

A. W. BAILEY.
ELECTRIC SWITCH OPERATING MEANS.
APPLICATION FILED AUG. 30, 1909.

968,520.

Patented Aug. 30, 1910.

Fig. 2.

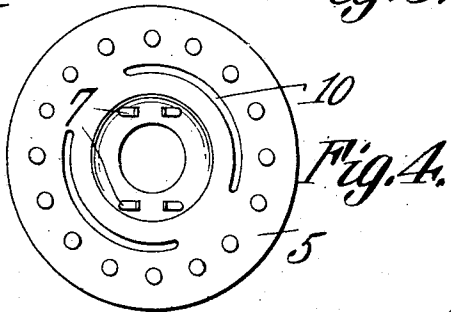
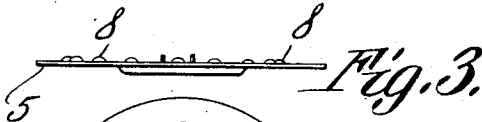
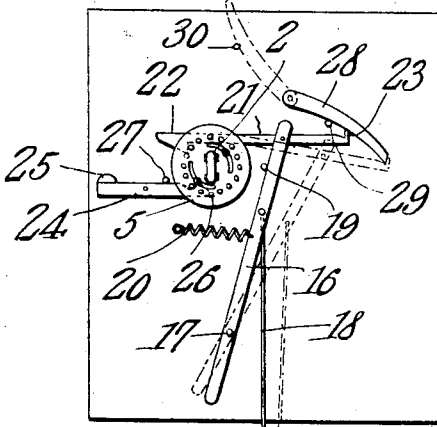
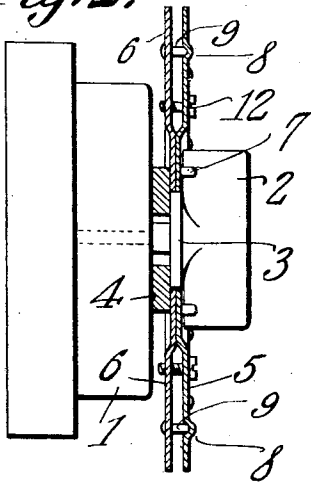
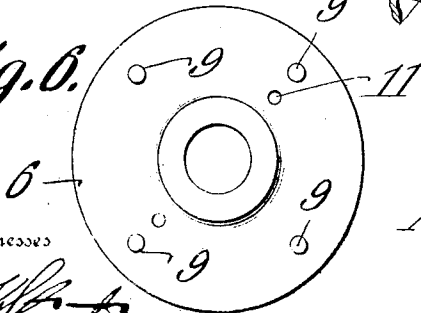


Fig. 5.



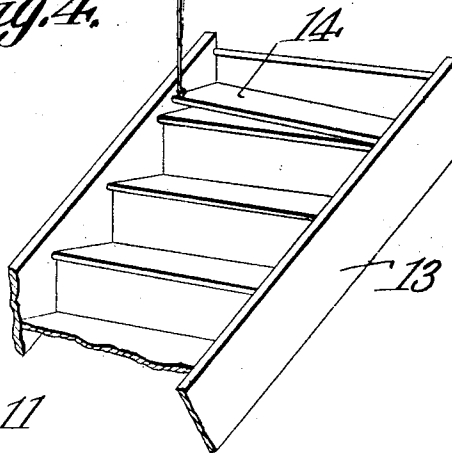
Fig. 6.



Witnesses

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Fig. 1.



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ELECTRIC-SWITCH-OPERATING MEANS.

968,520.

Specification of Letters Patent. Patented Aug. 30, 1910.

Application filed August 30, 1909. Serial No. 515,258.

To all whom it may concern:

Be it known that I, ALBERT W. BAILEY, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented a new and useful Electric-Switch-Operating Means, of which the following is a specification.

This invention has reference to improvements in electric switch operating means and is designed to provide a means whereby a switch may be turned in a direction to close an electric circuit at the switch by the step of a person upon a stair tread or elsewhere while a second step upon the same tread or plate will cause the opening of the circuit at the switch.

The present invention is designed particularly for use where electric lamps are located in normally dark places to which access is desired, such for instance as cellars or rooms where it is desirable that the lamp should be caused to glow when the cellar or room is approached and to be turned off on leaving the room or cellar. For this purpose there is provided an ordinary electric switch with means for turning the switch to the on position on the first operation of the actuating means and on the second actuation of the same means the switch is returned to the off position.

The invention likewise comprises certain features of construction and means for rendering the device inactive when desired, which will best appear from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, in which drawings—

Figure 1 is an elevation of a switch actuating means constructed in accordance with the present invention with a portion of a stairway shown in perspective. Fig. 2 is a side elevation of a switch on a larger scale than shown in Fig. 1 with part of the operating mechanism shown in section. Fig. 3 is an edge view of a face plate used in connection with the switch. Fig. 4 is a plan view of the structure shown in Fig. 3. Fig. 5 is an edge view of a back plate used in connection with the face plate of Fig. 3. Fig. 6 is a plan view of the structure shown in Fig. 5.

Referring to the drawings, there is shown an electric switch 1 of the ordinary snap type and fast to the arbor of this switch there is secured a manipulating button 2

formed between the head and shank with a disk-like portion 3. Surrounding the shank of the button between the disk member 3 and the corresponding face of the casing of the switch is a washer 4. Interposed between the washer 4 and the head of the button 2 and surrounding the disk 3 are two plates 5 and 6, the plate 5 constituting a front plate and the plate 6 a back plate, these plates being preferably dished in the central portion so that their peripheral portions are separated one from the other by a short space. Struck up or otherwise formed on the face of the disk 5 in the dished portion are tongues 7 arranged to grasp the head of the button 2 so that the button and disk 5 are constrained to move together. The disk 5 is formed on its inner face with a circular series of depressions 8 and the disk 6 is formed with or has attached to the matching face a number of equidistant pins 9 adapted to enter any of the depressions or indentations 8 of the disk 5. On opposite sides of a diameter of the disk 5 and between the dished portion of the disk and the periphery thereof are curved slots 10 while in the disk 6 are formed two diametrically opposite matching holes 11 which may be tapped for the reception of the threaded ends of screws 12 passed through the slots 10 or these perforations 11 may be smooth perforations and nuts may be applied to the ends of the screws 12 where they project beyond the rear face of the disk 6. By this means the disk 6 carrying the pins 9 may be adjusted to any suitable relation to the disk 5 with the free ends of the pins 9 entering the matching holes of the depressions 8 on the inner face of the disk 5 and the two disks may then be locked in any adjusted position desired by the screws 12 and by this means the relations of the pins to the button 2 may be established at will. The switch thus equipped is secured to a wall at a point which may be adjacent to stairs 13 shown in Fig. 1, which stairs may be taken as typical of stairs leading down into a cellar or as typical of the entrance to a room which may be normally dark and in which it is desirable light should be produced on entering the room and extinguished on leaving the room or cellar.

Assuming that a cellar is equipped with electric light and that the stairs 13 are cellar stairs then one of the upper treads is pro-

vided with an extra tread 14 normally held in a slightly elevated position by a suitable spring, or the regular tread may be so supported. Attached to the wall or other support upon which is located the switch 1 is a lever 16 pivoted at its lower end as indicated at 17 and connected at a point above its pivot with the free end of the extra tread 14 by a wire, cord, or other strand 18, so that when the tread is depressed as by the weight of a person stepping thereon the lever will be moved about its pivot 17 to a commensurate extent. The lever 16 is held in a normal position against the stop 19 by a suitable spring 20 and the lever assumes this position when the tread 14 is in the elevated position due to the action of the spring 20.

Carried by the upper or free end of the lever 16 is an arm 21 having one end formed into a latch hook 22 and the other end on the side of the pivot connection of the arm and lever remote from that carrying the latch head 22, formed into a laterally projecting finger 23. The end of the arm 21 carrying the latch head 22 is adapted to extend between the separated peripheral portions of the disks 5 and 6 and to engage one or the other of the pins 9 extending therebetween.

Made fast to the support of the switch 1 is a pivoted arm 24 having a weighted end 25 and at the other end formed into a latch head 26 extending between the disks 5 and 6 below the pins extending therebetween, the latch head being held in the path of the pins by the weight 25 which normally maintains the latch head end of the arm 24 against a stop pin 27. The arm 24 performs the function of a back-stop pawl for the disks. Pivoted to the support of the switch is a pawl 28 maintained in a normally active position by a stop pin 29 so that its free end may be in the path of the finger 23 on the arm 21, or this pawl may be moved about its pivot out of the path of the finger 23 when the pawl will be sustained by another stop pin 30. When it is desired to have the switch always active then the pawl 28 is moved to the inactive position against the stop pin 30, which position is shown in dotted lines in Fig. 1.

It very often happens that the person wishing to go into a cellar or storeroom will pass to such place with the arms full or may pass from such a cellar or store room with the arms full. It frequently happens therefore that the light will not be turned on when a person enters such a darkened place and such person is therefore endangered, or on leaving such a place after the lights have been turned on, the person, because of having the arms full of articles, will fail to turn off the lights and they may therefore burn indefinitely.

Let it be supposed that the pawl 28 is in

the inactive position then a person traversing the stairs 13 will step upon the tread 14 and the latter will give slightly but sufficiently to pull the lever 16 in a direction to cause the turning of the switch 1 sufficiently to make it move to the on position which it does against the action of a contained spring common to such switches. The lights are now on and the person may pass down the stairway into the cellar and on returning will pass up the stairway and on again reaching the tread 14 will cause a new movement of the lever 16 which has already been returned to its normal position because of the reaction of the spring 20 with the head 22 in engagement with the next succeeding pin 8. The second depression of the tread 14 will therefore turn the switch in a direction and to a sufficient extent to cause the rupture of the circuit controlled by said switch. Thus the person traversing the step need pay no attention whatsoever to the switch and the lights will be turned on and then turned off automatically. Suppose, however, that the cellar or room into which a person desires to enter is not normally dark in the day time and therefore it is not desirable that the lights should be turned on while the room is naturally light. Under these circumstances the person using the step moves the pawl 28 to its lower position against the stop 29 and when the tread is stepped upon by the person the lever 16 is actuated as before but the end 23 of the arm 21 rides along under the pawl 28 and the latter will engage the said end 23 and so lock the mechanism out of action, as shown in dotted lines. If the user desires to later enter the cellar, say at night, when light is needed, then he may turn on the switch by means of the button 2, which will rotate the disk and the next pin in order will raise the latch head 22 so as to cause the disengagement of the finger or end 23 from the pawl 28 and the spring 20 will then move the mechanism to the active position.

What is claimed is:—

1. A means for controlling electric circuits comprising a snap switch, a yieldable tread member, a spring constrained lever connected to said tread member, a switch engaging latch member connected to said lever and provided at the end remote from the end engaging the switch with a projecting finger, and a pawl movable into the path of the said finger for engaging the latter and holding the latch member in inoperative position.

2. In a device of the character described, an attachment for switches comprising matching disks adapted to engage the manipulating button of the switch and provided with means for locking to the said button, one of said disks being provided

with laterally projecting spaced pins and the other disk having matching depressions supporting the free ends of the pins.

3. In a device of the character described,
5 an attachment for snap switches comprising two matching disks one of them being provided with means for engaging the manipulating button of the switch and provided with a circular series of depressions and
10 matching slots and the other disk being provided with equally spaced pins adapted at their free ends to engage the depressions

in the first named disk, the said disks being adapted to be locked together by fastening means projecting through the slots in the 15 first named disk.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ALBERT WHITON BAILEY.

Witnesses:

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H. FRENCH.