Oct. 20, 1970 A. H. MOORE ET AL 3,535,506

BLINKER LIGHT LANTERN

Filed Nov. 1, 1967

Fig. 7.

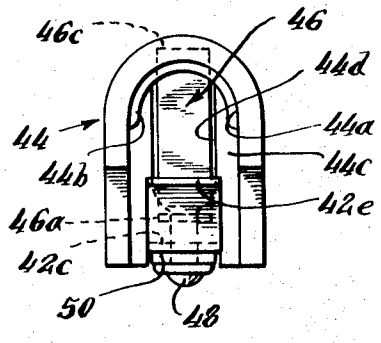


Fig. 1.

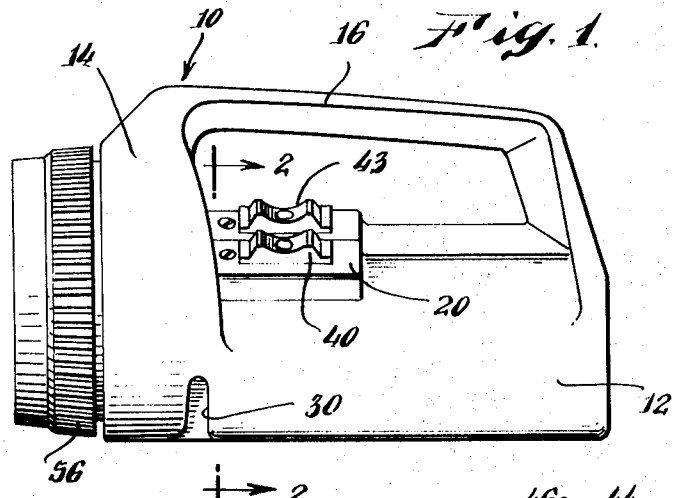


Fig. 2.

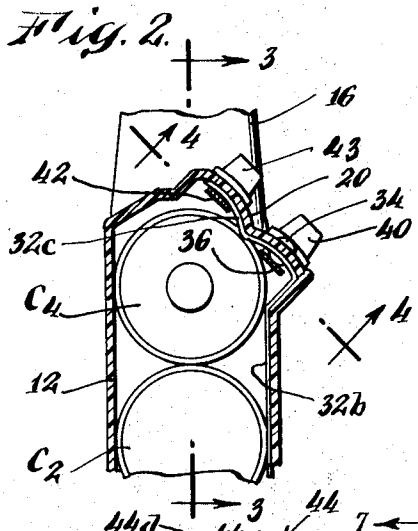
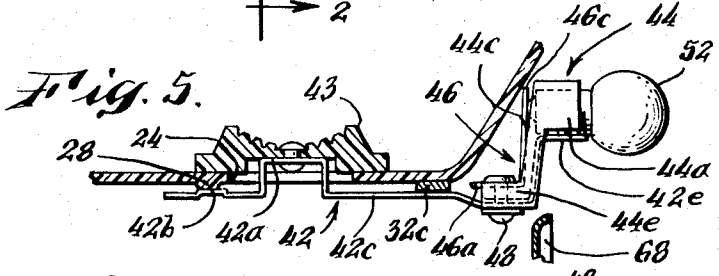


Fig. 5.



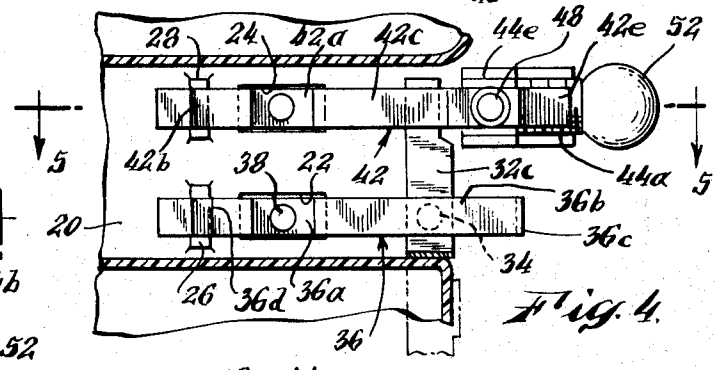


Fig. 4.

Fig. 6.

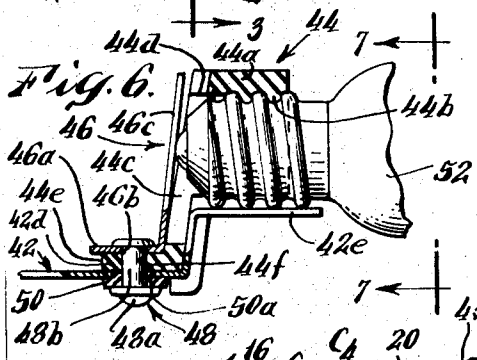
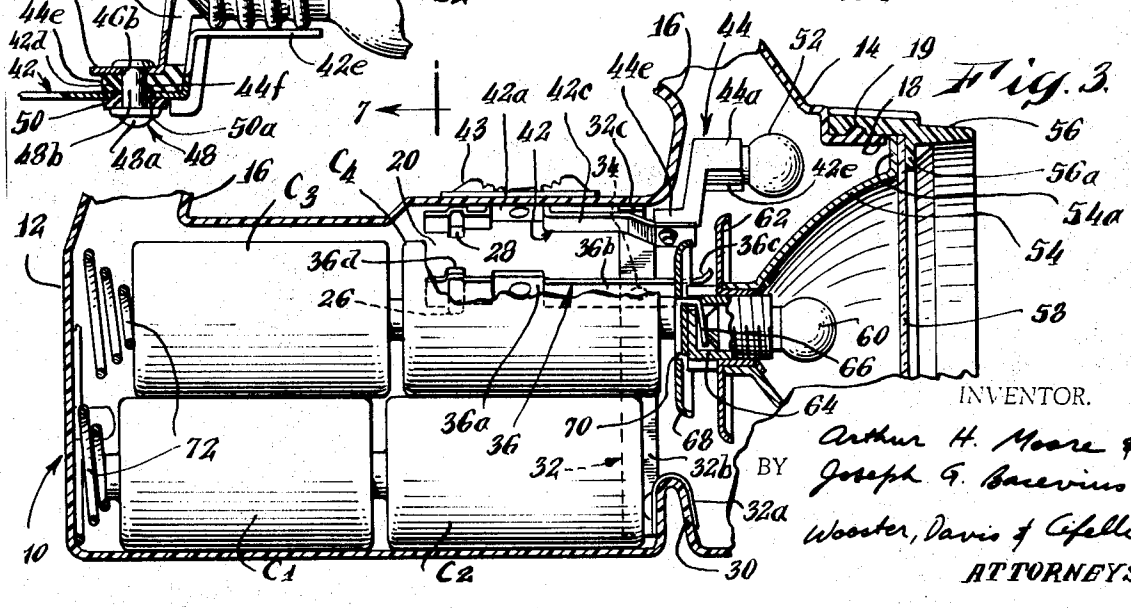


Fig. 3.



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BLINKER LIGHT LANTERN

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U.S. Cl. 240—10.63 10 Claims

ABSTRACT OF THE DISCLOSURE

A battery powered lantern having a light translucent plastic body, a first slidable switch for controlling the usual lamp, and a second slidable switch carrying a holder at one end for supporting a blinker lamp within the body. The holder includes switching means to selectively energize the blinker lamp to intermittently illuminate a portion of the body.

BACKGROUND OF THE INVENTION

This invention relates to a lantern similar to the type shown and described in Pat. No. 3,252,733 issued on May 24, 1966 to the same inventors as the instant application, and more particularly to such a lantern incorporating a blinker light and switch therefor for illuminating the body of the lantern.

It is well known in the prior art to provide lanterns with blinker head safety lights which enable the user to flash an intermittent distress signal by selectively closing a usual second switch to energize the blinker lamp. One difficulty with these lanterns is that they generally employ "self-contained" switch units which are wired to the battery and the blinker lamp thus increasing the cost of the lantern. The blinker lamps of these lanterns are most frequently housed within a blinker head comprising a distinctive, red, translucent globe mounted atop an arm extendable from the lantern body. This construction allows the comparatively small blinker head to be extended above the body and to be visible for a greater distance while simultaneously making the lantern less able to withstand the rough usage to which it is often subjected.

SUMMARY OF THE INVENTION

Accordingly, it is the primary object of this invention to provide an improved impact resistant hand lantern which may be molded of a nonconductive light translucent plastic material and having positioned therein a blinker lamp actuable by means of a simple unwired switch to intermittently illuminate a large portion of the body.

To accomplish these objects in one form, we have provided a blinker light lantern having a light transparent body formed of a nonconductive material including a battery receiving chamber and an enlarged forward end, conductor means to contact opposite poles of the batteries, a conductive portion positioned in the enlarged forward end and in electrical contact with the remaining pole of one of the batteries, a movable switching strip in constant contact with the remaining pole of the other battery, a blinker lamp holder mounted upon the switching strip and carrying a contact strip, a blinker lamp positioned with one terminal in contact with the switching strip and the other terminal in contact with the contact strip and means in contact with the contact strip positioned to engage the conductive portion for completing the circuit through the blinker lamp when the switching strip is selectively moved forwardly.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a blinker light lantern incorporating our invention showing the tandem switch buttons;

FIG. 2 is a section taken substantially along line 2—2 of FIG. 1;

FIG. 3 is a section taken substantially along line 3—3 of FIG. 2 showing the internal construction of our improved lantern;

FIG. 4 is an enlarged sectional view taken substantially along line 4—4 of FIG. 2 showing the tandem slidable switching strips;

FIG. 5 is a sectional view taken substantially along line 5—5 of FIG. 4 showing the blinker lamp switching strip and lamp holder;

FIG. 6 is an enlarged view showing the movable blinker lamp holder; and

FIG. 7 is a front elevational view of the movable blinker lamp holder with the blinker lamp removed taken in the direction of line 7—7 of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With particular reference to the drawings there is illustrated a hand lantern having a body generally designated by the numeral **10** formed of a shock resistant, nonconductive, light translucent plastic material such as polyethylene. The hand lantern is similar to the lantern disclosed in Pat. No. 3,252,733 issued on May 24, 1966 to Arthur H. Moore and Joseph G. Bacevius assigned to the same assignee as the instant application. The body **10** includes a rectangular battery receiving chamber **12**, a lens support bell **14**, and a handle **16**. The lens support bell **14** terminates in an annular cylindrical extension **18** (note FIG. 3) which is formed with a screw thread **19** on its outer surface. A switching surface **20** is formed on the wall of the battery chamber **12** beneath the handle **16** adjacent the lens support bell **14**. Thus, the surface **20** lies in an area protected by the handle yet conveniently located adjacent the user's thumb when the lantern is held by the handle in the user's right hand. Rectangular switch guide slots **22** and **24** are defined in the switching surface **20** to guide the switch in a manner to be described hereinafter. Formed upon the interior wall of the switching surface **20** directly behind slots **22** and **24** are ribs **26** and **28** which run transverse to the longitudinal dimension of the slots **22** and **24**.

The body **10** further includes an internally extending shoulder **30** positioned between the lens support bell **14** and the battery receiving chamber **12** on the lower portion of the body. As fully set forth in the above mentioned Moore et al. patent the shoulder **30** supports a substantially L-shaped metallic battery contact strip **32** mounted within the chamber **12**. The L-shaped contact strip includes a curved horiontally extending clip portion **32***a* which clamps onto the shoulder **30** to retain the strip in position, a vertical portion **32***b* which lies contigous to the inner wall of one side of the chamber **12** and an upper end portion **32***c* which is curved to conform to the inner wall of the switching surface **20** (note FIG. 2). The contact strip **32** is retained in position by means of a rivet **34** which passes through the wall of the switching surface **20** in line with the switch guide slot **22**.

A first metallic switching strip **36** formed of a resilient material such as brass extends longitudinally of the battery chamber **12** along the inner wall of the switching surface **20**. The switching strip includes a central offset portion **36***a* which extends into the slot **22**, a planar contact portion **36***b* which bears against the rivet **34** and is thereby in electrical contact with the contact strip **32**, a curved contact nose **36***c* formed at its forward ex-

tremity and a raised detent portion 36*d* which cooperates with the rib 26. The switching strip 36 is held in position in the body 10 by means of a rivet 38 which secures the offset central portion 36*a* within a recess formed in a plastic sliding switch button 40 in such a manner that the switch button-switching strip assembly is longitudinally slidable in the slot 22, the vertical portions of the offset central portion 36*a* acting as stops to limit forward and rearward motion. The detent portion 36*c* cooperates with the rib 26 to positively position the switch assembly in its forward and in its rearward positions.

A second metallic switching strip 42 also formed of a resilient material such as brass extends longitudinally of the battery chamber 12 along the inner wall of the switching surface 20 in line with the switch guide slot 24. The switching strip 42 includes a central offset portion 42*a* which extends into the slot 24 as shown in FIG. 5, a raised detent portion 42*b* which cooperates with the rib 28, and a planar contact portion 42*c* which bears against the upper end portion 32*c* of the contact strip 32. The second switching strip 42 is held in position in the body 10 by means of a rivet which secures the offset central portion 42*a* within a recess formed in a plastic sliding switch button 43 so that the switch button-switching strip assembly is longitudinally slidable in the slot 24 in the same manner as the first switching strip 36. The forward end of the switching strip 42 comprises a support portion for a blinker lamp holder 44 including a rivet receiving aperture 42*d* and a longitudinally extending offset portion 42*e* formed at its forward extremity. The blinker lamp holder 44 comprises a nonconductive plastic member preferably formed of a rigid material such as styrene. The holder includes a socket portion 44*a* partially of arcuate cross-section having internal threads 44*b* described thereon (note FIG. 7), an inclined end wall portion 44*c* defining a central slot 44*d* therethrough and an offset mounting portion 44*e* having a rivet receiving aperture 44*f*. The holder 44 supports an L-shaped contact strip 46 formed of a resilient material such as brass, including a mounting leg 46*a* having a rivet receiving aperture 46*b* defined therethrough and an inclined lamp terminal contact leg 46*c* formed to exert pressure against the inclined end wall 44*c* of the holder. A rivet 48 including a contact head 48*a* has a shank 48*b* which passes through the rivet receiving apertures 42*d*, 44*f* and 46*b* is spun over at its end to secure the blinker lamp holder 44 and the L-shaped contact strip upon the movable second switching strip 42. A washer 50 formed of electrically insulating material including an axial collar portion 50*a* surrounds the rivet shank 48*b* to insulate the rivet from the second switching strip.

A usual blinker lamp 52 is threadedly engaged in the socket portion 44*a* being supported in part by the offset portion 42*e* of the second switching strip which makes electrical contact with the shell of the lamp. The blinker lamp 52 should be engaged sufficiently for its central terminal to make electrical contact with the L-shaped contact strip 46.

The lens construction of the lantern of our invention is clearly illustrated in FIG. 3. As will be noted therein the metalized plastic reflector 54 includes an annular flange 54*a* which fits against the rim of the cylindrical extension 18. A threaded plastic lens ring 56 is threadedly engaged with screw thread 19 on the cylindrical extension and includes an annular flange 56*a* which bears against a clear plastic lens 58 to retain the reflector 54 and lens 58 in position.

A usual lamp 60 is retained in a threaded plastic insert 64 positioned within the reflector 54, and its shell making electrical contact with an outwardly extending conductive flange 62. A U-shaped contact spring strip 66 is mounted through the rear wall of the insert 64 for making electrical contact between central terminal of the lamp 60 and the usual flashlight dry cells C. The U-shaped strip 66 also serves to secure a second conductive flange 68 in electrical contact with the dry cells C, the flange 68 being of smaller diameter than the first flange 62 and including a central slot 70 through which the U-shaped spring strip 66 may pass.

A double coil spring 72 is mounted against the rear wall of the body in a usual manner. In order to power the lantern of our invention, standard flashlight dry cells C_1, C_2, C_3, and C_4 are inserted into the body in two rows between the shoulder 30 and the double coil spring 72 and between the spring and the lamp 60 in a manner fully described in the above mentioned Moore et al. patent.

The operation of the lantern for illuminating the lamp 60 is fully described in the above mentioned Moore et al. patent and therefore only the operation of the blinker lamp circuit will be described herein. With reference to FIG. 3, there is illustrated an open electrical circuit in which the following elements are electrically connected: the second conductive flange 68, the U-shaped spring strip 66, cells C_4 and C_3, double coil spring 72, cells C_1 and C_2, L-shaped contact strip 32, second switching strip 42, the shell of blinker lamp 52, the lamp filament, the central terminal of lamp 52, L-shaped spring strip 46 and the rivet 48. In order to energize the blinker lamp it is merely necessary to slide the switch button 43 forwardly to advance the second switching strip 42 thus carrying the entire blinker lamp holder 44 forwardly. This moves the contact head 48*a* of the rivet against the second conductive flange 68 to close the electrical connection and complete the circuit. The circuit is broken by sliding the button 43 in the opposite direction.

Since the blinker lamp 52 is positioned within the enlarged lens support bell 14 a large portion of the lantern body is illuminated. This is due to the positioning of the lamp adjacent the rear reflective surface of the metallized plastic reflector 54. Approximately twenty percent of the lantern surface area is illuminated, this being larger than the area of the usual translucent blinker globes of the prior art constructions.

Having described our invention of a blinker light lantern it will be readily appreciated by those skilled in this art that a lantern embodying our invention is simple in design, low in cost and ingenious in operation. It will be noted that by means of the present invention the objectives set forth above have been attained. For example, we have provided an impact resistant lantern with an internal, protected blinker lamp assembly mounted upon a unique slidable switching strip in a novel manner and which may intermittently illuminate a large portion of the lantern body.

It should be understood that the present disclosure has been made only by way of example and that numerous changes in details of construction and the combination and arrangement of parts may be resorted to without departing from the true spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

1. An electric hand lantern comprising: a body of electrical insulating material defining a chamber for receiving a battery and having an enlarged light translucent portion at one end; lamp positioning means mounted in said body to position a lamp therein; first switch means for selectively electrically connecting the terminals of said lamp with the poles of said battery; a first electrical contact within said body, in electrical contact with one pole of said battery; a second electrical contact within said body in electrical contact with the other pole of said battery; a metallic switching strip mounted within said body for movement between a first and a second position and slidingly engaging said first contact at all times; an auxiliary lamp holder mounted on said switching strip to position an auxiliary lamp within said enlarged portion, one terminal of said auxiliary lamp being electrically connected to said switching strip; a third electrical contact carried by said switching strip in electrical contact

with the other terminal of said auxiliary lamp and positioned to engage said second electrical contact when said switching strip is in its second position; and means accessible from the exterior of said body for moving said switching strip from its first to its second position whereby said enlarged light translucent portion is illuminated upon energization of the auxiliary lamp.

2. The electric hand lantern defined in claim 1 wherein said auxiliary lamp is a blinker lamp and further including a concave reflector surrounding said lamp and having highly reflective front and rear surfaces whereby said entire enlarged light translucent portion is illuminated when said auxiliary lamp is energized.

3. An electric hand lantern comprising: a body of electrical insulating material defining a chamber for receiving a plurality of cells forming a battery and having an enlarged light translucent portion at one end; conductor means positioned in said chamber to contact opposite poles of at least two of said cells; a conductive portion positioned within said body in said enlarged portion and in contact with one pole of said battery; lamp positioning means mounted in said body to position a lamp therein; first switch means for selectively electrically connecting the terminals of said lamp with the poles of said battery; an auxiliary blinker lamp; a selectively movable lamp holder mounted within said body in said enlarged portion; and second switch means including a first metallic contact strip secured to said body in a fixed position to contact the remaining pole of said battery, a metallic switching strip movably mounted on said body and arranged to slidingly engage said first contact strip at all times, said lamp holder being mounted upon said switching strip and positioning said blinker lamp with one of the lamp terminals in contact with said switching strip, a second metallic contact strip carried by said holder in position to contact another of said lamp terminals, means carried by said second contact strip to selectively engage said conductive portion only in one position to which said switching strip is movable for completing an electrical circuit through sad blinker lamp; and means accessible from the exterior of said body for selectively moving said switching strip into and out of said position.

4. The blinker light lantern defined in claim 3 wherein said blinker lamp holder includes an electrically insulating body having a threaded portion within which said blinker lamp may be positioned.

5. The blinker light lantern defined in claim 3 wherein said contact strip includes a forward planar portion upon which said blinker lamp holder is mounted and a forwardmost offset portion positioned to support said blinker lamp in said holder and to contact one of the lamp terminals.

6. The blinker light lantern defined in claim 5 wherein said blinker lamp holder includes a mounting portion and

said second metallic contact strip also includes a mounting portion and further including securing means for mounting said second contact strip mounting portion and said holder mounting portion upon said forward planar portion of said switching strip.

7. The blinker light lantern defined in claim 3 wherein said means to selectively engage said contact portion comprises a fastener positioned to secure said second contact strip and said holder upon the forward end of said switching strip and wherein said securing means is in electrical contact with said second contact strip and is electrically insulated from said switching strip.

8. The blinker light lantern defined in claim 3 wherein: said lamp positioning means positions said lamp with one of the lamp terminals electrically connected to said remaining pole of said battery, said lamp positioning means including a second conductive portion in contact with the other lamp terminal; and said first switch means includes a second metallic switching strip movably mounted on said body and arranged to slidingly engage said first contact strip at all times but selectively engage said second conductive portion only in one position to which it is movable; and further including second means accessible from the exterior of said body for selectively moving said second switching strip into and out of position.

9. The blinker light lantern defined in claim 8 wherein said conductive portion and said second conductive portion comprise radially outwardly extending flanges, said conductive portion having a smaller diameter than said second conductive portion.

10. The blinker light lantern defined in claim 9 wherein: said blinker lamp holder includes an electrically insulating body and a mounting portion; said contact strip includes a forward planar portion and a forwardmost offset portion positioned to support said blinker lamp in said holder and to contact one of the lamp terminals; said second metallic contact strip having a mounting portion; and said means to selectively engage said contact portion comprises a fastener positioned to secure said second contact strip mounting portion and said holder mounting portion upon said forward planar portion of said switching strip.

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U.S. Cl. X.R.

200—60; 240—10.66