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E. R. BARANY

1,832,443

FLASH LIGHT

Filed March 6, 1930

Fig. 1.

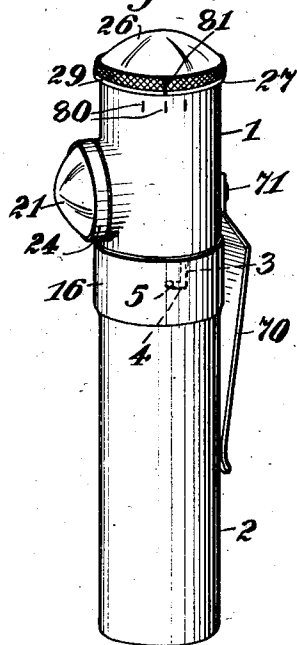


Fig. 2.

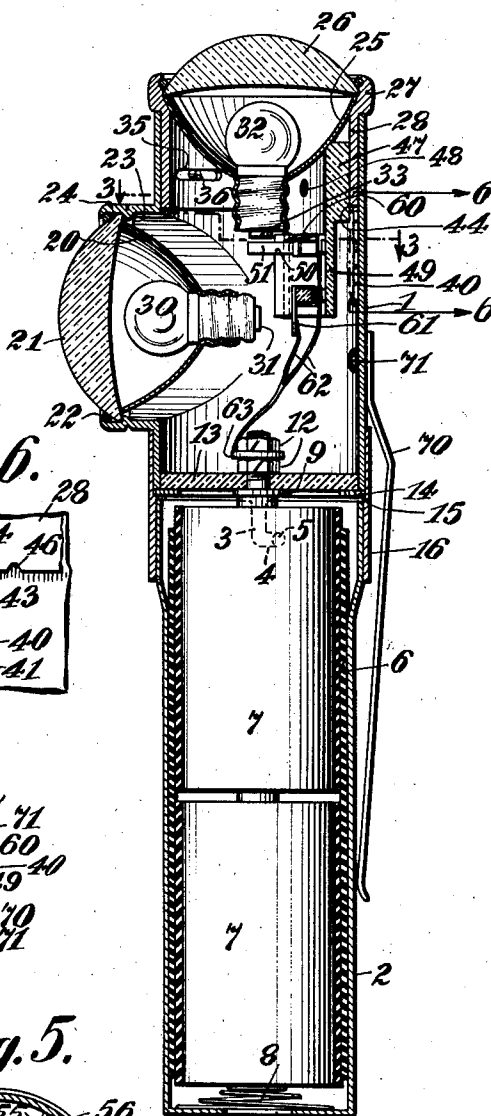


Fig. 6.

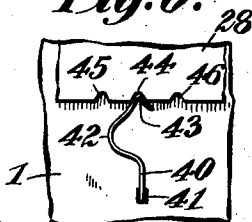


Fig. 3.

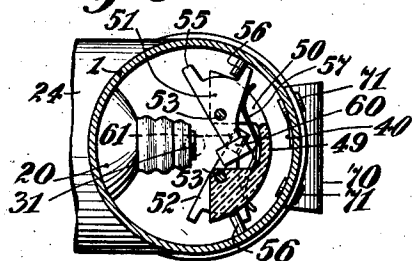


Fig. 4.

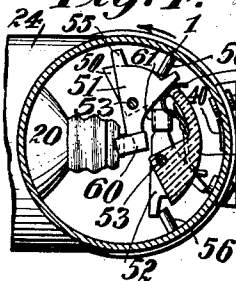
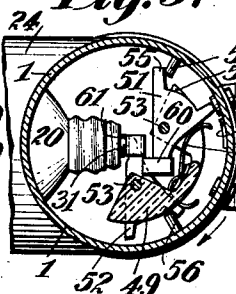


Fig. 5.



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FLASH LIGHT

Application filed March 6, 1930. Serial No. 433,557.

My invention relates to portable electric lamps, commonly called flash lights.

A principal object is to produce an exceptionally strong, durable and economical appliance of this class, for general utility and industrial purposes, and especially one which has a strong and durable shell or casing, as distinguished from the relatively thin brass or other sheet metal shells generally employed, which are subject to crushing or denting which interferes with proper operation, replacement of dry cells, etc.

A further important object is to provide two independent lamps in the one appliance, both for the purpose of throwing the light beam in two different directions in relation to the casing and to provide a second lamp available for instant use if either of them is burned out or becomes inoperative for other reasons, with simplified and improved switch mechanism and a single simple operating device to effect illumination of either lamp or to break both lamp circuits as desired.

Another object is to eliminate a switch slide or button or analogous devices commonly employed to control the lamp circuit, and which are subject to derangement by rough treatment, or to improper operation, such as closing the switch when the flash light is placed in the pocket or other receptacle, whereupon the switch may be closed by accidental contact with other objects resulting in burning out the battery when the appliance is not in useful service.

A further object is to prevent short circuiting by an improved arrangement of the battery case and fixed contact.

Another object is to eliminate screw threads for connection of parts of the case. These threads as commonly employed in thin brass case-tubes are an important item in manufacturing cost, due to the high percentage of rejects, and are also subject to injury, as by deformation of the case members, crossing threads, etc.

To realize these and other objects the invention structure comprises, as briefly, described, a shell or case in two main parts, connected by a bayonet joint, without screw threads, these parts being preferably made

of steel tubing of substantially heavy gauge, thus eliminating the disadvantages of thin brass shells or case members, with rolled threads, as commonly produced. The two lamps with suitable reflectors and lenses are arranged in an upper part of the case, one lamp and lens being directed laterally and the other axially at the end of the case. At least one of the lamps is supported in a revoluble ring surrounding and retaining its reflector and lens, and this ring is easily grasped and turned to any of three positions for the illumination of either lamp or extinguishing both lamps. Simple and improved switch mechanism is provided, operated by rotation of the ring or finger piece.

The characteristics and advantages of the invention are further sufficiently explained in connection with the following detail description of the accompanying drawings, which show one representative embodiment. After considering this example, skilled persons will understand that many variations may be made without departing from the principles disclosed and I contemplate the employment of any structures that are properly within the scope of the appended claims.

Fig. 1 is a side perspective view of a flash light embodying the invention in one form.

Fig. 2 is a longitudinal section.

Fig. 3 is a section at 3—3, Fig. 2, showing the switches in off position.

Fig. 4 is a similar section showing the switch mechanism positioned for illumination of the top or end lamp.

Fig. 5 is a similar view showing switch mechanism positioned for illumination of the side lamp.

Fig. 6 is a fragmentary view in side elevation, with parts broken away, showing detent means for the switch operating device.

The case comprises two main parts, 1 and 2, which are preferably of steel tubing of substantial thickness, such that it is practically impossible to dent or bend these members even by rough treatment. The upper end of the lower tube telescopes within the lower end of the upper tube and these members are connected by a bayonet joint including a

longitudinal slot 3 in the tube member 2, having right angled extension 4, and a pin 5 set in tube 1 and engaging with the slot. In this way all screw threads and problems connected with them are eliminated and the case members may be connected and disconnected instantly by slight rotary and longitudinal movements without the annoyance and delay due to protracted rotation, as in the case of screw connection. The lower tube 2 is the battery case and may have an inner tube 6 constituting a reinforcement. The battery cells 7 of any suitable number, with the usual paper insulation, are placed in the inner tube 6 and are urged upward by a spring 8 at the bottom of tube 2 so that when the main case members are connected the circuit to the switch mechanism is completed by engagement of the upper center or carbon contact of the upper cell with a fixed contact 9 in the upper case member 1. A hole 10 may be provided in the end of the lower case tube, for insertion of a rod or other implement for ejection of the cells. By the described battery case and fixed contact arrangements, short circuiting is practically impossible.

The fixed contact 9 of the upper case section is in the general form of a bolt secured by nuts 12 in the center of an insulating disc 13 inserted in the lower end of tube 1 and secured by a ring or washer 14, which in turn held against the lower end of tube 1 by a shoulder 15 and an outer sleeve 16 shrunk, pressed or otherwise secured on the lower end of tube 1 and forming practically an integral extension thereof and also constituting the portion of tube 1 into which the lower tube 2 telescopes in the act of connecting the main case sections.

Preferably, as clearly depicted in Figs. 1 and 2, I provide two incandescent bulbs, each with a suitable reflector serving also as the bulb mounting, and lens, substantially as usual, except that one lamp with associated parts is mounted in the end of the upper case section to project the light beam axially in relation to the casing, and the other is mounted in the side of the upper casing section to project light laterally. Thus, for the lateral, or side light, the rim of the reflector 20 and margin of the lens 21 are secured by a split ring or spring wire 22 against the shoulder 23 in a short tubular extension 24 pressed or otherwise formed at one side of the upper case section 1, and reflector 25, and lens 26 are similarly secured within a ring formation 27 formed as an integral part of a sleeve 28, which telescopes and is revolvably mounted within the upper end of the casing tube 1. The ring 27 is externally knurled as at 29, Fig. 1, to provide a satisfactory finger grip surface, since the ring 27 is the operating member for the switch mechanism controlling the lighting of the lamps. By the described arrangement the side lamp 30 has the end

of its center contact 31 located substantially at the axis of the casing and near the midpoint of the upper casing section 1, and the end lamp 32 has its center contact 33 also located at the axis of the casing and some distance above the contact 31.

Sleeve 28 is secured against outward displacement and also permitted to rotate by an arcuate slot 35 in the sleeve and a pin 36 set in tube 1 and engaging in the slot, which also limits the rotative movement of the sleeve and ring 27 by engagement with the pin. Preferably also, I provide means for yieldably but practically positively retaining the ring in any of its three operative positions, such means consisting as here shown of a piece of spring wire 40, Figs. 2 and 6, one end of which is secured to the inner face of tube 1, as by soldering at 41, this spring being suitably bowed as at 42 and having its end 43 bent to form a rounded detent cooperating with three notches 44, 45 and 46 adjacently located in the inward edge of sleeve 28.

The switch mechanism is carried by a piece of suitable insulating material, such as fibre, molded synthetic resin, etc. This insulating support comprises an arcuate or part cylindrical portion 47 secured to sleeve 28 as by rivets 48, and a downward extension 49. At an upper position at one side of the extension 49 it has a slot 50 to receive a switch lever 51, and at a lower position at the other side it has a similar slot to receive a similar switch lever 52, these levers being pivotally retained in the slots by pins 53. Each switch lever has at its outer end spaced lugs 55 cooperating with a pin 56 set in tube 1. Each switch lever is normally held in off position by a spring, such as the strip spring 57, one end of each spring being secured to the support 49 and the other end bearing against the edge of the corresponding lever. The upper lever, 51, carries on its inward end a spring contact 60 which may be a strip of spring metal with the contact proper curved or bent in the form shown in Fig. 2, to make a wipe contact with the center contact 33 of the end lamp. The lower switch lever has on its inward end a contact 61 also of spring metal, designed to have flat face engagement, (this engagement being yielding on account of the resiliency of the contact 61) with the end of the center contact 31 of the side lamp.

Connections are made from the movable contacts to the fixed contact 9 by flexible sleeves 62, soldered to the movable contacts and also soldered to a lug 63 secured between nuts 12.

The case is desirably provided with a clip 70 of stout spring metal, connected to the upper face portion 1 as by rivets 71, this clip serving to detachably support the flash light on the belt of the user for example, with the side lamp 30 directed forward.

In operation, to extinguish both lamps or to light either one of them, the finger piece or ring 27 is rotated to the right or left. In center position the switch levers are in the position of Fig. 3, both of the movable contacts being away from the center contacts of the lamp. To light the top or end lamp the ring is turned counter-clockwise as indicated by the arrow, Fig. 4, pin 56 for the upper switch lever 51 then acts on one of the lever lugs to rotate the lever in relation to its support and bring the contact 60 into wiping engagement with the center contact 33 of the upper lamp, while the lower contact, carried by lever 52, is maintained in retracted position. To light the side lamp the finger ring is turned in the opposite direction, Fig. 5, thus retracting the upper contact and pin 56 corresponding to the lower lever 52 acts on the appropriate lug of that lever to rotate the latter in relation to its support and bring contact 61 into engagement with the center contact 31 of the side lamp.

As above explained, the contact ring is yieldably but firmly held in any position in which it is placed by the yieldable detent 43, thus preventing accidental lighting of either lamp or inadvertent movement of the switch mechanism to off position.

It is sometimes desirable to provide external index marks, such as 80, on the upper case wall, adjacent ring 27, in positions corresponding to the different rotative positions of the ring, with another index mark 81 on the ring, so that the user can immediately note the position of the ring, to determine whether either lamp is operating, corresponding to the ring position, etc.

I claim:—

1. A flash light including a tubular case having an upper compartment, a lamp mounted at the end of the upper compartment, a lamp mounted in the side of the upper compartment, and switch mechanism in said compartment including movable contacts to cooperate with center contacts of the respective lamps, and switch operating mechanism comprising a manipulable ring revolvably mounted substantially at the end of the upper compartment.

2. A flash light including a tubular case having an upper compartment, a lamp mounted at the end of the upper compartment, a lamp mounted in the side of the upper compartment, switch mechanism in said compartment including movable contacts to cooperate with center contacts of the respective lamps, and switch operating mechanism comprising a manipulable ring revolvably mounted substantially at the end of the upper compartment, said ring being also arranged as a support for the end lamp with its reflector and lens.

3. A flash light including a tubular case having an upper compartment, a lamp

mounted at the end of the upper compartment, a lamp mounted in the side of the upper compartment, switch mechanism in said compartment including movable contacts to cooperate with center contacts of the respective lamps, switch operating mechanism comprising a manipulable ring revolvably mounted substantially at the end of the upper compartment, and yieldable detent means to retain the ring in different rotative positions.

4. A flash light comprising an upper case section, a sleeve revolvably mounted thereon, an operating ring on the sleeve, a reflector and lens removably retained within the ring, and a lamp mounted in the reflector, an insulating switch support carried by the sleeve, a switch lever pivotally mounted on the support, lugs on the lever and a pin in the case cooperating with the lugs, and a yieldable contact on the lever to cooperate with the center contact of the lamp.

5. A flash light comprising an upper case section, a sleeve revolvably mounted thereon, an operating ring on the sleeve, a reflector and lens removably retained within the ring, and a lamp mounted in the reflector, an insulating switch support carried by the sleeve, a switch lever pivotally mounted on the support, lugs on the lever and a pin in the case cooperating with the lugs, a yieldable contact on the lever to cooperate with the center contact of the lamp, and a spring acting between the switch support and the lever to hold the latter normally in off position.

6. A flash light comprising an upper case section, a sleeve revolvably mounted thereon, an operating ring on the sleeve, a reflector and lens removably retained within the ring, and a lamp mounted in the reflector, an insulating switch support carried by the sleeve, a switch lever pivotally mounted on the support, lugs on the lever and a pin in the case cooperating with the lugs, a yieldable contact on the lever to cooperate with the center contact of the lamp, a fixed contact support near the lower end of said case section, and a flexible lead running from said contact to the movable contact on the switch lever.

7. A flash light comprising an upper case section, a sleeve revolvably mounted in the end thereof, an operating ring on the sleeve and accessible at the end of the case section, a reflector and lens removably retained within the ring and a lamp mounted in the reflector, said case section also having at one side a tubular extension, a reflector and lens removably mounted therein, and a lamp removably supported by the reflector, an insulating switch support carried by the sleeve, switch levers pivotally mounted on the support, lugs on the levers and pins in the case cooperating with the lugs, and yieldable contacts on the levers to cooperate with the center contacts of the respective lamps.

8. A flash light comprising an upper case

section, a sleeve revolubly mounted in the end thereof, an operating ring on the sleeve and accessible at the end of the case section, a reflector and lens removably retained within the ring and a lamp mounted in the reflector, said case section also having at one side a tubular extension, a reflector and lens removably mounted therein, and a lamp removably supported by the reflector, an insulating switch support carried by the sleeve, switch levers pivotally mounted on the support, lugs on the levers and pins in the case cooperating with the lugs, and yieldable contacts on the levers to cooperate with the center contacts of the respective lamps, and springs acting between the switch support and the levers to hold the latter normally in off position.

9. A flash light comprising an upper case section, a sleeve revolubly mounted in the end thereof, an operating ring on the sleeve and accessible at the end of the case section, a reflector and lens removably retained within the ring and a lamp mounted in the reflector, said case section also having at one side a tubular extension, a reflector and lens removably mounted therein, and a lamp removably supported by the reflector, an insulating switch support carried by the sleeve, switch levers pivotally mounted on the support, lugs on the levers and pins in the case cooperating with the lugs, and yieldable contacts on the levers to cooperate with the center contacts of the respective lamps, the arrangement of the lamp supports being such that their center contacts are substantially at the longitudinal axis of the case.

10. A flash light comprising an upper case section, a sleeve revolubly mounted in the end thereof, an operating ring on the sleeve and accessible at the end of the case section, a reflector and lens removably retained within the ring and a lamp mounted in the reflector, said case section also having at one side a tubular extension, a reflector and lens removably mounted therein, and a lamp removably supported by the reflector, an insulating switch support carried by the sleeve, switch levers pivotally mounted on the support, lugs on the levers and pins in the case cooperating with the lugs, and yieldable contacts on the levers to cooperate with the center contacts of the respective lamps, and springs acting between the switch support and the levers to hold the latter normally in off position, the arrangement of the lamp supports being such that their center contacts are substantially at the longitudinal axis of the case.

In testimony whereof I affix my signature.
EDMUND R. BARANY.