Nov. 27, 1945. LE ROY O. BROWN 2,389,591

COLOR ILLUMINATOR FOR FLASHLIGHTS

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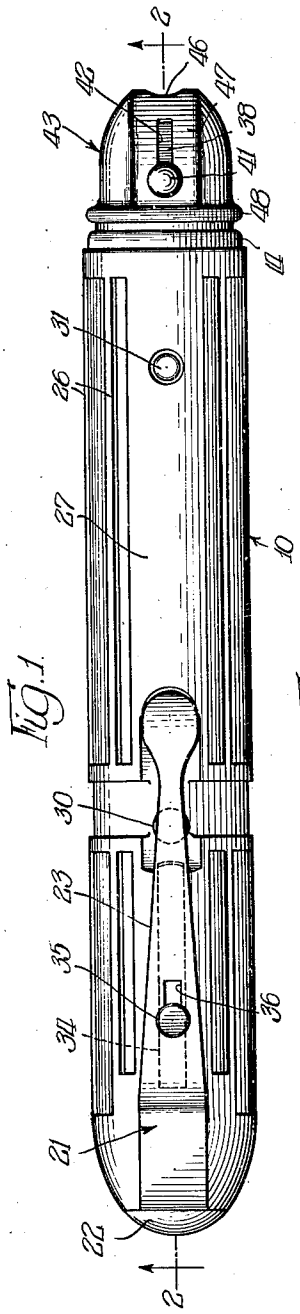


Fig. 1.

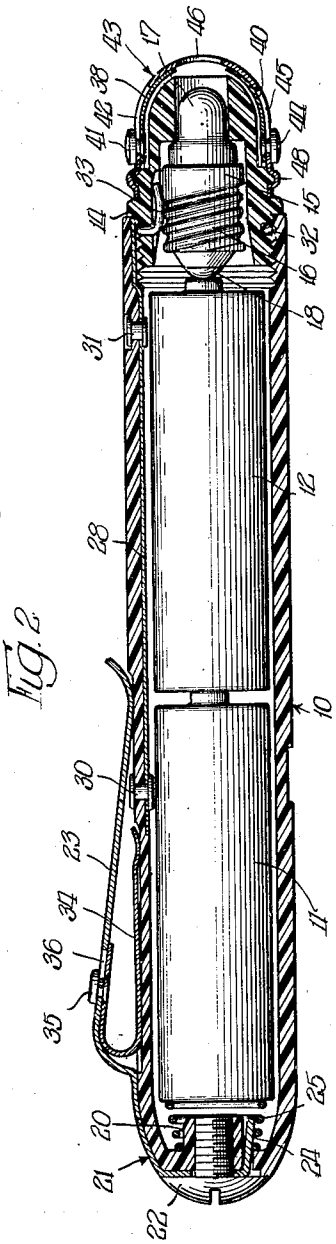


Fig. 2.

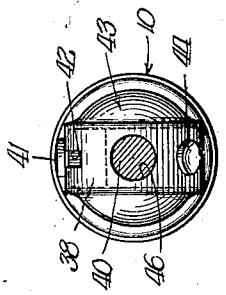


Fig. 5.

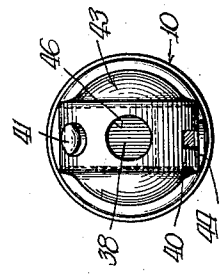


Fig. 4.

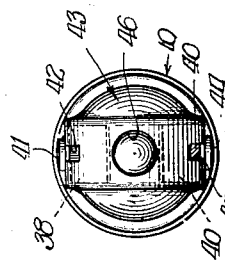


Fig. 3.

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COLOR ILLUMINATOR FOR FLASHLIGHTS

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3 Claims. (Cl. 240—10.6)

The invention relates to flashlights and has reference more particularly to a pocket or pen flashlight having a color illuminator in association with the light bulb for projecting light rays of various colors.

An object of the invention is to provide a flashlight having combination switch means of improved construction for producing a continuous light or intermittent flashes and which will also embody a color illuminator in association with the bulb cover whereby the light may be dimmed by filters of various colors.

Another object is to provide a color illuminator for a flashlight in the form of an attachment for association with the light bulb and which can be manipulated by the operator to produce light rays of different colors.

Another object is to provide filters of colored translucent material for dimming the light produced by a pocket or pen flashlight and which filters may be manually actuated independently of each other.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation, as will be more fully described and particularly pointed out in the specification, drawing and claims appended hereto.

In the drawing which illustrates an embodiment of the device and wherein like reference characters are used to designate like parts—

Figure 1 is an elevational view of the pen flashlight of the invention;

Figure 2 is a sectional view taken on line 2—2 of Figure 1 showing the internal construction of the flashlight including the color illuminator associated with the light bulb;

Figure 3 is a front elevational view of the color illuminator with both colored slides in retracted position;

Figure 4 is a view similar to Figure 3 but showing one colored slide in operative position; and

Figure 5 is a view similar to Figure 3 but showing the other colored slide in operative position.

The drawing illustrates the improvements of the invention applied to a pen flashlight which includes a tubular battery casing 10 containing battery cells 11 and 12 and a bulb cover 14 having threaded connection with one end of the battery casing and which forms a removable closure for said end. The bulb cover 14 also houses and properly positions the light bulb 15 including the threaded metal shell 16, the lens 17 and the center electrode 18. The flashlight casing with light bulb and cover, as shown in Figures 1 and 2, is more fully disclosed in the copending application of Charles S. Packer and Marvin R. Olsen Serial No. 464,030, filed October 31, 1942.

The battery casing and cover are both formed of a plastic material and therefore these parts can be molded to the shape desired. The casing is tubular, having its open end internally threaded for connection with the bulb cover and having its other end substantially closed except for a central opening extending through the inwardly directed boss 20. The exterior of the battery casing at the rear end is recessed for receiving the combination fastening clip and exterior metal contact strip 21 which is fixedly secured to the casing 10 by screw 22, having threaded connection with boss 20. The exterior contact strip 21 is formed to provide the resilient fastening clip 23 having an upwardly bent terminal end which facilitates use of the clip in attaching the flashlight to a belt, pocket or similar article of wearing apparel. The said exterior strip also provides an inwardly directed flange portion 24 which projects through an opening in the rear of the battery casing adjacent boss 20 so as to engage the coil spring 25 located in this end of the casing and which yieldingly maintains the battery cells 11 and 12 in forward position to make electrical contact with the center electrode 18 of the light bulb.

The exterior of the battery casing includes a plurality of small longitudinally extending ribs 26 with depressed areas between said ribs and a main rib 27 of considerable width extending in alignment with the fastening clip 23. An interior metal contact strip 28 is located within the battery casing, the same having aligned relation with rib 27 and being secured in place by the metal rivets 30 and 31, both of which are visible from the exterior of the casing and it will be observed that metal rivet 30 has location directly under the clip 23. Contact strip 28 has engagement at its forward end with contact ring 32 extending in a groove in the bulb cover 14 and which ring has resilient portions 33 contacting the metal shell 16 of the light bulb.

The switch means for the present flashlight therefore includes the exterior contact strip 21 having the fastening clip 23 and the interior contact strip 28. The strips are normally electrically separated since the clip 23 is normally spaced from the metal rivet 30 but the circuit can be closed by application of pressure on the fastening clip to cause the same to contact rivet 30. When the circuit is closed the current from the battery cells will flow from the positive electrode

18, through the light bulb to the metal shell 16, through contact ring 32, the interior contact strip 28, clip 23, and contact strip 21, returning to the battery cells through flange portion 24 and coil spring 25 in electrical contact with negative electrode of cell 11. When the pressure on the clip 23 is released the inherent resiliency of the clip is such as to cause the same to spring back to its normal position, in which position the clip is spaced from the metal rivet 30 and thus the circuit is broken.

When it is desired to close the circuit to the light bulb for extended periods the auxiliary clip 34 is actuated to engage the metal rivet 30. Said auxiliary clip is considerably smaller than the fastening clip 23 and the same has location under said clip, being substantially aligned therewith. The auxiliary clip 34 is actuated by button 35 suitably secured thereto and which extends through the slot 36. Thus button 35 is the only part of the auxiliary clip which is visible to any extent from the exterior of the flashlight although the same is readily actuated by movement imparted to button 35. In Figure 2 the auxiliary clip is shown in its rearward inoperative position. When moved to a forward operative position the clip will engage rivet 30 and thus the electric circuit to the filament of the light bulb will be closed and the same will remain closed until the clip is returned to its rearward position.

The present flashlight is therefore provided with an intermittent flashing switch comprising the fastening clip 23 and with a main switch incorporated therewith in a novel manner. The auxiliary clip 34 provides the main "off" and "on" switch and when the same is in position to close the circuit to the light bulb the hands of the operator are free for manipulating the color illuminator by means of which the light from the flashlight may be dimmed or intermittent flashes of different colors may be produced.

The color illuminator essentially consists of two color filters 38 and 40 formed of any translucent colored material such as Celluloid. As illustrated in the drawing, filter 38 is red and filter 40 is green. A manipulating button 41 is suitably fixed to filter 38 and said button extends through a slot 42 in the metal shield 43. In a similar manner a manipulating button 44 is secured to filter 40 and the same extends through the slot 45 in said metal shield. Said shield is provided with a central opening 46 in line with the lens 17 of the light bulb and when both filters are in retracted position, as shown in Figures 2 and 3, concentrated rays of white light can be produced by the flashlight in the conventional manner and the same can be used for purposes of illumination or for signalling purposes, in which latter case intermittent flashes may be produced.

The filters 38 and 40 can be actuated independently but only one filter can be located in front of the light source at any time. Said filters have a width approximating the width of the central band 47 formed in the shield 43. Said band provides internal recesses which receive the filters, respectively, forming guiding means therefor whereby the filters may be moved from a retracted to an operative position in front of the light bulb and wherein they close opening 46 so that the light emitted by the flashlight is accordingly colored to conform with the coloring of the filter. The shield 43 is removably secured to cover 14 by means of the groove 48 adapted to coact with a peripheral projection on the bulb cover.

In the front elevational view of the color illuminator as shown in Figure 3 both filters 38 and 40 are in retracted position and thus the light bulb lens 17 is visible through opening 46. With the filters retracted, the flashlight can be used in the conventional manner for illumination purposes with the actuation of either the main switch or the intermittent switch.

Figures 4 and 5 show the colored filters 38 and 40 in operative position respectively. The limit of movement for the colored filters is of course determined by the length of their respective slot through which the actuating means extends. In Figure 4 the button 41 has been moved to its maximum extent in a forward direction thereby locating colored slide 38 between the light opening formed in the bulb cover and opening 46 formed in the shell. With the filter 38 in operative position the intermitten switch may be actuated to produce intermittent flashes of colored light or the operator may leave the main switch in "on" position and manipulate the colored filter from an operative to a retracted position and vice versa. This last mode of operation will produce alternate flashes of white and colored light. When button 44 is actuated to operative position the leading edge of the colored filter 40 will effect movement of filter 38 to retracted position. Operation of the flashlight as above described can be repeated with filter 40 in operative position and thus rays of light of a different color will be projected by the flashlight.

The invention is not to be limited to or by details of construction of the particular embodiment thereof illustrated in the drawing, as various forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

What is claimed is:

1. In a flashlight, a cylindrical battery casing adapted to contain at least one battery cell, a bulb cover having theraded connection with one end of the casing to form a closure for said end, said bulb cover containing and positioning a light bulb in contact with the positive electrode of the battery cell, a color illuminator fixed to the bulb cover and including a semi-spherical shell having a light opening in alignment with a similar opening in the cover, two slides of colored transparent material located between the shell and cover and adapted for independent movement between said light openings, said semi-spherical shell providing internal recesses for receiving and guiding the slides respectively, and means fixed to each slide and extending through a slot in the shell for actuating the slide.

2. In a flashlight, a cylindrical battery casing adapted to contain at least one battery cell, a bulb cover having threaded connection with one end of the casing to form a closure for said end, said bulb cover containing and positioning a light bulb in contact with the positive electrode of the battery cell, a color illuminator fixed to the bulb cover and including a semi-spherical shell having a light opening in alignment with a similar opening in the cover, two slides of colored transparent material located between the shell and cover and adapted for independent movement between said light openings, said semi-spherical shell providing an internal recess on each side of the light opening for receiving a

colored slide and for guiding the same in its movements, and actuating means for the slides extending through slots in the shell, each said actuating means being fixed to its slide and providing a manipulating button on the exterior of the shell for actuation by the operator.

3. In a flashlight, a cylindrical battery casing, a bulb cover having threaded connection with one end of the casing to form a closure for said end, said bulb cover having a substantially semi-spherical forwardly projecting portion and a central light opening, a color illuminator fixed to the bulb cover and including a shell of semi-spherical shape and also having a central light opening in alignment with the opening in the cover, at least one colored filter of arcuate shape having location between the cover and the shell, a longitudinal slot in the shell extending adjacent the edge of the same toward the central light opening but not intersecting said opening, and actuating means for said filter extending through the longitudinal slot whereby the filter may be moved to and from a position between the light openings for producing light rays corresponding to the color of the filter.

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