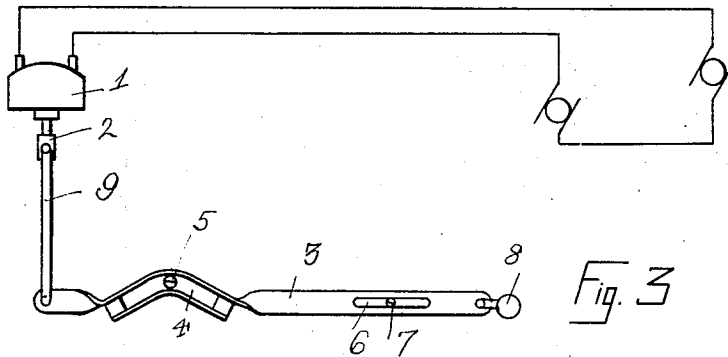
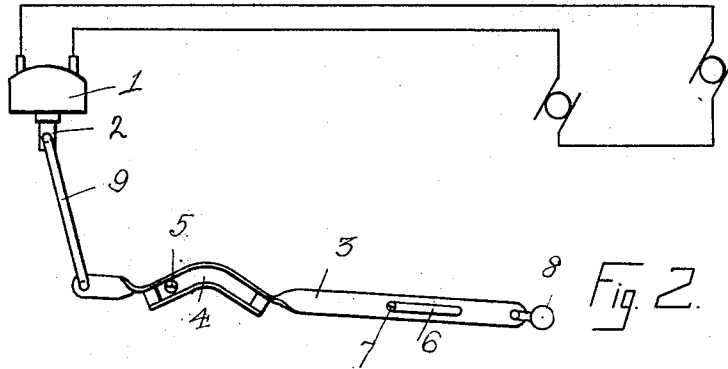
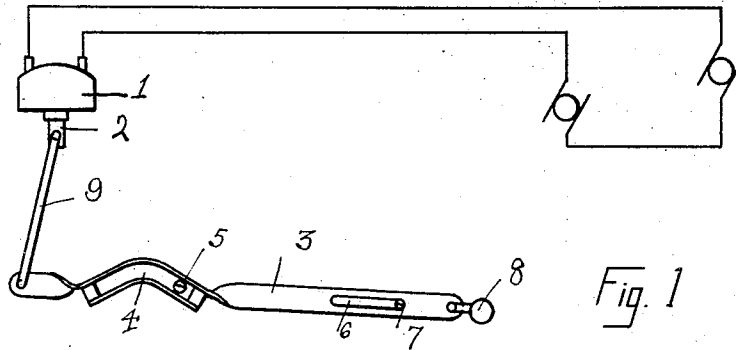


R. A. GALLY.
ELECTRIC SWITCH.
APPLICATION FILED SEPT. 10, 1917.

1,287,283.

Patented Dec. 10, 1918.



WITNESSES

Stanley M. Kemp.
Herschel E. Souver.

INVENTOR

Robt. A. Gally.

UNITED STATES PATENT OFFICE.

ROBERT A. GALLY, OF CINCINNATI, OHIO, ASSIGNOR TO THE BALDWIN COMPANY, OF CINCINNATI, OHIO.

ELECTRIC SWITCH.

1,287,283.

Specification of Letters Patent.

Patented Dec. 10, 1918.

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To all whom it may concern:

Be it known that I, ROBERT A. GALLY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

It is sometimes desirable to have means to close an electric circuit at two positions of the movement of a controller and to open the same circuit when the said controller is at an intermediate position, as for instance when such controller is used for shifting the music roll gearing of a player piano from winding to rewinding or to a neutral inoperative position, and have the electric circuit to the power service thrown into action for both the winding and rewinding conditions, but out of action for the neutral condition, as set forth and claimed in this applicant's separate application #180,870, filed July 16, 1917, issued Apl. 23rd, 1918, #1,263,878; or such a three position control of an electric circuit can be used for many other purposes, as for the forward, reverse and neutral conditions of the gears of a lathe, or a motor car, etc. While it is old to construct switches to throw into two sides of contact for renewing the fuse line, it is believed to be new to have a single circuit including a single switch, and a controlling member connected to the said movable member of the said switch and movable to three positions in a substantially direct line to close that one circuit at either of the two extreme positions of the controlling member of the switch, and open that circuit at an intermediate position of the said controlling member, and such is the scope of the present invention.

In the drawings, Figure 1 shows the switch device set at one closed circuit position; Fig. 2 shows the same device set at the other closed circuit position; and Fig. 3 shows the same device set at the neutral open circuit position.

Although the present desired result can be attained by the use of a switch constructed to be moved or jump to three positions, it is desirable to be able to use a stock switch for small quantity use, thereby saving the expense of the manufacturing of a special switch, wherefore the present showing is of a standard small snap switch 1 having a

push and pull member 2 adapted to close the circuit when pushed inward of the switch, and to open the circuit when pulled outward, and a simple three position controller 3 adapted to push the member 2 inward at two extreme positions of the controller 3.

The controller 3 as now shown is a cam slide and has a V-shaped cam way or slot 4 working on a fixed bearing 5 and this slide 3 also has a straight slot 6 working on a fixed bearing 7, these two bearings 5 and 7 being in an approximate line with the direction of motion of the controller or slide 3. Any suitable connection handle or knob 8 may be provided for movement of the controller 3 by hand, foot or power means, and such movement may be of the switch control only, or combined with shifting or controlling means of any machinery operating in relation to the electric circuit controlled by the switch.

When the controller or cam slide 3 is moved to the left as in Fig. 1, the handle or knob 8 pushes the cam slide 3 to the left so that the right hand and lower part of its cam way 4 is engaging the bearing 5, thus throwing the left end of the cam slide 3 upward and thus by means of rod 9 pushing up the moving member 2 of switch 1 and closing the electric circuit.

When the controller or cam slide 3 is moved to the right as in Fig. 2, the handle or knob 8 pulls the cam slide 3 to the right so that the left hand and lower part of its cam way 4 is engaging the bearing 5, thus throwing the left end of the cam slide 3 upward and thus by means of rod 9 pushing up the moving member 2 of switch 1 and closing the electric circuit.

When the controller or cam slide 3 is brought to its middle position as in Fig. 3, the controller or cam slide 3 is at its middle position of movement, with the middle and high part of its cam way 4 engaging the bearing 5 thus throwing the left end of the cam slide 3 downward and thus by means of rod 9 pulling down the moving member 2 of the switch 1 and opening the electric circuit.

The bearing 7 acts as a second guide for the controller or cam slide 3, and is a pivot on which said controller or cam slide 3 swings when its left end rises and falls.

Various modifications and substitutions

may be made, as, for instance, the toggle style shown in separate application #190,250, filed Sept. 7, 1917, and yet be subject to,— what I claim as my invention, which is:—

5 1. An electric switch having a member movable in a certain path to close a circuit at one position in its said path of movement and open the same circuit at another position in its said path of movement, a controller member movable to three successive
10 positions in a substantially direct line, and mechanical connection means from said controller member to said switch member, the two outer positions of the said controller
15 member causing the said switch member to be at its position of closed circuit, and the intermediate position of the said controller member causing the said switch member to be at its open position of circuit.

20 2. An electric switch having a member movable in a certain path to close a circuit at one position in its said path of movement and open the same circuit at another position in its said path of movement, a controller
25 member movable to three successive positions in a substantially direct line, and which line is substantially that of its main dimension, and mechanical connection means from said controller member to said switch member, the two outer positions of the said controller member causing the said switch member to be at its position of closed circuit, and
30 the intermediate position of the said controller member causing the said switch member to be at its open position of circuit.

3. An electric switch having a member movable in a certain path to close a circuit at one position in its said path of movement and open the same circuit at another position
40 in its said path of movement, a controller member movable to three successive positions in a substantially direct line, and means to cause a part of said controller member to move transversely to its said direct line of
45 travel, and mechanical connection means from the said transversely movable part of the said controller member to the said switch member, the two outer positions of the said controller member causing the said switch
50 member to be at its position of closed circuit,

and the intermediate position of the said controller member causing the said switch member to be at its open position of circuit.

4. An electric switch having a member movable in a certain path to close a circuit at one position in its said path of movement and open the same circuit at another position in its said path of movement, a controller member movable to three successive
60 positions in a substantially direct line, and which line is substantially that of its main dimension, and means to cause a part of said controller member to move transversely to its said direct line of travel, and mechanical connection means from the said transversely
65 movable part of the said controller member to the said switch member, the two outer positions of the said controller member causing the said switch member to be at its position of closed circuit, and the intermediate position
70 of the said controller member causing the said switch member to be at its open position of circuit.

5. An electric switch having a member movable in a certain path to close a circuit at one position in its said path of movement and open the same circuit at another position in its said path of movement, a controller member movable to three successive
75 positions in a substantially direct line, and means to cause a part of said controller member to move transversely to its said direct line of travel, and mechanical connection means from the said transversely movable part of the said controller member to the said switch
80 member, the two outer positions of the said controller member causing the said switch member to be at its position of closed circuit, and the intermediate position of the said controller member causing the said switch member to be at its open position of circuit, the
85 said transverse motion of the said part of the said controller member being in similar direction to that of the path of movement of the said switch member.

ROBT. A. GALLY.

Witnesses:

CHAS. H. SISSON,
W. HEISER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."