D. D. GORDON.

SWITCH.

APPLICATION FILED APR. 30, 1912.

1,132,470. Patented Mar. 16, 1915.

Fig. 2.

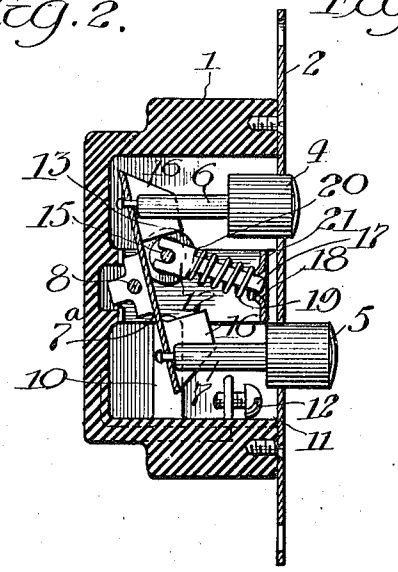



Fig. 1.

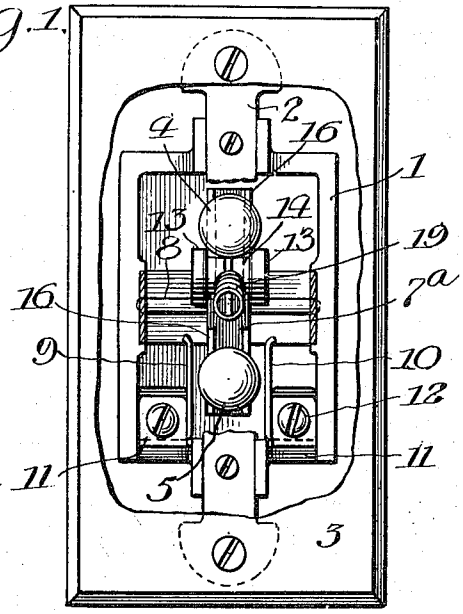



Fig. 4.

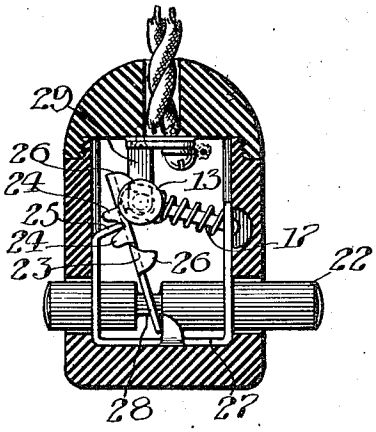
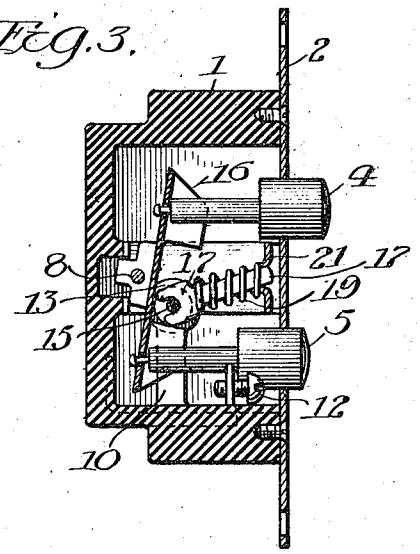



Fig. 3.




Witnesses
O. M. Hamrick
Hazel Jones.

Inventor
David D. Gordon
By May W. Zabel
Atty.

# UNITED STATES PATENT OFFICE.

DAVID D. GORDON, OF CHICAGO, ILLINOIS, ASSIGNOR TO GORDON ELECTRIC AND MANUFACTURING CO., OF CHICAGO, ILLINOIS.

## SWITCH.

1,132,470. Specification of Letters Patent. Patented Mar. 16, 1915.

Application filed April 30, 1912. Serial No. 694,104.

*To all whom it may concern:*

Be it known that I, DAVID D. GORDON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Switches, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to switches, and has for its object the provision of an improved device of this character in which automatically quick acting mechanism is used to break the circuit.

It is the object of this invention to provide a novel form of mechanism to accomplish this quick acting movement with as few parts as possible.

I will describe my invention more specifically by reference to the accompanying drawing illustrating two forms of carrying out my invention, in which:

Figure 1 is a front view of my improved switch; Fig. 2 is a side view partly in section of the same; Fig. 3 is a view similar to Fig. 2, the parts being in an alternative position, and Fig. 4 is a sectional view of a modification.

Referring more particularly to Figs. 1, 2 and 3, I show a casing 1 within which the switch elements are contained, which casing is provided with an attachment strip 2 of the usual variety by means of which the casing may be fastened to the wall as is well understood. A front plate 3 of the ordinary variety partly shown in Fig. 1 covers the structure, permitting the extension therethrough however of buttons 4, 5, as will be readily understood. These buttons 4, 5 also project through the strip 2 and are movable in and out similarly to the buttons in switches of a similar nature. These buttons 4 and 5 have extension rods 6 and 7 by means of which they engage a rocker arm $7^a$, which rocker arm by means of the pin 8 is pivotally supported in the casing 1. Two connecting springs 9 and 10 fastened to plates 11, 11 are held in place in the casing 1 and screws 12 are provided by means of which the conductors of the outside circuit may be brought to within the receptacle to terminate at the springs 9 and 10. The buttons 4 and 5 are adapted to rock the rocker arm $7^a$ about its shaft 8 into one or the other of its alternative positions, that is, the positions occupied respectively in Figs. 2 and 3. In thus moving the rocker arm from one of its alternative positions to the other, a contact making device consisting preferably of a pair of integral rollers 13, 13, is shifted from contact making position between the springs 9 and 10 to its alternative position shown in Figs. 1 and 2, in which alternative position the contact device is removed from the springs 9 and 10. The rollers 13, 13 on their inner sides have extensions 14, 14 of smaller diameter integral with the rollers 13, and these cylindrical portions 14 are fixedly united by means of the cylindrical stem 15 so that the contact device so called consists of the element 15, the elements 14, 14, and the elements 13, 13, all preferably made of one piece. The elements 13, 13 are far enough apart so that when placed between the springs 9 and 10 they make proper contact by closing the circuit through said springs. The cylindrical portions 14, 14 are adapted to ride on the rocker arm 7 and roll from one of their limiting positions to the other, which limiting positions are defined by the abutments 16, 16.

In order to insure the movement of the contact devices 13 rapidly from one alternative position against the abutment 16 to the other alternative position against the other abutment 16, I provide a forked arm 17 whose forks are on opposite sides of the cylindrical element 15, and which arm 17 is held within the recess 18 so that it may oscillate back and forth. The arm 17 may of course project through this opening 18 as the contact element 13 moves from one position to the other by rolling along the rocker arm $7^a$. A spring 19 pushes the arm 17 against the cylindrical element 15 as this spring engages a shoulder 20 on said arm 17 and also engages the element 21 within which the hole 18 is provided. It will thus be seen, for instance, that should the button 5 be pressed inwardly (Fig. 2) that the upper end of the rocker arm $7^a$ will project finally farther toward the right than the lower portion and thereupon the pressure of the spring 19, pressing against the cylindrical contact element will serve to roll this contact element downwardly against the lower abutment 16, in which position the contact elements 13 will close the circuit through the springs 9 and 10. In the same

manner, referring to Fig. 3, should the button 4 be pressed inwardly, then the reverse operation takes place and the roller against the abutment 16 rolls by snap motion toward the position occupied in Fig. 2. It will thus be seen that very few parts are necessary in order to get this quick acting movement of the contact making element.

In Fig. 4, I show a modification in which the device is shown as applied to a pendant switch having a rocker operating plunger 22 which engages a rocking element 23, which rocking element by means of the wings 24, 24 is held in place on top of a projection 25, which projection is firmly held in place in the pendant switch and forms part of a metallic element 27, which metallic element has a recess to accommodate the contact controlling arm 17 similarly as disclosed with relation to the structure of Fig. 2. Abutments 26 are provided on this rocker arm to again coöperate with the contact making device 13 similarly to Fig. 2. The forked extension 28 of the arm 23 is moved by means of the plunger 22 as is readily apparent from one to its alternative position. Springs 29 similar to the springs 9 and 10 are used with which the elements 13 are adapted to contact.

The very simple nature of this quick break device will be readily apparent, and it will also be readily apparent that the same may be applied in many forms. While I have therefore described two forms which my invention may take, I do not wish to limit myself to such forms, but

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

1. A device of the character described having a switch element, a movable switch element, a rocking bar to control said movable switch element along which said movable switch element is movable, means to define the limit of movement of said movable switch element, resilient means to hold said movable switch element in association with said rocking bar, and a rocking link having its free end associated with said movable switch element.

2. A device of the character described having a switch element, a cylindrical movable switch element, a rocking bar to control said movable switch element along which said movable switch element rolls, means to define the limit of movement of said movable switch element, resilient means to hold said movable switch element in association with said rocking bar, and a rocking link having its free end associated with said movable switch element.

3. A device of the character described having a switch element, a movable switch element, a rocking bar to control said movable switch element along which said movable switch element is movable, means on said rocking bar to define the limit of movement of said movable switch element, resilient means to hold said movable switch element in association with said rocking bar, and a rocking link having its free end associated with said movable switch element, said resilient means also serving to maintain said rocking bar in one or the other of its alternative positions.

4. A device of the character described having a switch element, a cylindrical movable switch element, a rocking bar to control said movable switch element along which said movable switch element rolls, means on the rocking bar to define the limit of movement of said movable switch element, resilient means to hold said movable switch element in association with said rocking bar, and a rocking link having its free end associated with said movable switch element, said resilient means also serving to maintain said rocking bar in one or the other of its alternative positions.

In witness whereof, I hereunto subscribe my name this 30th day of March A. D., 1912.

DAVID D. GORDON.

Witnesses:
MAX W. ZABEL,
HAZEL JONES.