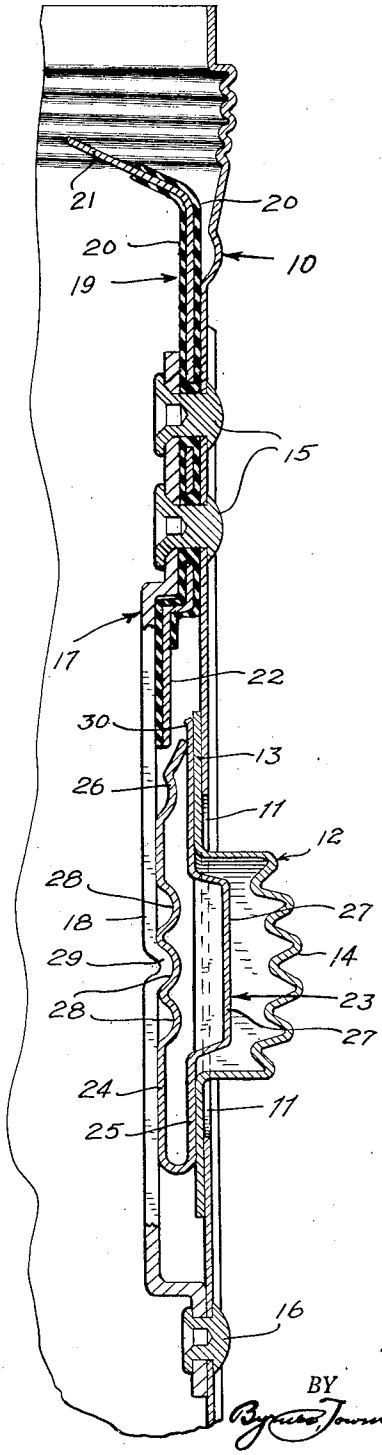
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HANDLAMP SWITCH

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HANDLAMP SWITCH

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This invention relates to battery hand lamps, flashlights, and the like, and more specifically to new and useful improvements in switches adapted for use with such lamps.

Heretofore, tubular hand lamp switches have usually been placed on the outside of the casing. Although a few have been placed on the inside they were constructed so the battery might interfere with their operation. Therefore, one of the objects of this invention is a hand lamp switch placed on the inside of the casing and constructed so the battery cannot interfere with its operation. Other objects are a switch construction that is inexpensive to make, easily operated, positive in action, and not liable to injury. Other aims and objects will be apparent from the description and illustration.

The mechanism by which I attain these results is shown in the accompanying illustration which is a longitudinal sectional view of my improved switch and part of a tubular hand lamp casing to which it is attached.

In the drawing 10 is a portion of a tubular hand lamp casing of metal or other material having an opening or slot 11 in its wall. Within the casing 10 is an actuator 12 having a portion 13 somewhat larger than the opening 11 which it covers and shaped so it conforms to the inner surface of the casing 10. The central portion of the actuator 12 is raised so it extends outward through the opening 11 in the wall of the casing 10 and forms a thumb piece or knob 14 by means of which the switch may be operated. The knob 14 is somewhat shorter than the opening 11 so it may move lengthwise in the opening during the operation of the switch. Secured within the casing 10 by means of the rivets 15 and 16 is a rigid support 17 having a central portion 18 spaced from the casing and opposite the opening 11. Secured between the support 17 and the casing 10 by means of the rivets 15 is a conductor 19 insulated from the casing 10 and the support 17 by a covering 20 of insulating material. The insulating material 20 may be a coating of celluloid entirely covering the conductor except where it is removed from the ends 21 and 22 to permit contact with other portions of the flashlight and switch. The end 21 of the conductor 19 is adapted to make contact with a conductor connected with the hand lamp bulb. The end 22 of the conductor 19 is bent so it conforms to the contour of the support 17 and the insulation 20 is removed only from the side away from the support so the conductor is insulated from both the support 17 and the casing 10. The exposed end 22 of the conductor 19 is the fixed contact that is engaged by the movable contact—to be described later—to complete the circuit through the switch.

Between the support 17 and the actuator 12 is a movable contact 23 of flexible conductive material having an arm 24 in sliding contact with the central portion 18 of the support 17 and an integral parallel arm 25 in contact with the inner face of the actuator 12. The upper end 26 of the arm 24 is bent away from the support 17 so it will slide over the end 22 of the conductor 19 and make contact with it. A portion 27 of the arm 25 is bent outwardly into the knob 14 thereby holding them together so that when the knob is moved the movable contact 23 will be carried with it and both will be held in place by the opening 11. Three recesses 28 are formed in the arm 24 and these recesses cooperate with a projection 29 formed on the support 17 to retain the contact 23 and the actuator 12 in each of the three operating positions of the switch. The same result may be secured, when desirable, by forming the three recesses in the support 17 and the projection cooperating therewith on the arm 24. The arm 25 is somewhat longer than the arm 24 and with the switch in the position shown in the drawing the end 30 of the arm 25 extends upward opposite the lower end 22 of the conductor 19. The support 17 covers the movable elements of the switch and protects them from the battery while it is in the casing as well as when it is inserted and withdrawn.

The illustration shows the switch in flash position. By depressing the actuator knob 14 the upper ends of the arms 24 and 25 are flexed and the upper end 30 of the arm 25 makes contact with the exposed portion 22 of the conductor 19 so the circuit through the

switch remains closed as long as the knob is held depressed. When the pressure is released the parts return to the position shown and the circuit is opened. When the actuator knob 14 and the movable contact 23 are moved upward until the projection 29 is in the lower of the three recesses 28, the end 26 of the arm 24 is in contact with the exposed end 22 of the conductor 19 so the switch is in closed position and the current through the switch remains closed until the parts are returned to the position shown. When the actuator knob 14 and the movable contact 23 are moved downward until the projection 29 is in the upper of the three recesses 28 the switch is in open position and the current through the switch cannot be closed when the knob 14 is depressed because the ends 26 and 30 of the movable contact 23 are below the end 22 of the conductor 19. In moving from one position to the other the arm 24 of the movable contact 23 bends away from the support 17 enough to allow the ridges between the recesses 28 to pass over the projection 29 and then it springs back and tends to hold the switch parts in one of its adjusted positions.

Other materials may be substituted for those specified and the contour of the parts may be altered in various ways without departing from the spirit of the invention or the method of operation.

I claim:

1. A switch for battery hand lamps comprising, in combination, a hand lamp casing having an opening therein, a rigid support within said casing opposite said opening, a fixed contact between said casing and said support and insulated therefrom, an actuator slidable within said casing and having a portion extending outwardly through said opening, and a flexible contact between said actuator and said support and adapted for being moved by said actuator into and out of engagement with said fixed contact.

2. A switch for battery hand lamps comprising, in combination, a hand lamp casing having an opening therein, a support secured within said casing each side of said opening, a fixed contact within said casing and insulated therefrom, an actuator within said casing having a portion extending outwardly through said opening, and a flexible contact held between said actuator and said support and adapted for being moved by said actuator in and out of engagement with said fixed contact.

3. A switch for battery hand lamps comprising, in combination, a hand lamp casing having an opening therein, a support within said casing, a fixed contact within said casing and insulated from both said casing and said support, an actuator within said casing having a portion extending outwardly through said opening, a flexible contact held between said actuator and said support and movable by said actuator into contact with said fixed contact by flexing both ends thereof.

4. A switch for battery hand lamps comprising, in combination, a hand lamp casing having an opening therein, a rigid support within said casing opposite said opening and attached to said casing both sides of said opening, a fixed contact held between said support and said casing and insulated therefrom, an actuator within said casing having a portion extending outwardly through said opening and slidable therein, a flexible contact held between said actuator and said support and movable by said actuator into closed circuit, flash, and open circuit positions, and adapted for being flexed into contact with said fixed contact when in flash position, and means coacting between said support and said movable contact whereby said movable contact is flexed when moved from one of said positions to another.

In testimony whereof, I affix my signature.

HERMAN G. GRAUBNER.