Aug. 26, 1924. 1,506,471

G. A. H. WOOTTON

ELECTRIC BATTERY LAMP OR LANTERN

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Fig. 1.

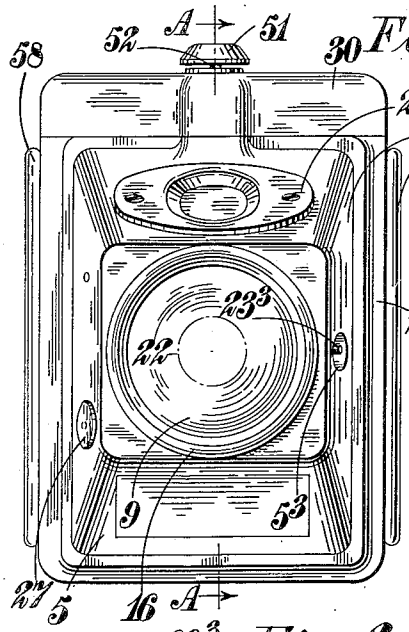


Fig. 3.

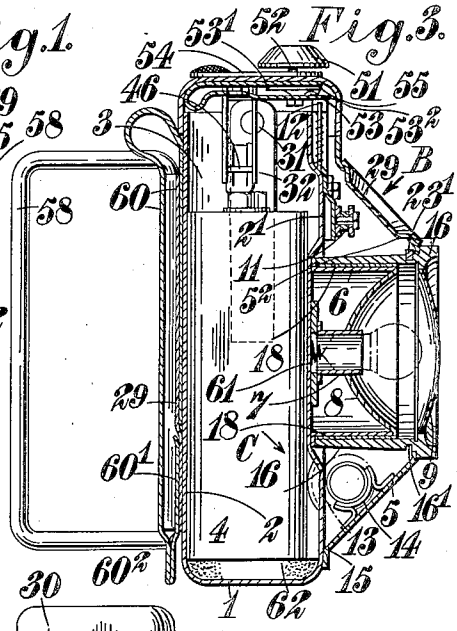


Fig. 2.

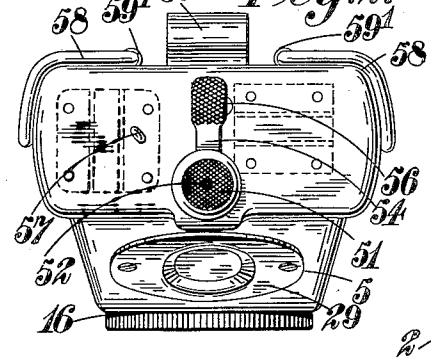
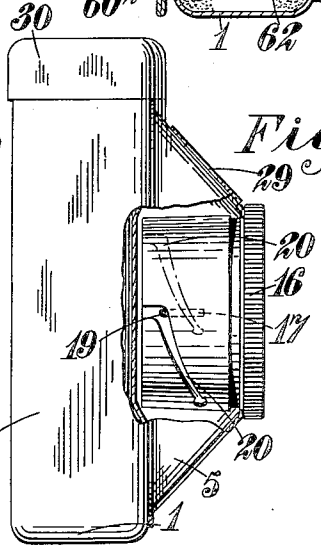


Fig. 4.



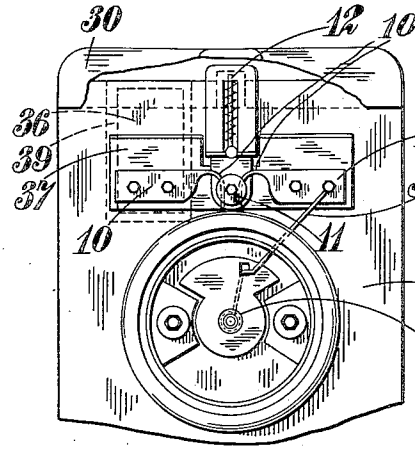


Fig. 5.

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Fig.6.

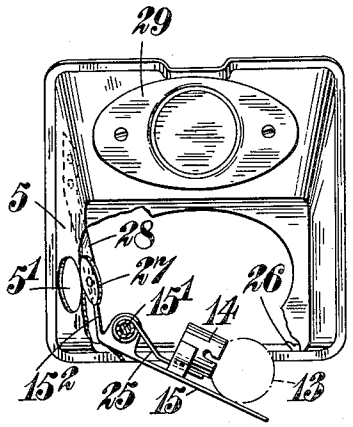
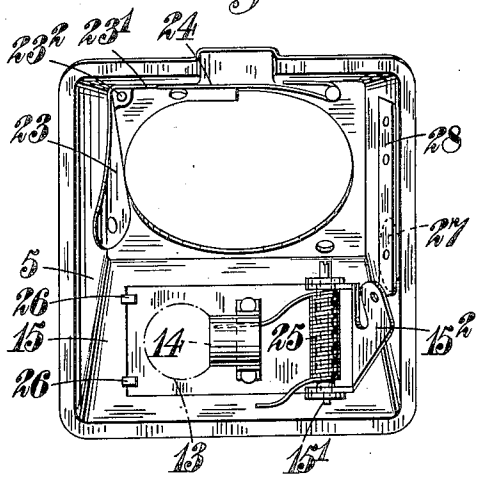


Fig.7.



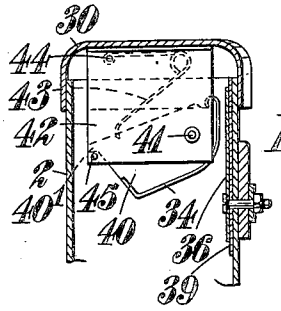
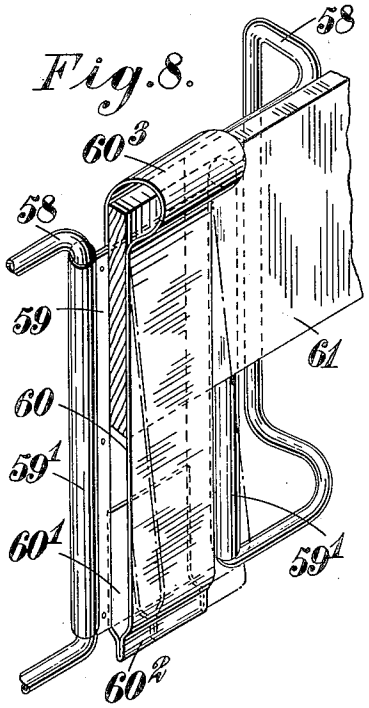


Fig.10.

Fig.8.



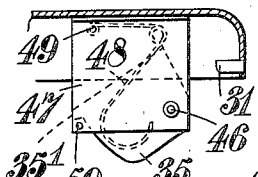


Fig.11.

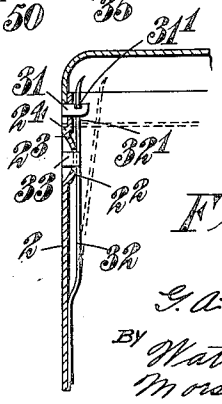


Fig.9.

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Patented Aug. 26, 1924.

1,506,471

UNITED STATES PATENT OFFICE.

GEORGE ARTHUR HENRY WOOTTON, OF LONDON, ENGLAND.

ELECTRIC-BATTERY LAMP OR LANTERN.

Application filed November 8, 1923. Serial No. 673,564.

To all whom it may concern:

Be it known that I, GEORGE ARTHUR HENRY WOOTTON, a subject of the King of England, residing at London, England, have invented certain new and useful Improvements in Electric-Battery Lamps or Lanterns, of which the following is a specification.

This invention relates to electric battery lanterns or lamps used by police, postmen and others, the lanterns or lamps being of the kind in which space is provided in the lamp body or casing for the storage of a spare bulb and in which it is possible, by altering the position of the reflector, to obtain illumination from the lamp bulb by a concentrated beam of light or by a divergent ray when the lamp switch is operated.

The invention consists in improvements which are hereinafter described and claimed and relate more particularly to the construction and functioning of the switch to cause a flash beam of light or a continuous beam to be emitted, to the positioning of the reflector relatively to the lamp bulb and to the housing of the spare lamp bulb in such a manner that this can be exposed either sufficiently only for inspection purposes or to a further extent to permit removal.

A lantern or lamp having the invention applied is illustrated in the accompanying drawings, and it comprises features which are not novel in themselves and are met with in one or other of known types of portable lamps, such features being a metallic battery-container having a non-leakable bottom and a removable top, to the front of which is removably attached a metal casing consisting of a front wall and side walls which have a stream-line form or flare rearwardly to meet the front of the container, the casing forming with the battery container a compartment that has no communication with the inside of the container and serves to accommodate the lamp switch, the lamp bulb and its holder, and also the reflector that is adjustable in position.

In the drawings:—

Figures 1 and 2 are, respectively, a front elevation and plan of the lamp.

Figure 3 is a vertical section on line A A, Figure 1, showing the battery compartment and a frontal extension or part carrying an electric bulb in operative position, a spare bulb, a lens and bezel tube and its holder.

Figure 4 is a side elevation, parts being broken away to show the lens bezel tube and a slot therein.

Figure 5 is an elevation of the frontal portion of the casing of the lamp showing some of the switch members, the front wall of the casing being broken away and the lamp bulb removed from its operative position.

Figure 6 is an external view of the frontal portion looking in the direction of the arrow B in Figure 3 showing the compartment for the spare lamp bulb, the door thereof being partly open for inspection purposes.

Figure 7 is an internal view of the parts shown in Figure 6, looking in the direction of arrow C in Figure 3, the door of the spare bulb compartment being closed.

Figure 8 is an isometric view showing the lamp handles, the belt clip, and a portion of a belt.

Figure 9 is a detail sectional view of portions of the lamp casing showing means for holding the lid of the battery compartment in closed position.

Figures 10 and 11 are, respectively, detail views of positive and negative contacts carried by the lid.

In carrying out the invention, the bottom 1 and the side walls 2 of the portion of the lamp casing constituting a compartment 3 to contain the battery 4 are cast integrally, or are formed by means of dies from a single sheet of metal, which is preferably of aluminium or an alloy thereof. The bottom of the compartment is not detachable nor hinged, so that it is unleakable, any acid that might leak from the battery being unable to find its way out at the bottom of the compartment or container. When the compartment is formed from a single sheet the meeting edges would be joined by means of autogenous soldering. To the outside of the front wall of the compartment 3 is detachably fixed a casing 5, which carries a tubular support 6 for a lamp-bulb holder 7, a reflector 8, a lens 9 and some other associated parts. Arranged within the casing 5, above the tubular support 6 and car-

ried by the front wall of the container 3, is an insulated two part switch plate 10 which is referred to below and with which co-operates a contact roller 11 on the end of a spring pressed push rod or bar 12 mounted on a projecting part 2^1 of the front wall 2. In the lower portion of the casing 5, below the tubular support 6 is a space or compartment for a spare bulb 13, which is adapted to be carried in a suitably constructed holder 14 fixed to a spring pressed door 15 which is hinged at 15^1 to the wall of casing 5 and affords access to the said compartment.

The configuration of the projecting casing 5 is of a stream-line character, the object being to prevent it from catching in obstacles and being thus wrenched away from the user. As will be seen from Figures 1–3, the top, bottom and side marginal portions of the casing 5 are sloped or rearwardly flared until they meet the front wall of the container.

The reflector 8 is adapted to be moved backwards and forwards by rotating the bezel or bezel tube 16 for the purpose of obtaining either a concentrated or a divergent beam. To this end, the tube 6 is provided with one or more longitudinal slots 17, Figure 4, that may be diametrically or otherwise arranged. The tube 6 supports a tube 18 that carries the reflector 8. On the inner periphery of the tube 18 are a corresponding number of pins 19 arranged to project each into a slot 17. On the outer periphery of the tube 18 are pins which may be extensions of pins 19 and are arranged to project into spirally directed slots 20 provided on the periphery of the bezel tube 16. Upon rotating the bezel tube, the outer pins 19 on the reflector tube 18 move along the spiral slots 20 and the inner pins 19 on the reflector tube along slots 17 in directions either towards or away from the lens 9, depending upon the direction of rotation of the bezel tube.

Suitable means are provided for holding the bezel tube 16 in assembled position and at the same time permit of its rotation. The means shown in the drawings comprise a spring loaded two-arm bent lever 23, 23^1, pivoted between its ends at 23^2 on the casing 5. The end part of one arm 23^1 of this lever is arranged to engage in a groove 16^1 on the outer periphery of the bezel tube 16, while one end of a spring 24, fixed at its other end to the inside of the casing 5, bears on the arm 23^1 and keeps it in engagement with the tube. The free end of the arm 23 of the lever carries a finger piece or button 23^3 that extends into an aperture 5^3 in the casing 5. By pressing the button 23^3 the lever 23, 23^1 can be turned on its pivot against the action of the spring 24 to withdraw the arm 23^1 from the groove 16^1 on the bezel tube to permit the withdrawal of the latter from off the tubular holder 6.

Arranged co-operatively with the door 15 carrying the spare bulb holder 14 is a coiled spring 25, the ends of which are arranged to bear, respectively, against the casing 5 and the door 15 in a manner to keep the door normally closed against the stops 26. The door is provided with an arm 15^2 which at its free end bears against a button 27 which is resiliently supported, for instance by means of the blade spring 28 from the casing 5 and which when the door is closed is adapted to fill an aperture 5^1 formed in a side of the casing 5. By pressing the button 27 inwardly of the casing against the action of its spring 28, the door 15 can be opened sufficiently to allow inspection of the bulb, as indicated in Figure 6. If it be desired to open the door 15 still more to allow removal of the bulb 13 from its holder and from within the casing 5 for use, the door would be opened sufficiently wide by hand against the action of the spring 25.

To permit of inspection of the switch plate 10 and associated parts the top of the frontal casing 5 is provided with a suitably shaped aperture 5^2 which is fitted with a lid 29 which can be removably fixed to the casing in any appropriate manner.

The lid 30 of the battery container is made to fit over the mouth of the container only when positioned one way, and is held in place by two internal studs or pins 31 (Figures 9 and 11) which are arranged one at each end and enter slots in the top edge of the container. The pins are sufficiently long, when the lid is in place on the container, to project into two holes 32^1 in two blades 32 attached to the inside of the container side walls 2, one of the studs being provided with a groove 31^1 for a purpose mentioned below. One or both of the blades 32 may be a spring and one is provided with a projection or pin 33 which projects through a hole 2^2 in a recessed or dished portion 2^3 in the wall 2. By pressing the outer end of the pin 33 the free end portion of the spring can be pushed inwardly from off the adjacent pin 31, as indicated in broken lines in Figure 9, to allow removal of the lid. To permit of the outer face of the lid at its two ends being flush with the outer faces of the ends of the battery container 3, the mouth of the container may at its ends be rebated or shouldered as shown in Figure 9 at 2^4.

To the underside of the lid are attached two appropriate spring-loaded contact members 34, 35, which when the lid is in position on the top of the battery container 3 make the necessary contact with the terminals of the battery 4, and also respectively on one side with an insulated contact plate 36 on the inside of the container 3 and on

the other side with the lamp casing or earth. The insulation for plate 36 is indicated at 39 in Figures 5 and 10.

The positive contact may, as shown, comprise a strip 34 carried by the insulating block 40 which is pivoted at 41 on brackets 42 secured to the underside of the lid 30. The block 40 is subjected to any convenient spring action, for instance that of the spring device 43, in order to keep the contact strip 34 in normal sliding engagement with the insulated contact plate 36 on the wall of the container 3 when the lid is in position thereon. As the lid is being pressed on the mouth of the container 3 the block turns on its pivot 41, the nose 40^1 of the block moving upwardly against the action of the spring 43 which at one end is hinged to the pin 44 journalled in the brackets 42 and at the other end bears against the block 40. The downward movement of the nose 40^1 is limited by the stop 45.

The negative contact block 35 may be of similar construction and be pivotally mounted at 46 on the brackets 47, being subjected to the pressure of the spring 48 hinged at 49. The stop 50 limits the downward movement of the nose 35^1 of the block.

The switch consists of two plates 10 spaced apart and mounted side by side on an insulated base piece 37 fixed to the front wall of the container 3. One of the plates 10, the left hand one in Figure 5, is electrically connected with the contact plate 36. The opposing ends of the two plates are shaped to constitute spring tongues 10^1 with an intervening space in which works the contact roller 11, carried by the push rod 12 in a manner to be normally out of engagement with the spring tongues 10^1. When the push rod is depressed the roller contacts with the tongues whereupon the electric circuit is completed through the lead 38 the usual terminals on the bulb 22 seated on the spring 61 at the bottom of the holder 7 and the lamp casing.

51 is a push button whose stem 52 passing through a hole in the lid 30 is connected with the lower limb 53 of a spring contact lever whose upper limb 53^1 is fixed to the inside of the lid. Upon the button being depressed the lower contact limb 53 presses upon the top of the spring urged push rod 12 and causes the contact roller 11 to engage with the two spring tongues 10^1 on plates 10. By alternately depressing and releasing the push button flashes of of light will be emitted from the lamp.

Means may be provided for retaining, when desired, the contact limb 53 in contact with the end of the push rod 12 for a prolonged period so as to provide a continuing beam of light. The means shown in the drawings, comprise a lever 54 pivotally mounted on the stem 52 of the button 51 and carrying a cam plate 55 which is adapted, when the lever is operated or turned on its pivot from its normal or inoperative position. Figure 3, through a suitable angle to an operative position, to move into contact with and to press down a projection 53^2 on the upper face of the contact limb 53 which is thereby held in engagement with and keeps the push rod 12 depressed so long as the lever is kept in operative position. The extent of the movements of the lever 54 is limited by the two stops 56, 57, on the top of the lid.

The lamp, is preferably, provided on the back of the battery container 3 with a pair of folding handles 58 that are hinged, as shown in Figure 8, to the side edges 59^1 of a plate 59 fixed to the container wall, as indicated in Figure 3, the edges 59^1 being suitably rolled or beaded to serve for hinging purposes. The handles are shaped to be capable of being folded back against the sides of the container casing when not in use, as indicated in Figures 1, 2 and 8, and to be turned outwardly so as to afford a firm and easy grip when in use, as in Figure 3.

Attached to the plate 59 is a clip 60 for suspending the lamp from a belt 61 worn by the user. The clip 60 is provided with a reverse hook 60^1 at its bottom end to prevent the lamp being pulled or lifted off the belt against the will of the user. At the bottom the clip is provided with a thumb piece 60^2, and at its upper end with a looped portion 60^3 which acts as a spring and allows the clip being forced by pressing the thumb piece rearwardly from below the belt into the position shown dotted in Figure 8, thereby leaving the lamp free to be lifted clear of the top edge of the belt and removed.

On referring to Figure 9, it will be seen that the pin 31 co-operating with the spring 32 for holding the lid in place is provided with a notch or groove 31^1 into which the spring 32 tends to snap when the lid is placed in position to close the accumulator container 3. This groove serves for locking the lid in closed position. Before the spring can be pushed into the dotted position shown in Figure 9 to allow the lid to be removed, it is necessary to release the spring from the groove, which can be done by pressing the lid further down against the resistance offered by the spring contacts 34 and 35 so as to leave the spring free to pass over the end of the pin.

The battery 4 is shown seated on a resilient pad 62 placed in the bottom of the compartment 3.

I claim:

1. A lantern or lamp of the class described, comprising in combination a container for a battery, a casing mounted on the front wall of the container and constituting

a compartment for the lamp switch, said casing comprising a hinged door, a holder for a spare lamp-bulb mounted on said door inside said compartment, a spring controlling said door and tending to hold the same closed and lever mechanism operatively connected with said door inside said casing and operable manually from outside said casing for opening the door sufficiently only to expose said holder and lamp bulb.

2. A lantern or lamp of the class described, comprising in combination a container for a battery, a casing mounted on the front wall of the container and constituting a compartment for the lamp switch, which compartment is not in communication with the inside of said container, said casing comprising a hinged door, a holder for a spare lamp-bulb mounted on said door inside said compartment, a spring controlling said door and tending to hold the same closed, and lever mechanism within said compartment and operatively connected with said door, which mechanism is operable manually from outside said casing for opening the door sufficiently only to expose said holder and lamp-bulb, which door can be opened further against the action of said spring to allow of removal of the lamp-bulb after the door has been opened by said lever mechanism.

3. A lantern or lamp of the class described comprising in combination a container for a battery, a casing mounted on the front wall of the container, and constituting a compartment not in communication with the inside of said container, a lamp-bulb in said compartment, a reflector mounted behind said lamp-bulb, and a switching device inside said compartment for controlling the circuit of said lamp-bulb, which switching device comprises a spring-pressed push-rod movable endwise and arranged to close and open said circuit, a spring contact lever adapted to shift said rod endwise, and means for operating said contact lever either in a manner to cause a flash beam of light to be emitted, or in a manner to cause a continuing beam.

4. A lantern or lamp of the class described, comprising in combination a container for a battery, a casing mounted on the front wall of the container and constituting a compartment not in communication with the inside of the container, a lamp-bulb in said compartment, a reflector mounted behind said lamp-bulb, and a switching device inside said compartment for controlling the circuit of said lamp-bulb, which switching device comprises a spring-pressed push-rod movable endwise and arranged to close and open said circuit, a spring contact lever adapted to shift said rod endwise, a push button carried by said contact lever and operable inside said casing for momentarily actuating said push rod and a lever-operated cam for causing said contact lever to make continuing contact with said push-rod in its circuit-closing position.

5. A lantern or lamp of the class described, comprising in combination a container for a battery, a casing mounted on the front wall of the container and constituting a compartment not in communication with the inside of said container, a tubular holder fixed in said casing, a non-rotatable tube slidable longitudinally on said holder, a reflector carried by said tube, a bezel tube rotatable on the reflector tube, a lens carried by said bezel tube, a lamp-bulb situated in said casing between said reflector and said lens, and means for moving said reflector towards and away from said lens.

6. A lantern or lamp of the class described, comprising in combination a container for a battery, a casing mounted on the front wall of the container and constituting a compartment not in communication with the inside of said container, a tubular holder fixed in said casing, a non-rotatable tube slidable longitudinally on said holder, a reflector carried by said tube, a bezel tube rotatable on the reflector tube, a lens carried by said bezel tube, a lamp-bulb situated in said casing between said reflector and said lens, and means for moving said reflector towards and away from said lens, said means comprising a pin on the inner periphery of the reflector tube extending into a longitudinal slot in said tubular holder and a pin on the outer periphery of the reflector tube extending into a spirally directed slot in the bezel tube, whereby when the bezel tube is turned, the reflector tube, owing to the action of the pin-and-slot connections, will move together with the reflector in one axial direction or the other according to the direction of rotation of the bezel tube.

7. A lantern or lamp of the class described, comprising in combination a container for a battery, a casing mounted on a wall of the container and forming therewith a compartment, said casing comprising in its lower portion a hinged door, a holder for a spare lamp-bulb mounted on said door inside said compartment, a spring controlling said door and tending to hold the same closed, and lever mechanism operatively connected with said door and operable manually from outside said casing for opening the door sufficiently only to expose said holder and lamp-bulb; a tubular holder fixed in the central portion of said casing, a non-rotatable tube slidable longitudinally on said holder, a reflector carried by said tube, a bezel tube rotatable on the reflector tube, a lens carried by said bezel tube, a lamp-bulb situated in said casing between said reflector and said lens, and means for moving

said reflector towards and away from said lens; a switching device inside the upper portion of said compartment for controlling the circuit of the latter lamp-bulb, which switching device comprises a spring-pressed push-rod movable endwise and arranged to close and open the said circuit, a spring contact lever adapted to shift said rod endwise, and means for operating said contact lever either in a manner to cause a flash beam of light to be emitted, or in a manner to cause a continuing beam.

In testimony whereof I affix my signature.

GEORGE ARTHUR HENRY WOOTTON.