PORTABLE ELECTRIC LANTERN

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FIG. 7.

FIG. 8.

FIG. 9.

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This invention relates to portable electric lanterns and has for its object to provide a new and improved construction for such a lantern.

Another object of this invention is to incorporate the switch for the lantern in the adjustable head thereof.

Another object of this invention is to simplify the electric circuit of the lantern by using the adjustable supporting arms of the head of the lantern in the electric circuit in place of flexible cables or wires.

These and other objects and attendant advantages of this invention will be apparent from the detailed description of the portable lantern which follows, reference being had to the accompanying drawings in which

Figure 1 is a longitudinal sectional view of the electric lantern with the adjustable head thereof in its extended position.

Figure 2 is a bottom plan view of one-half of the casing of the lantern, the light head mounted thereon, and the batteries located therein.

Figure 3 is a vertical cross section of the electric lantern, the section being taken on the line 3x—3x of Figure 1.

Figure 4 is a similar sectional view of the electric lantern with the light head nested within the casing thereof.

Figure 5 is a vertical cross section of the light head of the lantern, the section being taken on the line 5x—5x of Figure 3 looking in the direction of the arrow.

Figure 6 is a vertical cross section of the light head of the lantern, the section being taken on the line 6x—6x of Figure 3.

Figure 7 is an end elevation of the electric lantern with a portion of it broken away to illustrate a modified construction of the light head thereof.

Figure 8 is a front elevation of the upper portion of the lantern with the modified light head nested therein.

Figure 9 is a detail end view of a portion of the lower part of the electric lantern showing the two sections of the casing hinged at the bottom of the casing.

In the several figures of the drawings like reference numerals indicate like parts.

The electric lantern construction forming the subject matter of my present invention is an improvement over this same type of lantern illustrated in my prior application Serial No. 523,363, filed March 17, 1931 and comprises the casing 1 having a light head 2 which is mounted in such a manner that the lantern can be used with either the light head fixed within the casing or with the light head adjustable on the outside of the casing.

The casing 1 and head 2, as illustrated in the drawings, are made up of plastic material such as bakelite or other similar material but may also be formed up of sheet metal. The casing is divided into an upper and lower section 3 and 4 respectively with the dividing line between the sections located practically in the middle of the casing. The joint between the sections is formed by the offset flanges 5 and 6 respectively which surround each section and overlap each other. A spring clip 7, carried at each end of the lower section, is adapted to hook into a suitable recess 8 provided in the upper section 3 at each end thereof in order to lock the two sections of the casing together.

The casing has the battery compartments 9 and 10 located at each end thereof and the light head pocket 11 located in the center of the casing between the two battery compartments. The battery cells 12 and 13 are placed into the battery compartments and are held in place therein by the spring clip 14 located on one side within the upper section of the casing and extending from one compartment to the other as illustrated in Figure 2, and the spring clips 15 and 16 mounted in the opposite side within the upper section of the casing and centrally of the battery compartments 9 and 10 respectively. These spring clips, together with the posts 17 and 18, which are mounted at diametrically opposite points in the wall of the central pocket 11 of the casing, provide part of the electric circuit for the electric lantern which is completed within the casing by the battery cells 12 and 13 and the wire connections 19 and 20 between the clip 15 and post 17 and the clip 16 and post 18.

The wall of the pocket 11 is cut away in the upper section of the casing to make room for the posts 17 and 18 and permit the mounting of the arms 21 and 22 directly to these posts. These arms are suitably hinged to the posts and electrically connected thereto to form the combined support for the light head and the electrical connection between the head and the casing. Both of the arms curve toward the center and on their outer ends have the light head 2 hinged thereto. For this purpose the light head is provided with a depending lug 23 on the under side thereof, which lug extends between the upturned ends of the arms 21 and 22 so that the pivot pin 24 can pass thru the lug from one arm to the other and hold the head pivoted to the arms.

The light head is made up in the form of a cylindrical housing which is open at the front and closed at the rear by the cover 2A which forms an integral part of the housing and is adapted to close the pocket 11 in the casing 1 after the light head has been nested therein. In the open end of the housing of the light head is mounted the reflector 25, which is held in place therein by the threaded sleeve 26 and is covered by the lens 27. Behind the reflector 25 is located...
the combined incandescent light mounting and switch supporting member 28. This supporting member is made up in the form of a disc which is cut away at two diametrically opposite sides.  

One of the sides is cut away so as to line up with the sides of the two triangular lugs 29 and 30 and locate the supporting member in a predetermined position within the light head and the other side is cut away to provide space to have the contact 31 project thereinto and make contact with the centering strip 32. The latter is mounted on the inside wall of the housing and is a continuation of the connecting strip 33 located on the outside of the lug and held in frictional contact with the upturned end of the curved supporting arm 21. The connecting strip 33 passes thru the wall of the housing of the light head and provides the contact member 32 on the inside thereof as above pointed out.  

A similar connecting strip 34 is provided on the opposite side of the lug 23 and makes frictional contact with the upturned end of the supporting arm 22. This contact strip also passes thru the housing of the light head and has the contact member 35 provided on the inside thereof. The combined incandescent light mounting and switch supporting member 28 is made up of a sheet metal disc 28A backed by an insulating disc 28B. The sheet metal disc is located to face the front of the light head and is suitably anchored in place on the insulating disc. In the center of the sheet metal disc is formed the incandescent light socket sleeve 36 in which the incandescent light 37 is mounted so that its inner end projects thru an opening in the center of the metal disc and insulating disc to have its center terminal point make contact with the contact member 39. This contact member projects from the bracket 40, which is suitably anchored to the rear of the insulating disc 28B, and is electrically insulated from the metal disc 28A. A second contact member 41 also projects from the bracket 40 but at right angles thereto to form part of the switch which will hereinafter be described.

The metal disc 28A is provided with a contact finger 43 which projects beyond the cut away portion on one side of the disc and makes contact with the contact member 35 to have the metal disc and the incandescent light socket electrically connected thereto.

The electric circuit thru the incandescent light is completed by an electric switch which comprises the rod 44 mounted to turn in the center of the closed back of the light housing and has the knob 44 attached to the outside thereof to be rotated thereby. The rod 44 has the cross pin 45 mounted in the inner end thereof and this cross pin is adapted to alternately open and close the electric circuit between the contact members 41 and 46. The latter contact member projects from the bracket 47, which is anchored in the insulating disc 28B, and has the contact 31 provided thereon. When therefore the cross pin 45 closes the circuit between the contact members, the electric circuit in the light head thru the incandescent light is completed so that in this position the light is lit in the head. To extinguish the light the rod 43 is simply given a quarter turn by means of the knob 44 which moves the cross pin 45 out of contact with the two contact members 41 and 46 and opens the circuit between them.

In order to locate the positions of the knob at which the circuit is either closed or opened, a lug 48 is provided on the under side of the knob 44 and this lug is adapted to engage consecutively into the corresponding grooves 49 provided in the back of the light head housing and are spaced 90 degrees apart. In this way at each quarter turn of the knob, the lug 48 engages one of the grooves 49 to temporarily hold the knob in this position. An expansion spring 50 is interposed between the cross pin 45 and the inside of the back of the light head housing in order to yieldingly hold the lug 48 in engagement with the grooves 49.

In the lantern construction illustrated in Figures 7 and 8 I have added thereto a signal or warning light. This light is reflected by the crystal 51 which takes the place of the switch knob with which the light is turned on and off. The light with which the crystal is illuminated is reflected by a small ring shaped mirror surface 52 provided on the inside of the lens 53 concentric thereto. The light rays from the incandescent light which are intercepted by the mirror surface, are reflected rearwardly past the insulant and thru the suitable holes 54 in the socket mounting member 55, and thru additional holes 56 in the back of the light head housing onto the back of the crystal knob 51. The light beams thus reflected onto the crystal knob illuminate the knob and are diffused thereby to make the knob visible over a considerable distance from the rear of the lantern. In this way a person carrying the lantern to illuminate the road ahead will, at the same time, carry a small warning light which is visible from the rear. This warning light may be of any suitable color by using a reflecting crystal of the desired color.

The light thus added to the back of the lantern also serves as an indicating signal which indicates whether or not the light in the lantern is turned on when the lantern is placed on a flat surface with its face down so that the light from it cannot be seen.

In Figure 9 I have illustrated the two sections of the casing of the electric lantern hinged together at one end of the casing by means of the hinge 60. This hinge takes the place of one of the spring clips 7.

I claim:

1. A portable electric lantern comprising a housing having a central opening therefor, a battery compartment on each side of the central opening, a connecting clip extending from one of said battery compartments to the other at one side of said housing, a clip in each of said battery compartments at the other side of said housing, a battery cell in each of said battery compartments and making contact with said combined clip on one side of the housing and the individual clip on the other side of the housing, a pair of pivot pins mounted in the wall of said central opening in said housing, an electric connection between one of said individual clips and one of said pivot pins, a pair of arms mounted on said pivot pins, a light head swiveled on said arms, said arms forming the electric connection between said battery cells and said electric light head.

2. In a portable electric lantern comprising a housing having a pocket on one side thereof, said pocket having outwardly flaring sides surrounding the open end thereof, a light head mounted to swing in and out of said pocket, a cover for said pocket at the back of said light head, said cover having inwardly tapering sides adapted to nest into said outwardly flaring sides of said pocket.
to hold the back of said light head firmly supported in said pocket.

3. In a portable electric lantern the combination of a housing, an arm mounted to swing in and out of said housing and a light head carried by said arm, a switch provided in said light head, a knob at the back of said light head and connected to said switch, said knob being adapted for the movement of said light head into and out of said housing and the operation of said switch in said light head with the light head in any angular position with relation to said housing.

4. In a portable electric lantern the combination of a housing having an open ended pocket provided therein, a light head mounted to bodily swing in and out of said pocket, a cover provided on said light head and adapted to engage into one end of said open ended pocket to hold said light head centrally in place therein, a groove extending across the top of said housing from the open ended pocket thereof, a lug projecting from the periphery of said cover so as to engage into said groove to hold said light head against twisting in said pocket.

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