

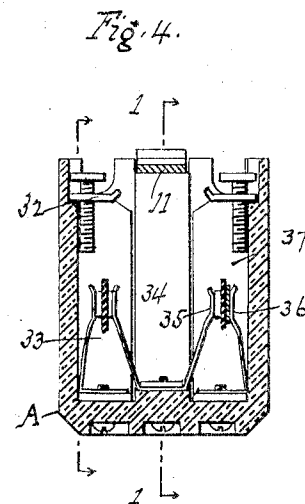
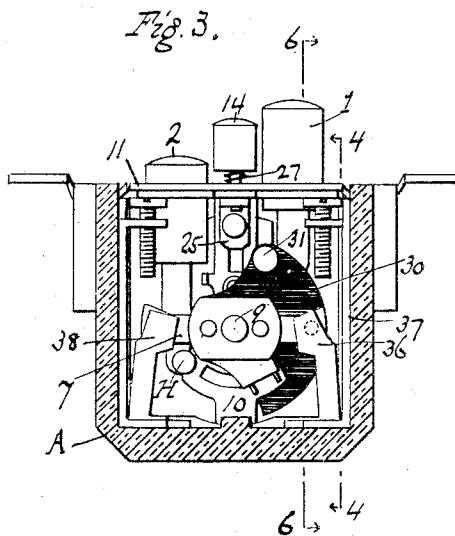
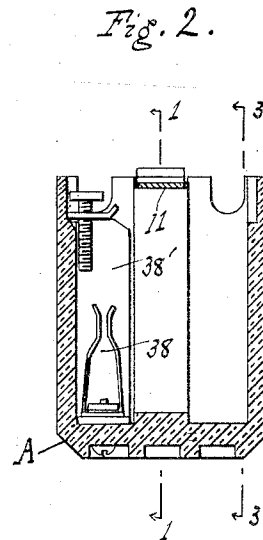
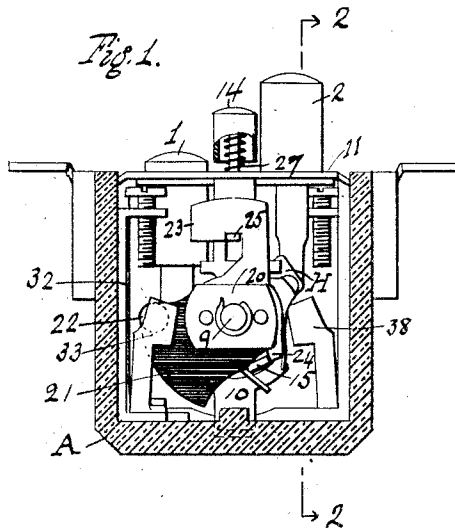
No. 876,207.

PATENTED JAN. 7, 1908.

W. G. MANN.
PUSH BUTTON ELECTRIC SWITCH.

APPLICATION FILED JUNE 20, 1907.

3 SHEETS—SHEET 1.



WITNESSES

Mattison
L. H. Grote

INVENTOR

William George Mann

BY

Horsman and Howson

ATTORNEYS

No. 876,207.

PATENTED JAN. 7, 1908.

W. G. MANN.
PUSH BUTTON ELECTRIC SWITCH.

APPLICATION FILED JUNE 20, 1907.

3 SHEETS—SHEET 2.

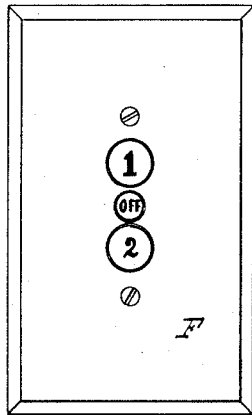
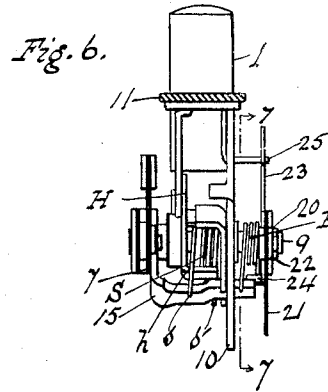
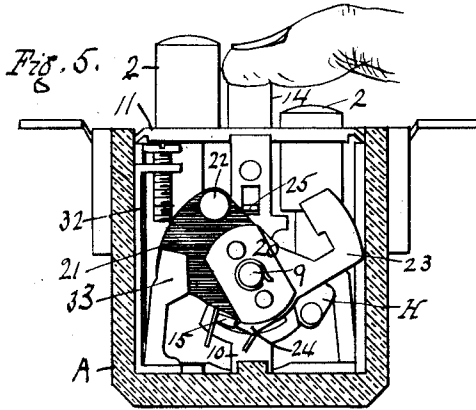


Fig. 8.

Fig. 7.

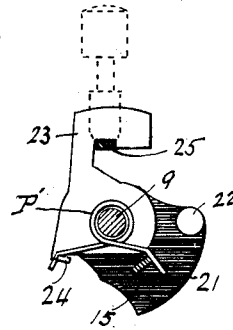
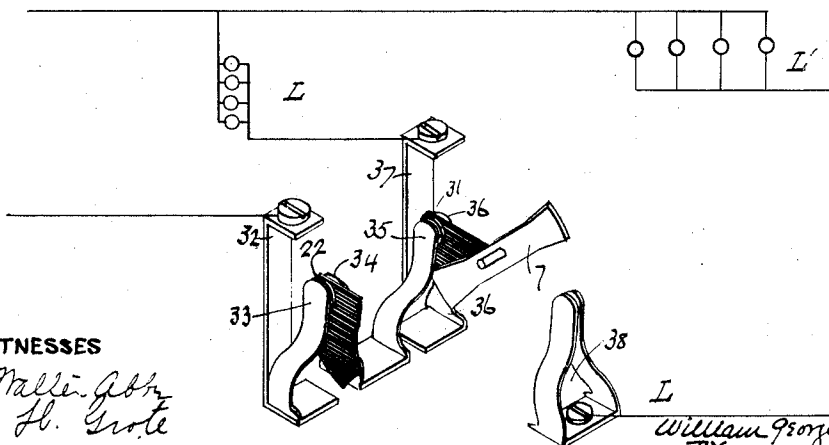


Fig. 9.



WITNESSES

Malle. G. H. Grote

INVENTOR

William George Mann

BY

Horn and Horn
ATTORNEYS

W. G. MANN.
PUSH BUTTON ELECTRIC SWITCH.

APPLICATION FILED JUNE 20, 1907.

3 SHEETS—SHEET 3.

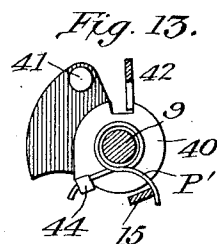
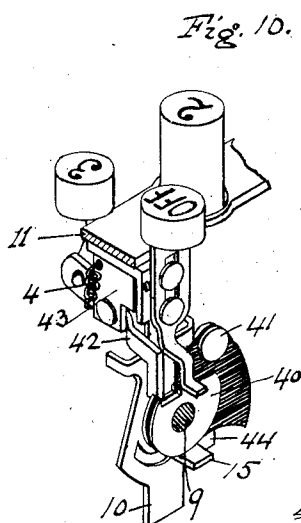
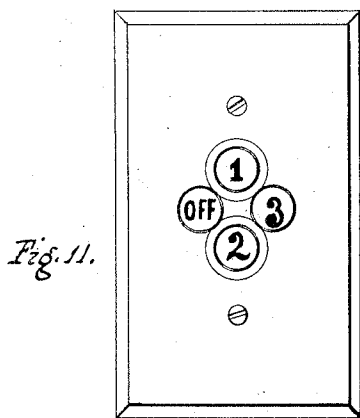
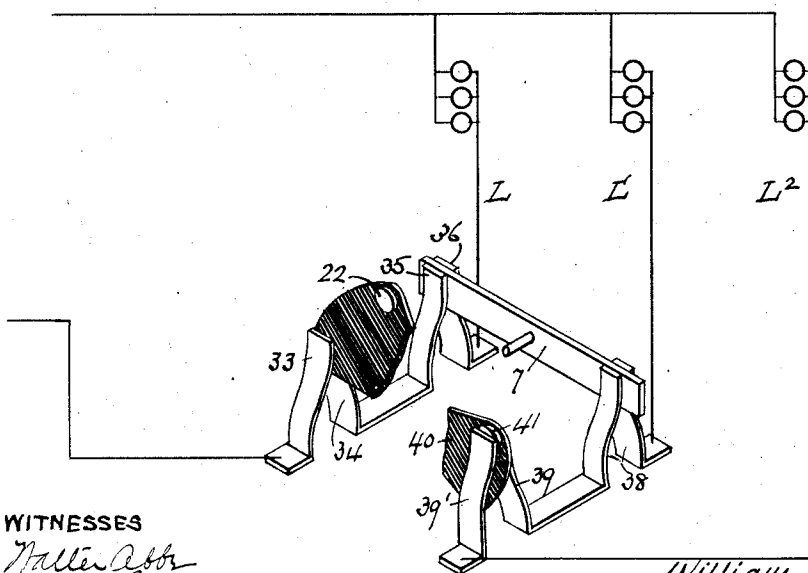


Fig. 12.



WITNESSES

Walter Abbott
L. H. Grote

INVENTOR

William George Mann

By *Amson and Amson*

ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM GEORGE MANN, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE PERKINS ELECTRIC SWITCH MFG. COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

PUSH-BUTTON ELECTRIC SWITCH.

No. 876,207.

Specification of Letters Patent.

Patented Jan. 7, 1908.

Application filed June 20, 1907. Serial No. 379,950.

To all whom it may concern:

Be it known that I, WILLIAM GEORGE MANN, a citizen of the United States of America, residing at Bridgeport, in the county of Fairfield, in the State of Connecticut, have invented certain new and useful Improvements in Push-Button Electric Switches, of which the following is a specification.

The main object of my invention is to so construct a push button electric switch that it may be used to control two or more circuits independently.

In the accompanying drawings Figure 1 is a sectional view of a two-circuit push button switch, the section being taken on the lines 1—1, Figs. 2 and 4; Fig. 2 is a sectional view on the line 2—2, Fig. 1; Fig. 3 is a sectional view on the lines 3—3, Figs. 2 and 4, the positions of certain moving parts of the switch being changed; Fig. 4 is a sectional view on the line 4—4, Fig. 3; Fig. 5 is a sectional view on the same lines as Fig. 1, but showing the moving parts of the switch in other positions; Fig. 6 is a sectional view of the operative parts of the switch removed from the case, the section being taken on the line 6—6, Fig. 3; Fig. 7 is a detached view, the section being taken on the line 7—7, Fig. 6; Fig. 8 is a view of the face plate of the switch; Fig. 9 is a wiring diagram of the switch shown in Figs. 1 to 8; Fig. 10 is a sectional perspective view illustrating a modified form of switch to control three circuits; Fig. 11 is a view of the face plate of this three circuit switch with four push buttons; and Fig. 12 is a wiring diagram for this three circuit switch. Fig. 13 is a sectional view, showing the additional switch blade of Fig. 10 with the spring strained and ready for the release of the catch.

My invention may be applied to various constructions of push button switches, but by way of illustration I have shown it as applied to the push button switch forming the subject of the Thomas patent 743,348, granted November 3, 1903.

A is the casing of porcelain or other suitable insulating material, having secured to its upper part the cross bar 11, through which and through the face plate F (Fig. 8) work two push buttons 1 and 2, preferably of hard rubber. The stems of these push buttons are pivoted to the opposite ends of a rocking catch lever H turning freely on the rockshaft 9, which turns in the upright post

10. This post is secured at its upper end to the cross bar 11, while at its lower end it enters a recess in the bottom of the porcelain casing. With the lever H there is combined a swinging plate having catches to engage with catches on the lever, and a spiral spring S, (Fig. 6), with legs s and s' to act upon a laterally projecting lug h on the lever H and also upon a cross arm 15, laterally projecting from the switch blade 7, all substantially as described in the said Thomas patent. This switch blade 7 is carried by, but insulated from the rockshaft 9. The second switch blade described in the Thomas patent is in the present case omitted, and in its place I mount upon the rockshaft 9 so as to be free to have a limited movement thereon, a switch blade 20, which has an insulated part 21, a contact button 22, and a catch 23. It is also provided with a laterally projecting lug 24, (Fig. 7), on which bears one leg of a coiled spring P, while the other leg of the spring bears against the opposite side of the end of the cross arm 15, which projects across from the blade at the other side of the switch (Fig. 6). The tendency of this spring therefore is to bring and keep the lug 24 up against cross arm 15, as shown in Fig. 1, but when the blade 7 has been thrown by the push button 2 to the horizontal position (Fig. 3), the spring latch 25 in engagement with the catch 23 will hold the switch 20 in the position shown in Fig. 7 against the tension of the spring. This latch 25 slides vertically, being guided in a slot in the post 10, and has secured to its upper end a push button 14, and is provided with a suitable spring 27 to tend to keep the push button up and the latch 25 in engagement with the catch. On pressing this button 14, (Fig. 5), the catch will be released and the spring P will then throw this switch blade 20 from the position shown in Figs. 1 and 7 to that shown in Fig. 5 to break the circuit.

To the switch blade 7, I secure an insulating wing 30, provided with a contact button 31, (Fig. 3) in such a position that when the blade 7 is thrown to break the connection between the contact clips at opposite ends of the casing, that button will then enter between and connect the adjacent contacts at its end of the casing. The contact clips are shown in Figs. 2 and 4 and are indicated in the diagram, Fig. 9. One line wire is connected up to binding post 32, which is elec-

trically connected to the spring contact 33, (Figs. 1, 4, 5 and 9). Opposite the free end of this contact 33 is the spring contact 34, and connected to the latter is spring contact 35, 5 (Figs. 4, 5 and 9). Opposite the latter is spring contact 36, which is in electrical connection with binding post 37 to which another wire is connected leading to the set of lamps L, (Fig. 9). At the opposite end of 10 the casing from these spring contacts 33, 34, 35 and 36, I mount a single pair of spring contacts 38, (Fig. 2) in electrical connection with binding post 38¹, to which is connected a line wire leading to the second set of lamps 15 L¹, Fig. 9.

In Figs. 1 and 9, the positions are the same, that is to say, the push button 1 having been pressed down, the contact button 31 will close the circuit between 35 and 36, 20 Fig. 9, and the contact blade 20 will be thrown into the latched position shown in Fig. 1, with the contact button 22 electrically connecting the contacts 33 and 34, thus throwing the lamps L into circuit. The 25 blade 20 is thrown over to the latched position Fig. 1, from the position Fig. 5, by reason of the cross-arm 15 bearing against the lug 24. If now the push button 2 be operated to swing the blade 7 to the horizontal position 30 shown in Fig. 3, this blade will close the circuit between the contacts 35 and 36 and also the contacts 38, throwing the second set of lamps L¹ into circuit, as well as the lamps L, Fig. 9. If now the third push button 14, 35 marked "Off" in Fig. 8, be pressed, so as to free the catch 24, the spring P, which by the last movement of blade 7 has been tensioned to the position shown in Fig. 7, will throw the blade 20 to the position Fig. 5, carrying 40 the button 22 away from contacts 33 and 34 to break the circuit, and leaving an insulating sheet between those contacts.

If it be desired to construct a push button switch to control three circuits instead of 45 two, I use four push buttons as shown in Fig. 10, the buttons 1 and 2 being the same as before, and the "Off" button being placed to one side, while a new button 3 is added to control a spring-actuated contact blade, similar to blade 20. This added contact blade 40 50 is shown in Fig. 10 and is mounted to turn to a limited extent upon the rockshaft 9.⁶ In the case illustrated it is shown as mounted back of the blade 20, but projecting towards 55 the opposite end of the casing from that to which the blade 20 projects. This blade 40 has an insulating part with a contact button 41, and normally is held in the position shown in Fig. 10 by a latch lever 42 pivoted 60 to a lug 43 on the cross bar engaging a catch on blade 40. This latch lever is acted on by the push button 3 against a suitable spring 4. A spring P¹, Fig. 13 has one end bearing on the cross arm 15, while the other 65 end bears on a lug 44 of the contact blade 40,

tending, when the spring is tensioned by the movement of blade 7, to throw the blade 40 down to the position indicated in Fig. 12, when the button 3 is pressed to free the latch 42.

The circuits will be understood on reference to Fig. 12, there being as before, contacts 33, 34, 35, 36 and 38 leading to the two lamp circuits L and L¹. A third lamp circuit L² is added connected to a contact 39¹, 75 opposite which is a contact 39 in electrical connection with the pair of clips 38. The blade 40 operates in conjunction with the contacts 39 and 39¹. When this blade 40 is in the elevated position shown in Fig. 10, 80 maintained there by the catch 42, the insulated part of the blade will lie between said contacts and the third set of lamps L² will be out of circuit. When it is desired to throw this third set of lamps into circuit, the second and first sets being already in circuit as 85 heretofore described in connection with Figs. 1 to 9, the push button 3 is pressed to raise the latch 42, whereupon the blade 40 will be thrown down by its spring to bring the contact button 41 between the springs 39 and 90 39¹ and close the circuit there, as indicated at Fig. 12. In this diagram, Fig. 12, I have indicated the blade 20 as in its raised position to break the circuit at 33, 34, and so cut out all the lamps on the depression of the "Off" 95 circuit-breaking push button.

I claim as my invention

1. A push button switch having contacts for connection with more than one circuit, and a push button and circuit closing means 100 operated thereby for each circuit with a spring actuated circuit-breaking blade, a latch to hold the latter and a push button to release said blade to break the circuit.

2. A push button switch having contacts 105 for connection with more than one circuit, and a push button and circuit closing means for each circuit with a circuit-breaking blade, a spring to actuate the latter and adapted to be tensioned by the circuit closing means and a 110 latch for the circuit-breaking blade, and a push button to release it.

3. A push button switch having contacts for connection with more than one circuit, and a push button and circuit closing means 115 for each circuit with a circuit-breaking blade, a spring to actuate the latter and adapted to be tensioned by the circuit closing means, latching means for the circuit-breaking blade, and a push button to release it and devices 120 connecting the circuit-closing means with the circuit-breaking blade to move the latter over to the latched and closed position.

In testimony whereof I have signed my name to this specification, in the presence of 125 two subscribing witnesses.

WILLIAM GEORGE MANN.

Witnesses:

F. E. SEELEY,
GEORGE B. THOMAS.