H. A. WOODS.

SWITCH CONSTRUCTION FOR LANTERNS.

APPLICATION FILED JAN. 24, 1917.

1,304,925. Patented May 27, 1919.

Fig. 1.

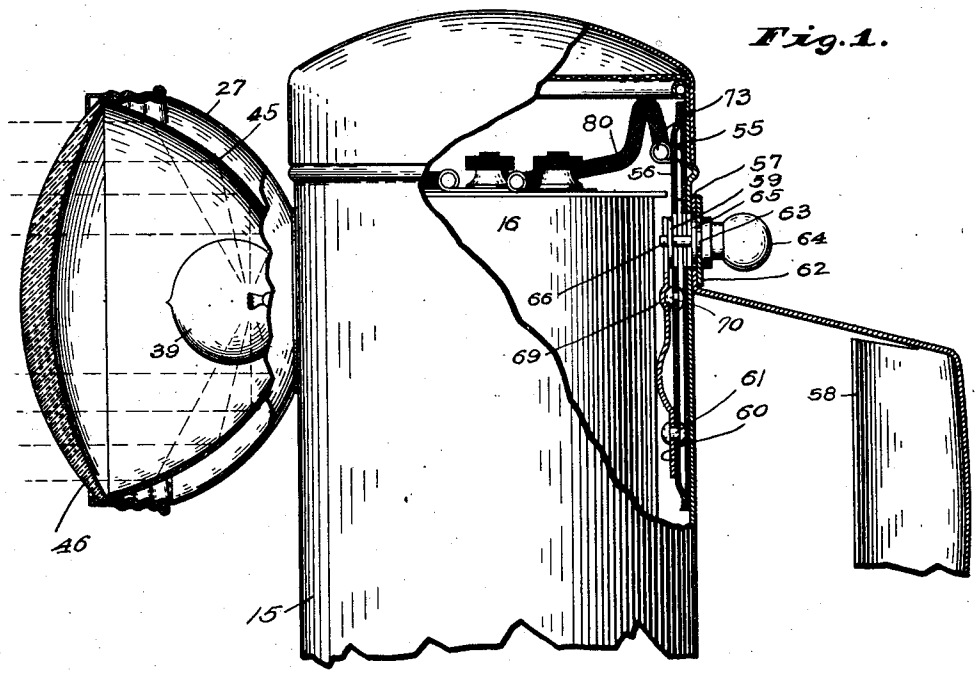


Fig. 2.

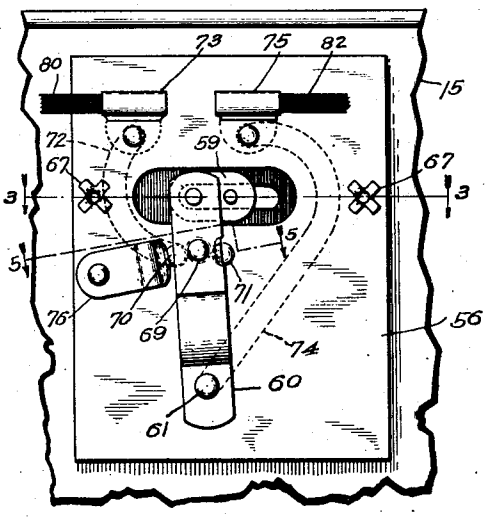


Fig. 3.

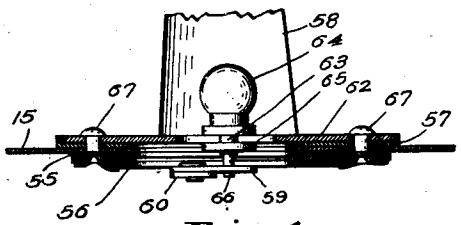


Fig. 4.

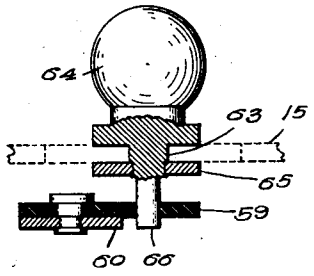
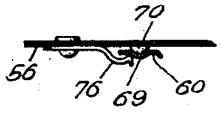


Fig. 5.



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SWITCH CONSTRUCTION FOR LANTERNS.

1,304,925. Specification of Letters Patent. Patented May 27, 1919.

Original application filed November 29, 1915, Serial No. 63,931. (Patent No. 1,232,642, dated July 10, 1917.) Divided and this application filed January 24, 1917. Serial No. 144,106.

To all whom it may concern:

Be it known that I, HOMER A. WOODS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Switch Construction for Lanterns, of which the following is a specification.

It is the object of my invention to provide a switch construction for portable self-contained electric lantern, whereby the switch always makes positive contact when in closed position, the operating handle of the switch is so connected to the body of the switch that binding is prevented, and the switch is firmly mounted on the casing with a minimum of parts and without possibility of charging the casing.

This application is a division of my copending application, Serial No. 63,931, filed November 29, 1915, now Patent No. 1,232,642, issued July 10, 1917.

The accompanying drawing illustrates my invention. Figure 1 is a central vertical section, in partial elevation, through the upper portion of a lantern equipped with a switch embodying my invention; Fig. 2 is a front view of the switch construction, taken from inside the lantern casing; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a detail of the connection between the switch and its coöperating handle; and Fig. 5 is a section on the line 5—5 of Fig. 2.

The casing 15 is of proper size and shape to receive within it a suitable number of dry cells 16, and on its front face carries a reflector housing 27 within which are a reflector 45 and a lamp bulb 39, a lens 46 being mounted at the front end of the reflector housing 27. The lamp bulb 39 and the dry cells 16 are suitably connected in an electric current, in which is also the control switch which is the subject matter of the present application, but the particular arrangement of connections is immaterial in the present case save that there are included two conductors 80 and 82 which lead to the terminals of the switch.

Against the inner face of the rear of the casing 15 are two superposed insulating plates 55 and 56, which, together with the rear of the casing 15 and the cross bar 57 of a rear carrying handle 58 are registeringly horizontally slotted to receive a link 59 of insulating material which is pivoted at one end to the upper or moving end of a switch lever 60, pivoted by a pivot rivet 61 to the insulating plate 56 near the lower end thereof. The cross bar 57 is backed by a slotted guide plate 62 through the slot of which extends the stem 63 of a switch-operating knob 64, which is held in place to slide along the slot in the guide plate 62 by a washer 65 which is riveted to it on the opposite side of the plate 62 from the knob 64. The stem 63 is continued as a pin 66 which projects freely through a hole in the link 59. By sliding the knob 64 along the slot in the guide plate 62, the switch lever 60 is swung about its pivot 61 but because of the free connection between the pin 66 and the link 59 there is no tendency to twist the switch lever 60 no matter how much the knob 64 is tilted, and thus any binding of the switch lever 60 is avoided. The insulating plates 55 and 56, the cross bar 57, and the guide plate 62 are all riveted to the casing 15 by rivets 67, extending through all such parts. The switch lever 60 has a cup-shaped depression 69 which in the two positions of the switch may fit over two rivets 70 and 71 respectively. The rivet 70 is connected by a thin metal contact strip 72 to a contact terminal 73 riveted to the insulating plate 56, and the pivot rivet 61 is connected by a similar thin metal contact strip 74 to a contact terminal 75 also riveted to the insulating plate 56. The strips 72 and 74 and the heads of the rivets 61, 70, and 71 and the rivets of the terminals 73 and 75 are all located between the two insulating plates 55 and 56, and thus separated from the casing 15 by the insulating plate 55 so that charging of the casing is prevented. In order to make certain that there is always a firm and positive engagement between the switch lever 60 and the contact rivet 70, a spring finger 76 is riveted to the insulating plate 56, with the under head of its rivet also between the insulating plates 55 and 56, and the free end of the spring finger 76 is so located that the edge of the switch lever 60 passes under it as the switch lever passes into engagement with the contact rivet 70, so that the spring action of the finger 76 forces the switch lever 60 firmly against the rivet 70, as is clear from Fig. 5. The contact terminals 73 and 75 are permanently connected to the

wires 80 and 82 before referred to, thereby connecting the switch in the circuit of the lamp 39 so as to control it.

By reason of the two insulating plates 55 and 56 and the location of the rivet heads and connecting strips between them, and of the separation of the switch lever 60 from the casing by such insulating plates, and the connection of the operating knob 64 to the switch lever by the insulating link 59, charging of the battery casing, the operating knob, or the carrying handle 58 through the switch is effectively prevented; and yet the switch is easily moved by the thumb of the operator's hand grasping the rear carrying handle.

I claim as my invention:

1. An electric switch, comprising a pivoted switch arm, a switch point with which said switch arm is movable into and out of engagement, and a spring finger mounted separately from said switch point and under which the switch arm slides when moved into engagement with said switch point and which acts to hold the switch arm firmly against the switch point.

2. A switch, comprising a pivoted switch arm, a coöperating switch contact, an operating knob, a slotted guide plate in which said operating knob is slidable, said operating knob having enlargements on each side of said slotted guide plate so as to hold the operating knob from movement transverse to the guide plate, and an insulating link pivoted to said switch arm, said operating knob having a pin which projects freely through said link.

3. In an electric lantern, a battery casing, two superposed insulating plates mounted on the inner face of said casing, a switch mounted on that one of the insulating plates which is farther removed from the casing, terminals also mounted on said plate farther removed from the casing, connections between the switch parts and the respective terminals, said connections being located between said two insulating plates, and an operating member which projects through the casing and said two plates into coöperative relationship with said switch arm.

4. In an electric lantern, a battery casing, two superposed insulating plates mounted on the inner face of said casing, a switch mounted on that one of the insulating plates which is farther removed from the casing, terminals also mounted on said plate farther removed from the casing, connections between the switch parts and the respective terminals, said connections being located between said two insulating plates, and an operating member located outside said battery casing and operatively connected to said switch for operating it.

5. In an electric lantern, a battery casing, two superposed insulating plates mounted on the inner face of said casing, two relatively movable switch members mounted on that one of the insulating plates which is farther removed from the casing, and supports for said switch members projecting through the insulating plate on which they are mounted but spaced from the casing by the other insulating plate.

6. In an electric lantern, a battery casing, two superposed insulating plates mounted on the inner face of said casing, two relatively movable switch members mounted on that one of the insulating plates which is farther removed from the casing, supports for said switch members projecting through the insulating plate on which they are mounted but spaced from the casing by the other insulating plate, and an operating member which projects through the casing and said two plates into coöperative relationship with one of said switch parts.

7. In an electric lantern, a battery casing, two superposed insulating plates mounted on the inner face of said casing, two relatively movable switch members mounted on that one of the insulating plates which is farther removed from the casing, supports for said switch members projecting through the insulating plate on which they are mounted but spaced from the casing by the other insulating plate, and an operating member which projects through the casing and said two plates into coöperative relationship with one of said switch parts, said operating member being mechanically connected to but electrically insulated from said switch part.

In witness whereof, I have hereunto set my hand at Indianapolis, Indiana, this 22d day of January, A. D. one thousand nine hundred and seventeen.

HOMER A. WOODS.