

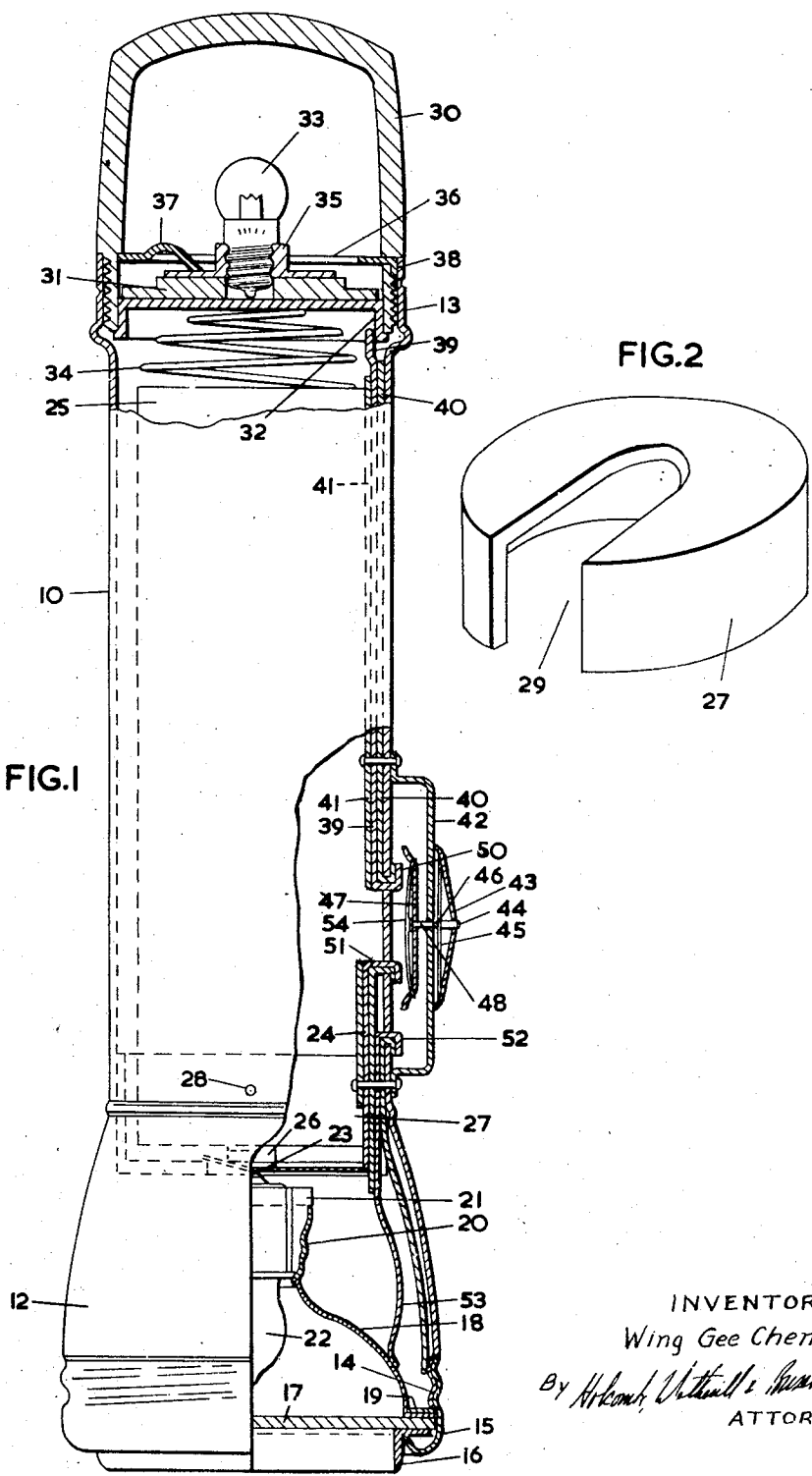
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ELECTRIC TORCHES

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1

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ELECTRIC TORCHES

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3 Claims. (Cl. 240—10.66)

This invention relates to portable electric illuminating devices of the kind supplied by a dry battery and usually termed electric torches.

In my pending patent application Serial No. 593,256, filed June 22, 1956, of which the instant application is a continuation-in-part, I have disclosed a portable electric illuminating device supplied by a dry battery and comprising a tubular body to receive the dry battery, one end of said tubular body being formed so as to constitute a foot or base on which the device can stand on a supporting surface such as a table, two electric lamp bulbs fitted respectively one at each end of said body portion, means for electrically connecting said lamp bulbs to said battery, said means comprising two alternative energising circuits each of which is associated with one of said lamp bulbs, and a switch for selectively controlling the supply of energising current from said battery to one or other of said alternative circuits to illuminate the lamp bulb associated therewith, said switch having a neutral position in which it disconnects both of said alternative circuits from said battery, a fixed casing in which a bridging contact arm constituting the movable part of said switch is mounted, a push button slidably mounted on said fixed casing and mechanically coupled to said bridging contact arm, and a locking device for normally retaining said bridging contact arm in a neutral or "off" position, said locking device comprising a stud coupled to said bridging contact arm and normally engaging in an opening in said fixed casing, and means for releasing said stud from said opening when it is required to move the switch into either one of its two "on" positions, said release means comprising a stud slidably mounted in said push button in alignment with said locking stud.

One object of the present invention is to provide an improvement in the torch construction described in the specification of my said co-pending application which will simplify the construction thereof.

Another object of the present invention is to provide a visible warning device which will indicate in suitable circumstances that the current supply to one end of the torch has not been switched off.

The improvements effected by the present invention will be described in greater detail with reference to the accompanying drawings which illustrate a torch construction incorporating the improvements of the present invention.

In the drawings:

Fig. 1 is a view in elevation, partly in section, of the improved torch construction;

Fig. 2 is a perspective view of a plastic partition incorporated in the construction shown in Fig. 1 and forming one feature of the present invention.

The construction shown in Fig. 1 combines features shown in Figs. 1 and 3 of the drawings filed with my said pending patent application Serial No. 593,256 with the improvements according to the present invention. As illustrated the device comprises a substantially cylindrical body or casing 10 of aluminium or any other suitable

2

metal or material having one end 12 of larger diameter than the other end 13 so as to form a base or foot. In the construction illustrated in the drawings filed with pending application Serial No. 593,256 this larger end 12 of the casing 10 has a diameter approximately twice the diameter of the end 13 but in the present construction the difference in these diameters is substantially less; the diameter of the larger end may for example be 1½ the diameter of the smaller end 13. The larger end 12 of the casing is provided with an external screw thread 14 engaged by a screw-threaded metal ring 15 serving to secure in position a transparent ring 16 made of coloured e.g. red, plastic, a lens or cover glass 17, and a parabolic metal reflector 18, between the outer edge of which and the end of the casing 10 is clamped a plastic ring 19.

The apex of the reflector 18 is extended to provide a screw threaded metal lamp shell 20 and in this shell 20 is screwed a plastic lamp bulb holder 21 for a lamp bulb 22. When this lamp bulb is in position in the holder 21, its outer terminal or shell is in electrical contact with the reflector 18, while its centre pin or terminal 23 abuts against a contact strip 24 mounted upon but insulated from the body 10.

A dry battery 25 is contained in the body 10 with its positive terminal or stud 26 projecting through a slot in a plastic cup 27 secured in the body 10 by rivets 28. The construction of this plastic cup 27 forms one of the features of the present invention and is illustrated separately in Fig. 2. As shown in Fig. 2 the cup 27 is formed with an L-shaped slot 29 extending radially from the centre of the cup to the wall thereof and continuing down the length of the wall. This arrangement enables the contact strip 24 to be bent inwards to engage in the slot and thereby to be directly contacted on one side by the positive terminal 26 of the battery 25, and on the other side by the terminal 23 of the lamp bulb 22.

The opposite end 13 of the body 10 is provided with an internal screw thread to receive the screw threaded end of a cylindrical cap 30 of transparent plastic or other suitable material constituting a shade or lens when the device is employed as a table lamp. Loosely mounted within the cap 30 is a disc 31 of plastic or other insulating material fixed on the upper face of a metal cup 32 adapted to abut against the central terminal or pin of an upper lamp bulb 33, a helical spring 34 being interposed between the cup 32 and the negative end or terminal of the battery 25. In addition to forming part of the circuit of the lamp 33 the spring 34 also operates to press the positive terminal 26 of the battery 25 into electrical contact with the conductor strip 24 and the latter into contact with the terminal 23 of the lamp 22.

The metal shell or outer terminal of the lamp bulb 33 is screw threaded into a metal shell or socket member 35 which is electrically connected to the casing 10 by a metal ring 36 having an inwardly projecting contact strip 37 in contact with the shell 35 and a second contact strip 38 which passes through the wall of the cap immediately above the screw thread so as to make contact with the body 10 when the cap is screwed into position.

One end of a metal conductor strip 39 is connected to the cup 32, this strip extending along the interior of the body 10 between insulating strips 40, 41 to a switch controlling the supply of current to the lamps 22 and 33, this switch being housed in a casing 42 fixed on the body 10 and comprising a push button or knob 43 slidably mounted on the casing 42, and a bridging contact arm 47. The push button 43 is mechanically coupled to the bridging contact arm 47 by short arms or tongues formed on the inner edge of the casing of the button, these arms extending through slits in the casing 42.

The push button 43 comprises a hollow sheet metal member provided with a stud 44 made of plastic or other

suitable material, this stud being capable of sliding inwards and being held in its normal position shown in Figure 1 by means of a bow spring 45. A projection 46 in the centre of the spring 45 abuts against a locking stud 48 carried on the arm 47 and sliding within a corresponding opening in the casing 42, the outer end of the stud 48 when in its normal position engaging in the opening in the casing 42 but being flush with the outer surface of the casing. The inner end of the stud 48 is slidably mounted in an aperture in the bridging contact arm 47 and is resiliently held in the position shown in Fig. 1 by means of a bow spring 54.

The arm 47 is arranged to co-operate with three fixed contacts 50, 51 and 52 mounted upon but insulated from the body 10 of the torch.

The fixed contact 50 forms part of the conductor strip 39 while fixed contact 51 forms part of the contact strip 24. Fixed contact 52 is formed on one end of a metal conductor strip 53 the other end of which makes contact with the reflector 18.

The operation of the device is similar to that described in the specification of co-pending application Serial No. 593,256.

Under inoperative conditions, i.e. when both lamps 22 and 33 are unilluminated the push button 43 and contact arm 47 occupy the position shown in Fig. 1, and are prevented from being accidentally displaced from this position by the locking stud 48 engaging with the side edges of the opening in the casing 42.

When it is desired to use the device as a table lamp or torch the stud 44 must be first depressed to move the stud 48 out of engagement with the casing 42. The push button 43 can then be slid towards the lamp 33 to cause the contact arm 47 to close on the contact 51. A circuit is then completed from the positive terminal of the battery 25 through contact strip 24, fixed contact 51, contact arm 47, push button 43, the metal body 10 of the torch, ring 36, lamp shell 35, lamp 33 to the negative terminal of the battery 25.

In order to extinguish the lamp 33 it is only necessary to move the push button 43 downwards, i.e. away from the lamp 33 to the position shown in Fig. 1 in which the push button is again automatically locked by the stud 48 which re-engages in the aperture in the casing 42.

When it is desired to use the device as a hand torch, the push button 43 is again released by depressing the stud 44 and is displaced in the opposite direction in order to bring the bridging contact arm 47 into a position in which its opposite ends close respectively on fixed contacts 50, 52. A circuit is then completed from the positive terminal of the battery 25 through contact strip 24, lamp 22, reflector 18, contact strip 53, fixed contact 52, contact arm 47, fixed contact 50, conductor strip 39, cup 32, spring 34, to the negative terminal of the battery.

As described in the specification of the co-pending application above referred to the lens cap 30 may be made of transparent or translucent material or coated with phosphorescent material so that the position of the device can be readily observed even in darkness.

Advantages of the improved construction above described are as follows:

The slot 29 provided in the plastic cup or partition 26 enables the contact strip 24 to be bent along this slot between the positive terminal of the battery and the terminal of the lamp 22 thus providing a simple contact arrangement between these two terminals.

The contact strips 24 and 53 can be accommodated in the slot 29 which will tend to prevent lateral deformation or displacement of these contact strips as a result of rough handling.

The provision of the transparent ring 16 will provide a visual warning in the event that the circuit of the torch lamp 22 has been left closed inadvertently.

What I claim and desire to secure by Letters Patent is:

1. A portable electric illuminating device adapted for use either as a table lamp or as a hand torch, comprising a tubular body or casing to receive a dry battery, two lamp bulbs mounted respectively one at each end of said tubular body on opposite sides of said dry battery, alternative circuits for electrically connecting one or other of said lamp bulbs to said battery, a movable switch member for controlling said alternative circuits, a transverse partition of insulating material between the positive terminal of said battery and the terminal of one of said lamp bulbs, said transverse partition having a slot into which the positive terminal of said battery penetrates, said slot extending along an upstanding wall integral with the partition, a first conductor strip located in said slot and forming part of one of said alternative circuits, means for pressing said positive terminal of said battery into electrical contact with said first conductor strip and for pressing said first conductor strip into electrical contact with said terminal of said lamp bulb, a second conductor strip located in said slot and forming part of the other of said alternative circuits, the ends of said two conductor strips forming fixed contacts cooperating respectively with said movable switch member in one or other of the operative or "on" positions thereof.

2. A portable electric illuminating device adapted for use either as a table lamp or as a hand torch comprising a tubular body or casing to receive a dry battery, one end of said tubular casing being made larger than the other end, two lamp bulbs mounted respectively one at each end of said tubular body on opposite sides of said dry battery, the lamp bulb mounted at the larger end of said tubular body being intended for use as a torch whilst the lamp bulb mounted at the smaller end of said tubular body is intended for use as a table lamp, alternative circuits for electrically connecting one or other of said lamp bulbs to said battery, a movable switch member for controlling said alternative circuits, a transverse partition of insulating material between the positive terminal of said battery and the terminal of one of said lamp bulbs, said transverse partition having a slot into which the positive terminal of said battery penetrates, said slot also extending along an upstanding wall integral with the partition, a first conductor strip located in said slot and forming part of one of said alternative circuits, means for pressing said positive terminal of said battery into electrical contact with said first conductor strip and for pressing said first conductor strip into electrical contact with said terminal of said lamp bulb, a second conductor strip located in said slot and forming part of the other alternative circuit, the ends of said two conductor strips forming fixed contacts co-operating respectively with said movable switch member in one or other of the operative or "on" positions thereof.

3. A portable electric illuminating device adapted for either as a table lamp or as a hand torch comprising a tubular body or casing to receive a dry battery, one end of said tubular casing being made larger than the other end, two lamp bulbs mounted respectively one at each end of said tubular body on opposite sides of said dry battery, the lamp bulb mounted at the larger end of said tubular body being intended for use as a torch whilst the lamp bulb mounted at the smaller end of said tubular body is intended for use as a table lamp, alternative circuits for electrically connecting one or other of said lamp bulbs to said battery, a movable switch member for controlling said alternative circuits, a transverse partition of insulating material between the positive terminal of said battery and the terminal of one of said lamp bulbs, said transverse partition having a slot into which the positive terminal of said battery penetrates said slot extending also along an upstanding wall integral with the partition, a first conductor strip located in said slot and forming

5

part of one of said alternative circuits, means for pressing said positive terminal of said battery into electrical contact with said first conductor strip and for pressing said first conductor strip into electrical contact with said terminal of said lamp bulb, a second conductor strip located in said slot and forming part of the other alternative circuit, the ends of said two conductor strips forming fixed contacts co-operating respectively with said movable switch member in one or other of the operative or "on" positions thereof, and further comprising a translucent ring fitted in the larger end of said tubular body so as to project from said larger end for the purpose described.

5

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6

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