June 10, 1941. J. S. PIXLEY 2,244,895

ELECTRIC LANTERN

Filed June 19, 1940

Fig. 1.

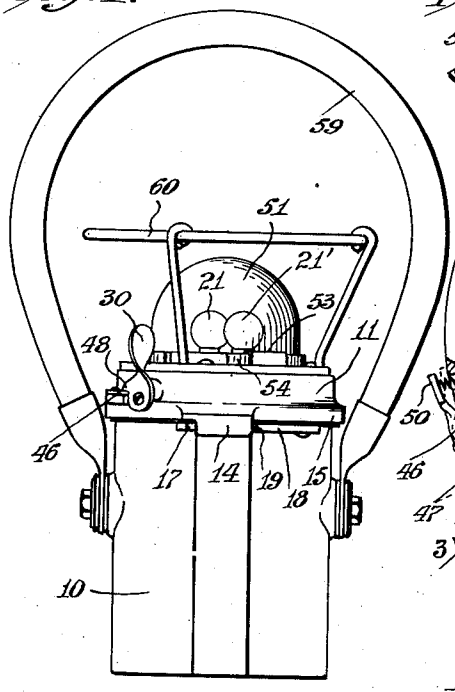


Fig. 7.



Fig. 2.

Fig. 3.

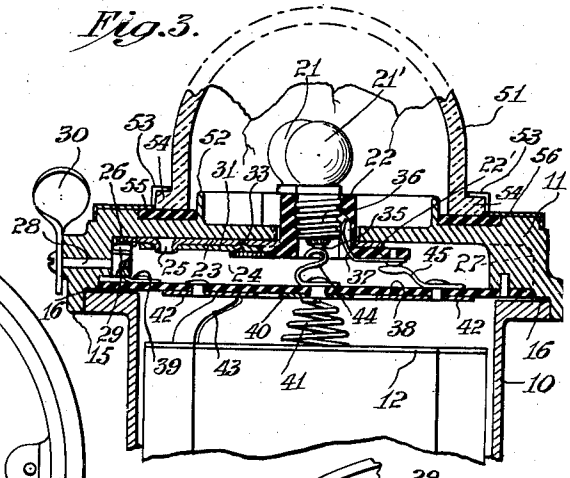


Fig. 4.

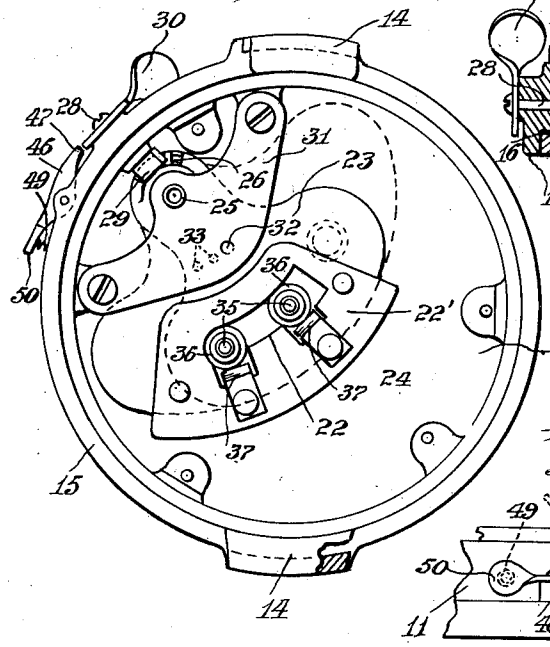


Fig. 6.

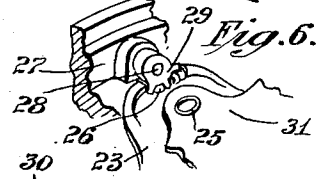
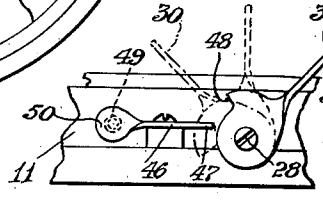


Fig. 5.



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ELECTRIC LANTERN

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Application June 19, 1940, Serial No. 341,270

4 Claims. (Cl. 240—10.63)

This invention relates to electric lighting devices and especially to lanterns useful in railway signalling such as disclosed in my Patent No. 2,145,631.

In using electric lanterns, it has been the practice to provide a plurality of lamp bulbs mounted on a movable carrier or slide with means to move at will any one of the bulbs into operative position. It has been found however that when more than one bulb is thus provided the user of the lantern is likely to move any one of the bulbs into operative position indiscriminately with the result that the time might arrive when all of the bulbs are used considerably and in an almost exhausted condition. This is objectionable as the particular bulb which is moved later into focal position might become depleted from usage at a critical time with the remaining bulbs similarly impaired resulting in a useless lantern.

Also in swinging such lanterns, the lens may fall out when intending to flash a signal thereby causing a dangerous situation.

It is an object of the present invention to prevent or reduce to a minimum the possibility of more than one bulb becoming exhausted at the same time from constant use.

Another object is to prevent the lens from accidentally falling off the lantern or from becoming displaced.

Another object is to provide simple and positive means for moving the slide carrying the lamp bulbs.

Another object is to provide simple and positive means for holding the slide in moved position.

Another object is to provide simple and positive means for holding the lantern cover on the casing.

Another object is to provide a simple and compact construction which is inexpensive to manufacture.

Another object is to provide a lantern that is water and gas proof.

In the drawing,

Fig. 1 is a side view of a lantern embodying one form of my invention.

Fig. 2 is a plan view but omitting the handle, the lens and parts of the casing being shown in section.

Fig. 3 is a vertical sectional view of the upper part of the lantern.

Fig. 4 is a plan view of the under side of the cover.

Fig. 5 is a detail of the latching device for limiting movement of the bulb carrier.

Fig. 6 is a detail of the drive for the movable bulb carrier.

Fig. 7 is a perspective view of the spring device for holding the lens on the cover.

The improved lantern is intended primarily as a self sufficient lighting unit and consists of a casing having a body portion 10 and a cover 11. A battery 12 is housed in the casing and may be of any suitable type, of either the wet or dry cell variety and having one or more cells as is common. The casing may be of any suitable material such as aluminum for lightness and of sufficient strength and preferably of a non-corrosive character.

Interlocking flanges 13 and lugs 14, on the body part 10 and cover 11, respectively, permit the cover to be readily attached and detached by a partial rotation. The cover preferably is provided with a flange or skirt portion 15 which overlaps the upper edge of the body of the casing as viewed in Fig. 1 so as to keep out water. A rubber or other resilient gasket 16 may also be provided to ensure complete exclusion of water or gas.

The present invention contemplates improved means for preventing accidental removal of the cover 11. This means includes an outwardly extending lug 17 formed at one end of one of the flanges 13 on the upper end of the body part 10 against which one end of one of the lugs 14 on the cover is adapted to abut, when the cover is being rotated in a clockwise direction as viewed in Fig. 2, for attachment to the body, thus preventing further rotation in that direction. When the lug 14 is in abutting position with the lug 17, the other lug 14 of the cover is in interlocking position with its respective flange 13. Secured to the upper end of the body of the casing at one side of the lug 14 is a pivotal latch 18, one end 19 of which extends to a point adjacent the end of the flange 13 opposite the end mounting lug 17. The latch member is movable horizontally inwardly and outwardly of the body and is normally urged to outer position by a spring 20. When in normal outer position, the end 19 of the latch extends outwardly of the flange 13 in the path of movement of the end of the lug 14 which is interlocked with the flange 13 thereby preventing rotation of the cover in detaching movement. To detach the cover, the end 19 is manually moved inwardly to retract the latch and the cover is slid over the latch and ro-

tated in an anti-clockwise direction as viewed in Fig. 2.

In accordance with the present invention, two or more bulbs such as 21 and 21' of conventional type are used so that one may be held in reserve while the other is in use. These bulbs are mounted in a socket portion 22 of an insulating plate 22', the socket being provided with screw seats for the usual screw-based bulbs. The socket plate 22' is carried by a plate-like support 23 which is mounted to move in the chamber 24 of the cover, the socket part projecting through aligned slots in the plate 23 and cover.

In the form shown, the plate 23 is pivotally secured to the inside of the cover by a pivot pin 25 and is formed with downwardly projecting teeth 26 adjacent the inner surface of the side wall 27 of the cover.

A drive shaft 28 extends through the side wall 27 of the cover and has a gear segment 29 on its inner end in engagement with the teeth 26 of the plate 23. A finger piece 30 is provided on the outer end of shaft 28 to actuate the same.

A plate member 31 of spring material overlaps a portion of the pivotal plate 23 and is provided with a projection 32 which is adapted to engage in depressions or dents 33 in the adjacent surface of plate 23 and hold the latter in moved position. Three of such dents are shown so as to hold the plate 23, the central dent representing the neutral or "off" position of plate 23. When the plate 23 is moved so that its central dent is in engagement with the projection 32, no bulb is in the center of the lens and casing, in engagement with the central contact 44, and the parts are therefore in "off" position. When the plate 23 is moved however so that one of the dents on either side of the central dent is in engagement with the projection 32, such as shown in Fig. 4, one of the bulbs carried thereby is in the center or axis of the lens and casing and is in "on" position and lighted, the other bulb being in "off" position.

Each bulb has the usual central terminal 35 and the usual outer or shell terminal 36. A leaf spring 37 is secured to the under side of the socket plate 22' and has one end extending upwardly into the seat of the socket 22 in position to be engaged by the shell terminal of a bulb when it is screwed into its socket so as to afford electrical contact.

An insulating disc 38 forms the bottom of the switch chamber 24 and is removably held in place by a spring member 39 engaging the inner surface of the side wall of the cover. A center contact plate 40 is secured to the bottom of the disk 38, which plate 40 engages the usual spring terminal 41 of the battery when the cover is in place. An outer contact 42 is also secured to the bottom of disc 38 to engage the outer spring terminal 43 of the battery. This contact 42 is preferably of arcuate form and may extend completely around the central contact so as to ensure electrical connection with the spring strip terminal 43 regardless of the position in which the battery is inserted in the casing and regardless of the angle to which the cover may be adjusted on the casing.

On the upper face of the disc 38 are secured two spring contacts 44 and 45 which are riveted respectively to the lower contacts 40 and 42, and located in positions to be engaged by the center terminal 35 of a bulb and the outer end of a spring contact 37 which is engaged by the shell terminal 36 of the same bulb.

When the cover is in place and the carrier 23 is moved so as to bring the center terminal 35 of a bulb into engagement with the contact 44 on the disc 38, the filament will light up as the circuit will be closed through 44, 40, 41, 12, 43, 42, 45, 37 to bulb terminal 36. By moving the carrier plate 23 and socket 22 so as to disengage the center terminal 35 from the contact 44, the circuit will be broken and the light extinguished. Obviously either of the bulbs may be lighted or extinguished as above set forth.

It is however an object of the present invention to make difficult the indiscriminate use of the light bulbs and to encourage the operator to use the same bulb until it reaches the burnout point. This is accomplished by providing a device for limiting the swinging movement of the bulb carrier so that ordinarily it can be swung only sufficient to bring one bulb in the center or axis of the lens and casing to "on" position, further swinging movement to bring the other bulb into such central axial position being prevented. This device includes a pivotal stop member 46 mounted on the upper wall of the flange or skirt 15 of the cover, one end 47 of which extends into the path of movement of the nose portion 48 of said finger piece preventing further movement thereof. The end 47 of stop 46 is adapted to be held in position to be engaged by the nose 48 by a spring 49 impinging against an integral finger piece 50 formed on the other end of the latch. When the stop is in position, the finger piece 30 can rock the shaft 28 only sufficient to swing the socket 22 with its bulbs to one side of the projection 32 so that only one bulb is brought to central or axial "on" position and lighted, such as the bulb 21' in Figs. 2 and 3, and when the finger piece 30 is moved back again it swings said bulb 21' away from the center contact 44 to "off" position, bringing the central depression 33 on the plate 23 into engagement with the projection 32 which is the neutral or "off" position of all bulbs. The bulb 21' can be swung back and forth into "on" and "off" positions when the parts are in the position of Fig. 2, but not bulb 21. The latter is thus saved from becoming exhausted. In order to move the bulb 21 to "on" position, the operator must first move the end 47 of the stop 46 out of the path of the nose 48 by holding the casing with one hand and by forcing the finger piece 50 inwardly with a finger of the other hand against the action of spring 49. When the stop member 46 is thus held in inoperative position by one finger, the operator may with the other fingers of the same hand freely move the bulb carrier 23 so that the bulb 21 may be swung into central or axial position when it will be lighted. Of course the stop 46 can be set so that the bulb 21 may be swung back and forth to "on" and "off" positions.

It will thus be seen that when the stop member 46 is in position to be engaged by the nose 48 of finger piece 30, the bulb carrier may be swung from a position where one bulb is in "on" position to a position which is neutral where neither bulb is in "on" position and then back again. It is expected that the operator will use the same bulb and move it to "on" position until it is exhausted or nearing the burn out stage before he resets the stop 46 to permit the other bulb to be moved to "on" position, and that he will thereupon substitute a fresh bulb for the exhausted bulb.

A lens 51 is preferably provided for the bulbs and may be colored red or otherwise for signalling. This is centered by a rib or flange 52 on

the cover. A number of lugs **53** are secured to the cover around its periphery and adapted to interlock with lugs **54** projecting outwardly around the edge of the lens. These lugs are preferably somewhat inclined or wedge-shaped so that as the lens is applied and turned the wedge-like action will draw the lens snugly in place against the resilient gasket **55**. This gasket is preferably inserted in a groove **56** around the base of the flange **52** so as to ensure a water and gas tight joint.

The present invention contemplates means for preventing accidental detachment of the lens from its support. This device comprises a flat spring member **57** secured at one end to the gasket **55** by any suitable fastening means and is provided with a bulged out or projecting portion **58** positioned in the path of movement of the lug members **54** of the lens. When the lens is being mounted, the lug portion **54** rides over the spring and depresses the bulge **58** by hand pressure on the lens until it rides free of the same when the bulge portion returns to normal to prevent return movement of the lens and its accidental falling off of the cover.

A pivotal handle **59** is provided for swinging the lantern and a wire frame **60** is provided to protect the lens and to serve as a support when the lantern is not in use.

I claim:

1. An electric lantern comprising a casing for a battery having a terminal, a carrier having sockets for a number of bulbs movable over the battery terminal to bring either one of the bulbs in the sockets into contact with the terminal, means exterior of the casing for actuating said carrier and a stop for normally limiting the operative movement of said carrier whereby only one bulb can be moved into contact with the terminal, said stop being retractable to permit said carrier to be moved to bring said bulb out of contact with the terminal and to permit said carrier to be moved to bring another bulb into contact with the terminal.

2. An electric lantern comprising a casing for a battery having a terminal, a carrier having sockets for bulbs movable over the battery terminal to bring either one of the bulbs in the socket into contact with the terminal of the battery, means exterior of the casing for actuating said carrier and a stop manually actuated from the outside of the casing for limiting the operative movement of said carrier whereby normally only one bulb can be moved into contact with the terminal, said stop being retractable to permit said carrier to be moved to bring said bulb out of contact with the terminal and to permit said carrier to be moved to bring another bulb into contact with the terminal.

3. An electric lantern comprising a casing for a battery, a carrier for bulbs movable over the battery to bring one of the bulbs into contact with the terminal of the battery, means for actuating said carrier including a rockable finger piece on the outside of the casing operatively connected to the carrier and means for limiting the movement of said carrier whereby only one bulb is moved into contact with the terminal and whereby further operative movement to bring another bulb into contact with the terminal is prevented, said means including a spring pressed latch pivoted to the outside of the casing and adapted to be moved into the path of movement of the finger piece to limit the rocking movement of the finger piece.

4. An electric lantern comprising a casing for a battery, a carrier for bulbs movable over the battery to bring a contact of one of the bulbs into contact with a terminal of the battery and means for actuating said carrier including a manually operated rock shaft, a gear segment on the inner end of said shaft and a rack secured to the outer edge of the carrier for engagement by the gear segment whereby movement of the rock shaft is imparted to the carrier.

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