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FLASHLIGHT SWITCH

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This invention relates to flashlights, and more particularly to an improved switch mechanism for the same.

The objects of the invention are to provide a device of the above nature which will be simple in construction, inexpensive to manufacture, easy to install and manipulate, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view, there has been illustrated on the accompanying drawing, one form in which the invention may conveniently be embodied in practice.

In the drawing,

Fig. 1 represents a side view of the assembled flashlight.

Fig. 2 is a side view, on an enlarged scale and partly in section, showing the construction of the switch and its locking mechanism, in "off" position.

Fig. 3 is a fragmentary longitudinal sectional view of the switch and locking member in "flash" position.

Fig. 4 is a similar sectional view of the same, with the switch and locking member in "on" position.

Fig. 5 is a side view, on a much smaller scale, of the flashlight head, showing the ears for attaching the contact spring to the intermediate section of the head, and the aperture through which said contact extends.

Fig. 6 is a similar view of the opposite side of the head, showing the aperture for the locking spring which positively holds the slide ring selectively in its three operating positions.

Fig. 7 is an end view of the flashlight head, showing the ears for attaching the contact spring to the intermediate section of the head.

Referring now to the drawing in which like reference numerals denote corresponding parts throughout the several views, the improved flashlight includes an enlarged circular head 10 and a rear cup-shaped casing 11. The head 10 has an intermediate section 11a and a reduced slightly tapered rear end 11b integral therewith.

Within the head 10 of the flashlight, provision is made of a parabolic reflector 12 and a bulb 13, detachably mounted in a rear screw shell 14 secured to said reflector 12.

Provision is also made of an elongated longitudinal metallic spring strip 15, the forward end of which is curved inwardly and adapted to lie in resilient electrical engagement with the rear convex surface of the reflector 12, as clearly shown in Fig. 2.

The spring strip 15 is covered along the rear portion of its length with a fibre insulation coating 16, and is attached rigidly to the intermediate section 11a by ears 17, 18. It is also provided with an outwardly convex uncovered hook contact section 19 which is adapted to extend outwardly through a rectangular aperture 20 of the intermediate section 11a.

Embracing the intermediate section 11a is a switch-operating slide ring 21 provided with a pair of cylindrical end sections 22, 23 which fit over the cylindrical ends of

the intermediate section 11a of the head 10. The slide ring 21 has a central outwardly convex knurled rib 24 which is aligned with the hook contact 19 and is out of contact therewith when the switch is in the "off" position shown in Fig. 2.

On either end of the rib 23, the slide ring 21 has a pair of smaller ribs 25 and 26 which are adapted to engage with a locking leaf spring 27 located at the point of the circumference of the intermediate section 11a opposite the contact spring 15.

The locking spring 27 is secured to the intermediate section 11a of the flashlight head 10 by means of a rivet 28 located in a rivet hole 28a and is provided with a pair of outstanding spaced nibs 29, 30 which extend through a rectangular aperture 32 in said section 11a, said nibs being constantly pressed outwardly against the slide ring 21 by the resiliency of said spring 27.

In order to limit the endwise movement of the slide ring 21, provision is made of a stop lug 31 struck up and extending outwardly from the intermediate section 11a of the head 10, adjacent to the aperture 20, as clearly shown in Fig. 2 of the drawing.

A pair of dry cells 33 and 34 are located within the rear cup-shaped casing 11 of the flashlight and the rear of the head 10 for furnishing a source of electricity to energize the lamp bulb 13.

Operation

In operation, assuming the slide ring 21 to be in its rearmost "off" position, as shown in Fig. 2, when it is desired to place the flashlight in "flash" condition, it will merely be necessary to push the slide ring 21 forwardly to the position in Fig. 3, where the small rib 25 will be closely adjacent the hook contact 19 of the spring 15. With the parts in this position, a slight movement of the slide ring forwardly will "flash" on the light, and vice versa.

When it is desired to place the flashlight in fully "on" condition, the slide ring 21 will be pushed forwardly into the position shown in Fig. 4, at which time the rear rib 25 will be in full electrical engagement with the hook contact 19, and the opposite side of said rib 25 will also engage with the rear nib 29 of the locking spring 27.

As will be noticed from an inspection of Fig. 3, when the flashlight is in "flash" position, both of the nibs 29 and 30 of the locking spring 27 will engage with the inner ends of both of the small ribs 25 and 26 of the slide ring.

It will thus be seen that in all three operating positions of the flashlight, the slide ring will be positively held against accidental movement out of such positions.

It will be understood that the rear cup-shaped casing 11 may either be permanently attached to the rear reduced section 11b of the head 10 and flush therewith, as by a press fit, by solder, by cement, by attaching lugs, etc. or that said casing may be detachably secured to the head 10 by a threaded connection, whereby the dry cells may be readily replaced by removing the rear casing 11 from said head 10.

It will also be understood that the slide ring 21 may be constructed from plastic, if desired, and made in any color. The slide ring may also be made of less than 360 degrees extent, within the spirit and scope of the present invention.

An important advantage of this improved flashlight is that the slide ring 21 may be moved lengthwise on the intermediate section 11a of the head 10 into any of its three operating positions to wit: "off," "flash" or "on," by engaging the central rib 24 with the finger and thumb of the user's hand at any point along the circumference

thereof, thus greatly facilitating the operation of the flashlight.

A further advantage is that the switch of the improved flashlight may be operated quite easily and without frictional binding, even with gloves on, or when the user's hands are cold. This is because pressure may be applied by the finger and thumb at opposite sides of the slide ring, simultaneously, and also no difficulty will be encountered in searching for the switch button, which formerly was always located on one side or point of the circumference of the flashlight casing and which was designed to be pushed by the thumb only of the user's hand.

In other words, with the present invention, the flashlight switch is very easy to operate, as the slide ring is moved by the balanced forces applied thereto at opposite sides by the finger and thumb operating together.

A still further advantage is that the slide ring may be twisted around the axis of the flash light from time to time, thus greatly increasing the wearing properties of the flashlight switch mechanism.

While there has been disclosed in this specification, one form in which the invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only, and that the invention is not limited to the specific disclosures, but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention what is claimed as new and for which it is desired to secure Letters Patent is:

1. In a flashlight, a rear cylindrical cup-shaped casing portion, a forward hollow head portion, means connecting said portions together to form a casing adapted to contain a plurality of dry cells, a reflector disposed at the outer end of the head portion, an elongated longitudinal metal strip attached to and insulated from the interior of the head portion and having its forward end engaging said reflector, the rear of said strip having a contact hook extending through an aperture in the casing, a substantially cylindrical switch ring slidably fitted over said head section and having a relatively large outwardly extending central convex rib, a smaller outwardly convex rib at one side of said central rib, a locking spring having an outstanding nib to engage the small rib of said switch ring to hold it in adjusted position longitudinally of the casing, and said contact hook being located within said large rib and out of contact therewith in "off" position but in electrical contact with said ring in "on" position of the flashlight.

2. In a flashlight, a rear cylindrical cup-shaped metallic casing containing a plurality of dry cells, a forward hollow electrically conductive head having an enlarged portion provided with an interior concave reflector and a lamp bulb energized by said cells, said head having an integral rear reduced section, said casing being fitted over said reduced section to provide a flush exterior surface for said flashlight, an elongated longitudinal metallic strip insulatedly attached to the interior of said head with its forward end electrically engaging said reflector, the rear of said strip having a contact hook extending outwardly through an aperture in the rear section of said

head, a substantially cylindrical longitudinally-slidable metallic ring fitted over said rear head section in electrical contact therewith and having a relatively large outwardly extending central convex rib, said ring also having a pair of smaller outwardly convex ribs on either side of said central rib, a locking spring secured in said casing and having an outstanding nib to engage the small ribs of said slide ring and hold it positively and selectively in "flash," "off," and "on" positions, said contact hook being located within said large rib and out of contact with the wall thereof in "off" position, being located closely adjacent to the wall of said small rear rib in "flash" position, and being located in electrical engagement with said small rear rib in "on" position.

3. In a flashlight, an elongated hollow metallic casing containing an electric battery therewithin and having a reflector head at its forward end, a lamp bulb located within said reflector head and engaging said battery, a conductor element electrically connected with said lamp bulb and having a portion projecting outwardly through said casing and insulated therefrom, a separate metallic ring switch member mounted for longitudinal sliding on the exterior of said casing and having an inner surface for electrically engaging said outwardly projecting portion, means to limit the slidable movement of said switch member with respect to said casing in both directions, said outwardly projecting portion lying within said ring out of contact with said switch member in "off" position, and contacting with said switch member in "on" position.

4. The invention as defined in claim 3, in which said ring switch member is cylindrical and has an outwardly projecting convex recessed rib, and in which the outwardly projecting portion of said conductor lies within said rib and is engaged by the inner wall thereof when said ring is moved longitudinally along the casing for operating the switch.

5. The invention as defined in claim 3, in which said means to limit movement of said switch member in both directions comprises a spring member mounted on said casing, and having means on said ring to engage said spring member.

6. The invention as defined in claim 3, in which said ring switch member is also rotatable on said casing.

7. The invention as defined in claim 2, in which said strip is provided with an insulating coating on the rear portion thereof.

8. The invention as defined in claim 2, in which said head has an outwardly extending stop lug located within said large rib to limit the endwise motions of said slide ring.

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