and 8 are plan views respectively of different stationary contact members.

1 represents the base upon which the various parts are mounted; 2 represents a stationary hub or contact carrier, the exposed forward side of which is semi-barrel shaped.

3 is a shaft passing concentrically through the hub 2.

4 is a U-shaped bracket carried by the shaft 3 and in turn carrying movable contacts.

The stationary contacts, to wit, the contacts carried by the hub 2, are shown, respectively in Figs. 6, 7 and 8 and are indicated respectively by the numerals 5, 6 and 7. 8 represents an additional contact or block having recesses therein for receiving a spring pressed detent 9, which serves to hold the bracket 4 in any one of several operative positions and in addition serves to conduct the current from a service terminal to the bracket. The bracket carries, in this particular instance, four movable contact members or brushes 9, 10, 11 and 12, all of which may be similarly constructed, a description of one sufficing for all. In Fig. 3, the movable contact member or brush is mounted in a suitable guide and is pressed forwardly by a spring located at its rear so that it will yieldingly bear against the surface of the hub 2. That part of the hub carrying the contact members 5, 6, and 7, is, in the main, formed of insulating material flush with the segment ends of the stationary contacts 5, 6 and 7, so that when one or more of these contacts 5, 6 or 7 is engaged by the brushes 9, 10, 11 or 12, the circuit will be closed. In this particular instance the block 8 is arranged in circuit and, as will be seen from Fig. 5 of the drawings, has its arc longer than those of segments 5, 6 and 7.

The means for connecting the circuit wires (not shown) to the various contact pieces and the block may comprise, as shown, terminal ends 13, 14, 15 and 16, all of which are properly insulated from each other and in contact respectively with their respective contact members.

17 represents an inlet for the circuit wires, said inlet leading into the casing 18, which serves to cover and protect the switch mechanism.

In the particular arrangement shown, there are four different positions provided for the switch, and these may be respectively indicated by the notches in the block 4, said notches being indicated by the numerals 19, 20, 21 and 22. When the switch bracket 4 is in a position in front of the notch 19, the several movable contacts 9, 10, 11 and 12, will bear against that part of the surface of the hub 2 formed of insulating material and consequently no circuit will be closed. When, however, the bracket 4 has been moved to the position shown in Fig. 1, that is, in front of the notch 20, the brushes 10 and 11 will engage with the stationary contacts 5 and 6 respectively, closing the two circuits in the following manner: One circuit entering through terminal 14 passes through the stationary contact 5, movable contact 10, bracket 4, block 8 and terminal 13. The other circuit will pass through the terminal 15, stationary contact 6, movable contact 11, bracket 4, block 8 and terminal 13. When the switch is moved to the third position, it will close the circuits through the stationary contacts 6 and 7, and in this particular instance, the stationary contact 5 will not be in circuit in view of the fact that the movable contact 10 will rest upon the insulated part of the hub 2 between the two segments of contact 5. When the switch is moved to the fourth position in front of the notch 22, the three circuits leading to

the contacts 5, 6 and 7 will all be closed in the manner apparent from the foregoing description. By this means, various combinations of circuits may be very simply and quickly controlled.

It is apparent, of course, that the shaft 3, in the particular construction shown, should be insulated from the several stationary contacts 5, 6 and 7 and preferably from the block 8, the sleeve 23 of insulating material arranged between said shaft and said parts furnishing the said insulating means.

24 is a handle, preferably removable from the upper end of the shaft 3, by which the position of the contact carrying bracket 4 may be readily shifted to the desired position.

What I claim is:

1. In an electric switch, a base, a hub, insulated segmental fixed contacts carried thereby and arranged in different planes intersecting the axis of said hub, a bracket mounted on said hub, the middle part of said bracket being arranged to sweep over said fixed contacts, a plurality of contacts adapted respectively to said fixed contacts and carried by said bracket, means for causing said contacts to yieldingly press against each other, means for frictionally holding said bracket in any one of a plurality of positions, said means comprising a stationary contact plate carried by the hub and having recesses therein, and a spring detent contact carried by said bracket and arranged to engage in the recesses in said plate.

2. In an electric switch, a stationary hub of insulating material, segmental contacts of different lengths carried thereby, said segmental contacts overlapping each other at their ends as to axial alinement, a bracket mounted to sweep above the surface of said hub, a plurality of yieldingly supported contacts carried by and in connection with said bracket adapted to engage the segmental contacts on the hub and forming with said hub contacts and said bracket a plurality of supply circuits, the segmental contact of greatest length having recesses and being in permanent contact with its cooperating bracket contact, and said recesses being positioned to engage said bracket contact and position said bracket with different combinations of hub and bracket contacts in electric connection.

3. In an electric switch, a stationary hub, insulated contacts of different lengths carried thereby, one of said contacts being of greater length than the rest and overlapping them as to axial alinement, a bracket mounted to sweep above the surface of said hub carrying and in connection with separate yieldingly supported contacts adapted to engage the contacts on the hub and forming with said hub contacts and said bracket a plurality of supply circuits, the segmental contact of greatest length having recesses in its edge, and the yieldingly supported bracket contact coöperating therewith being formed as a spring-pressed ball engaging the periphery of said recessed segment and adapted to engage with the recesses therein to frictionally hold said bracket in various positions relative to said hub, and thereby effect electrical connection between the hub and bracket contacts.

JOHN GORDON, JR.

Witnesses:
R. C. MITCHELL,
E. E. MORSE.