

J. J. WESLEY.
FLUSH SWITCH.
APPLICATION FILED APR. 6, 1911.

1,061,647.

Patented May 13, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

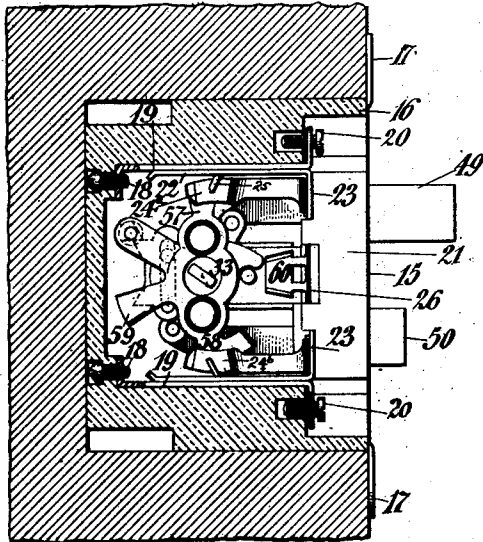


Fig. 2.

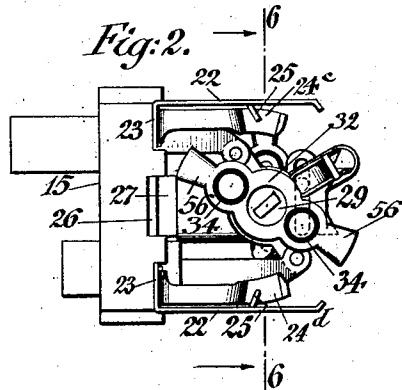


Fig. 3.

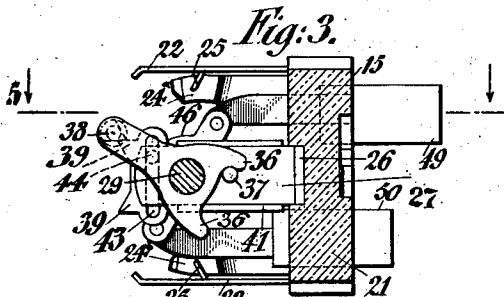


Fig. 4.

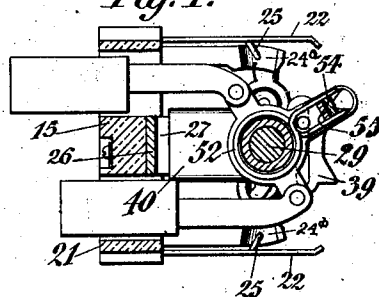


Fig. 5.

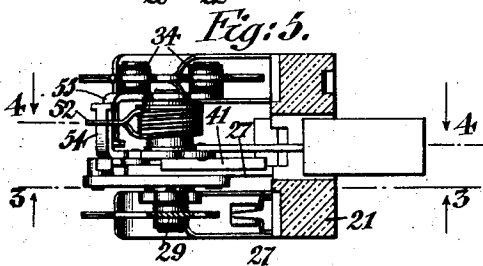


Fig. 8.

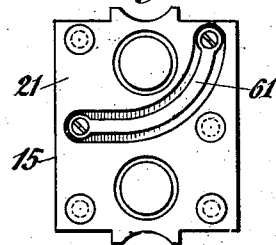


Fig. 7.

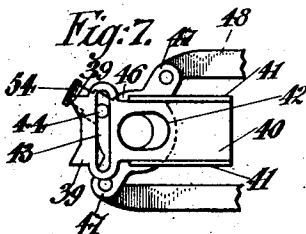
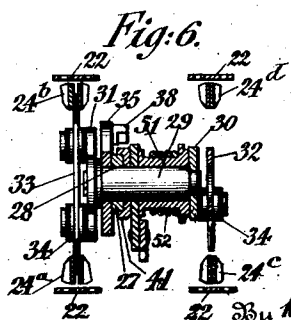


Fig. 6.



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2 SHEETS—SHEET 2.

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UNITED STATES PATENT OFFICE.

JOSEPH J. WESLEY, OF DOUGLASTON, NEW YORK, ASSIGNOR TO METROPOLITAN
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FLUSH SWITCH.

1,061,647.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed April 6, 1911. Serial No. 619,366.

To all whom it may concern:

Be it known that I, JOSEPH J. WESLEY, a citizen of the United States of America, and residing in Douglaston, in the borough of Queens and State of New York, have invented certain new and useful Improvements in Flush Switches, of which the following is a specification.

This invention relates to flush switches of the type adapted to be placed flush in a recess in a wall or other supporting structure.

The principal object of this invention is to provide a switch capable of making certain special combinations of electrical connections depending upon the position to which the switch is thrown.

A further object is to produce a novel form of spring clip for receiving the blade of the switch.

In the accompanying drawings Figure 1 is an elevation of one side of the flush switch, the casing therefor and the wall or other supporting structure being shown in vertical section, Fig. 2 is an elevation of the flush switch showing the side opposite to that of Fig. 1, Fig. 3 is a vertical, sectional view taken on line 3—3 of Fig. 1, Fig. 4 is a vertical, sectional view taken on line 4—4 of Fig. 1, Fig. 5 is a horizontal sectional view taken on line 5—5 of Fig. 3, Fig. 6 is a vertical, sectional view taken on line 6—6 of Fig. 2, Fig. 7 is a side elevation of a detail, Fig. 8 is a front view of the switch showing part of the insulation removed, Fig. 9 is a diagrammatic view of connections adapting the switch for special use, Fig. 10 is a side elevation of a modification, parts being omitted, Fig. 11 is an elevation of the same modification with the blades of the switch in the same position, but showing the side opposite to that shown in Fig. 10, Fig. 12 shows the same side as that shown in Fig. 10, the blade to the switch being in a different position, Fig. 13 is a front view of the modification, showing the wiring arrangement, and Fig. 14 is a diagrammatic view illustrating the different connections which can be made by the modified form of switch.

Similar reference characters indicate cor-

responding parts throughout the several figures.

Referring to Figs. 1 to 8 and more particularly to Fig. 1, the switch 15 is shown housed in a porcelain or other suitable casing 16 received in a recess in a wall or other supporting structure. To the upper and lower ends of the casing 16 are secured perforated ears 17 by which the casing may be screwed to the walls. In each end of the casing 16 is secured by means of screws 18 or other suitable fastenings a pair of contact strips 19 having at their outer ends binding screws 20 for securing thereto the terminals of the wires forming the connections leading to the line wires of the lamps or other articles. The switch 15 comprises a porcelain base 21 having secured thereon at the four corners of its inner face contact plates 22 adapted when the switch is in place to firmly contact the contact strips 19 and form good electrical connection with the same. To the bases 23 of each of said contact plates pairs of opposed spring clips 24^a, 24^b, 24^c, and 24^d are secured, these clips extending along the inner face of said contact plates 22. Near the free ends of the clips small portions of material are cut from the contact plates and turned so as to form small fingers 25 embracing the free ends of said pairs of clips, whereby the clips are held in correct position for receiving the switch blades, and prevented from being moved out of this position.

Transversely across the inner face of the base 21 and at the middle part thereof is disposed a supporting plate 26 to which is secured a standard 27 having a sleeve 28 in which is snugly received the main spindle 29 of the switch, as shown in Fig. 6. At opposite ends of the spindle 29 are rigidly riveted the blade supporting plates 30 and 31 on which are mounted the switch blade-plates 32 and 33, the blade-plates being separated from said supporting plates, by means of insulating washers 34. Between the blade supporting plate 31 and the standard 27 a retarding arm 35 is rigidly secured to the spindle so as to turn therewith. The inner end of the retarding arm is provided with a pair of stop shoulders 36 adapted to

engage the stop pin mounted on the standard 27, whereby the turning movement of the spindle and retarding arm is limited. The outer end of the retarding arm is provided with a retarding lug 38 adapted to be engaged by the corner shoulders 39 of the sliding plate 40. The sliding plate 40 slides against the standard 27 on the side opposite from the retarding arm 35, and is provided with side flanges 41 engaging the edges of the standard whereby said sliding plate is correctly guided. The sliding plate is provided with a longitudinal slot 42 through which the spindle 29 passes. The sliding plate is also provided near said corner shoulders with a transverse slot 43 shown in Fig. 7 in which is adapted to slide the actuating pin 44 carried by the bent over finger 54 of the tilting lever 46. This lever 46 is loosely mounted on the spindle 29 and provided with end members 47 to which are pivotally secured the links 48 which carry the push buttons 49 and 50. Rigidly secured to the tilting lever and also loosely mounted on the sleeve 28 and spindle 29 and lying snugly between the tilting lever and the blade supporting plate 30 is the flanged thimble 51 around which is wound the spiral spring 52, as shown in Fig. 6, between the opposite ends of which spring are pressed the bent over fingers 54 and 55 of the tilting lever 46, (as shown in Fig. 5) and the blade supporting plate 30, respectively. The blade-plate 32 is provided at opposite ends with blades 56 which are free of electrical contact when in the position of Fig. 2 which may be received by the clips 24^a and 24^b when the blade plate 32 is in vertical position. The blade-plate 33 is provided with end blades 57 and 58 adapted when the blade-plate is in vertical position to be received respectively by the clips 24^a and 24^b as shown in Fig. 1. This blade-plate 33 is also provided with an intermediate blade 59 which is free from contact with the blade-plate in said position of Fig. 1. When the blade-plate 33 is shifted to a diagonal position the blade 57 becomes free and the blade 59 is received by the clips 24^a, while the blade 58 is received in the clip 60 mounted on, and insulated from, the supporting plate 26. This last position is shown by Fig. 12. This clip 60 is electrically connected to the clip 24^c by means of the conducting bar 61 (see Fig. 8). It will be seen that with the blade-plates in the position shown in Figs. 1 and 2, the clips 24^a and 24^b and therefore their corresponding terminals are electrically connected, there being no connection between the clips 24^a and 24^b and no connection with the clip 60. Practically then the only electrical connection is that indicated diagrammatically by the dotted line of Fig. 9. When, however, the blade-plate 32 is in vertical position and

the blade-plate 33 is brought into slanting position by the manipulation of the push buttons, electrical connection is made between the clips 24^a and 60. There is permanent connection between clips 24^a and 60. This then establishes the connection shown by the solid lines of the switch in Fig. 9.

The operation of the switch is as follows: The blades being in the position of Figs. 1 to 7, the button 49 is pressed, thus tilting the tilting lever 46 and with it the finger 54, the finger, by this movement, tensioning the spring 52. As the tilting lever moves toward its mid-position the pin 44 engaging in the slot 43 and moving farther from the face of the switch, moves the sliding plate so that one of the corner shoulders is in engagement with the retarding lug 38, whereby the movement of the retarding lug 38, the retarding arm 35, the spindle 29, the blade-plates, and all the switch blades is prevented. When the tilting lever moves past its mid-position the pin 44 carries the sliding plate back to its normal position and finally said corner 39 is disengaged from said retarding lug—the spring 52 being in the meantime fully tensioned by the finger 54—and permits the retarding arm and with it the spindle, the blade-plates and all of the blades to snap suddenly to the new position. The blades can be snapped back to the initial position by pressing the other push button 50, the operation being exactly the reverse from that just described.

Fig. 9 illustrates diagrammatically an example of a practical use to which the switch may be used in a dwelling. One line wire 70 leads to three lamps 71 of a chandelier and to a fourth lamp 72 of the same chandelier, for instance, on the main floor of the house. From the other line wire 73 one conductor 74 leads to the terminal 24^c of the switch 15, while another terminal 75 leads through a single-pole switch 76 to the terminal 24^a. The switch 76 may be located in a bedroom upstairs, while the switch 15 may be located in the room with the lights 71 and the light 72, say for instance, in the dining room on the main floor of the house. With the switch 76 open, as shown, the switch 15 may be thrown to give the connections shown by the solid lines as has been explained, in which case both the lights 71 and the light 72 will be lighted. If the switch 15 be thrown to the position giving the connection of the dotted lines, the switch 76 still being open, all the lights will go off. If, however, the switch 76 should be closed, either only the light 72 or all the lights will be on depending upon the position of the switch 15. The switch 76 being closed, the light 72 only being on in the dining room and a burglar should come in and attempt to turn off the light 72 by the

switch 15, he would, instead, turn on all of the lights.

Figs. 10 to 14 illustrate a modified form of the switch adapted for use as a four-way switch. In this case the blade plate 33 is the same as that illustrated in Fig. 1, the other blade-plate 83 is of the same shape as the blade-plate 33 and is placed on the spindle 29 parallel to the plate 33, the blades 77, 78 and 79 of the plate 83 corresponding to the blades 57, 58 and 59 respectively of the plate 33. An additional intermediate clip 80 is mounted on but insulated from the plate 26 and electrically connected by a conductor 81 with the clips 24^a and is adapted to receive the blade 78 in the same manner as the clip 60 receives the blade 58.

When the blades are in the position illustrated by Figs. 10 and 11, clip 24^a is electrically connected directly to the clip 24^b and the clip 24^c to the clip 24^d. This connection is illustrated by the dotted lines of Fig. 14. When the switch is shifted to the position of Fig. 12 the clip 24^b is connected through the plate 33 to the clip 60 and then through conductor 61 to clip 24^c and the clip 24^d is connected through plate 83, clip 80 and conductor 81 to clip 24^a as shown by the solid lines of Fig. 14, thus reversing the sign of the clips 24^b and 24^d when clips 24^a and 24^c are connected to a source of current.

I do not limit myself to the exact form of switches herein described and illustrated, as various changes may be made without departing from the scope of the invention as defined by the claims.

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

1. In a snap-switch, the combination of two pairs of end clips, blade-plates, adapted to move in unison and each having a pair of end blades one for each of said end clips respectively, an intermediate blade on one of said plates, and adapted to be received by one of the end clips, and an intermediate clip adapted to receive one of the end blades of said plate carrying the intermediate clip.

2. A snap-switch comprising two pairs of end clips; a pair of blade plates, one for each pair of clips and each having a pair of end blades, one for each of said end clips respectively, said blade-plates being connected in staggered relation and so as to move in unison with each other, whereby when the blades of one plate are received by the clips the blades of the other are free, an intermediate blade on one of said plates and adapted

ed to be received by one of the end clips, and 60 an intermediate clip adapted to receive one of the end blades.

3. A snap-switch having two pairs of end clips, a pair of connected blade-plates, one for each pair of end clips and each carrying 65 a pair of blades adapted each to be received by one of said end clips respectively, intermediate clips each adapted to receive one of the blades of each plate, and an intermediate blade on each blade-plate adapted to engage 70 one of the end clips.

4. An electric switch contact plate comprising a plate proper having lateral stop fingers, and spring clips secured at one end to said plate proper and vibratable at their 75 free ends between said fingers in receiving and releasing the switch plate.

5. In a push button snap switch two pairs of end clips, an intermediate clip, a blade plate adapted to connect the end clips of 80 one pair, a blade plate adapted in one position to connect the ends of the other pair and in its other position to connect one of the end clips of the other pair with said intermediate clip, and a push button snap 85 switch mechanism operative to snap said blade plates simultaneously in the same direction into relatively reverse positions.

6. In a push button snap switch two pairs of end clips, intermediate clips for one of 90 said pairs, a blade plate adapted in one position to connect the clips of one pair and in another to connect one clip of said pair with an intermediate clip, a blade plate adapted in one position to connect the clips of the 95 other pair, and a push button mechanism operative to simultaneously switch one of said blade plates into one of said relations and the other blade plate into the other relation. 100

7. In a push button snap switch two pairs of end clips, an intermediate clip, a two blade plate, and a three blade plate movable in unison, the three blade plate connecting in one position one pair of said end clips 105 while the two blade plate is in inoperative position, and said three blade plate connecting in its other position one of said end clips with said intermediate clip while the two blade plate connects the other pair of 110 end clips.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

JOSEPH J. WESLEY.

Witnesses:

JOHN MURTAGH,
L. M. DORMACE.