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A. T. TORGERSON

3,087,052

HAND LANTERN CONSTRUCTION

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2 Sheets-Sheet 1

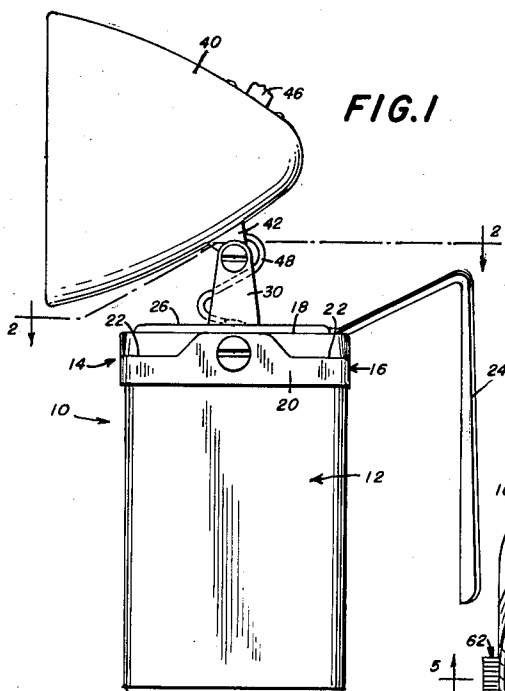


FIG. 1

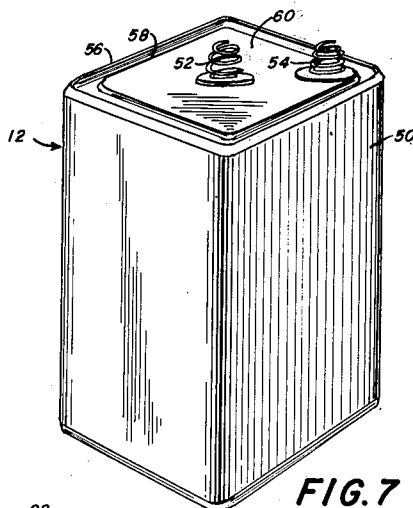


FIG. 7

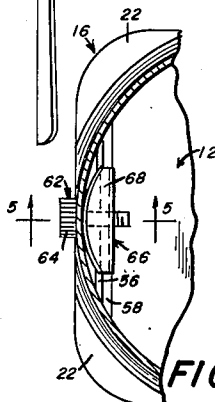


FIG. 4

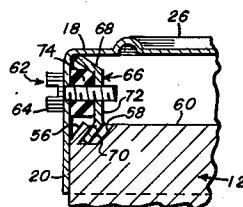


FIG. 5

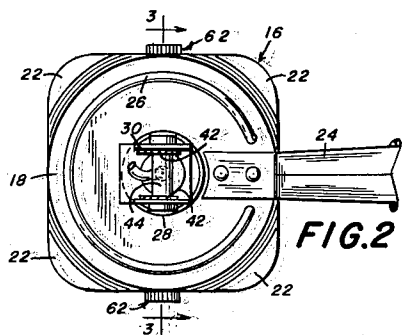


FIG. 2

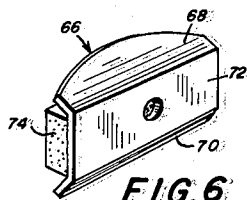


FIG. 6

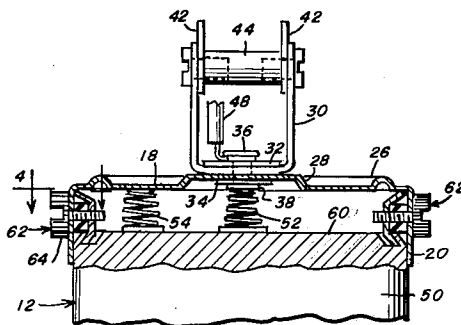


FIG. 3

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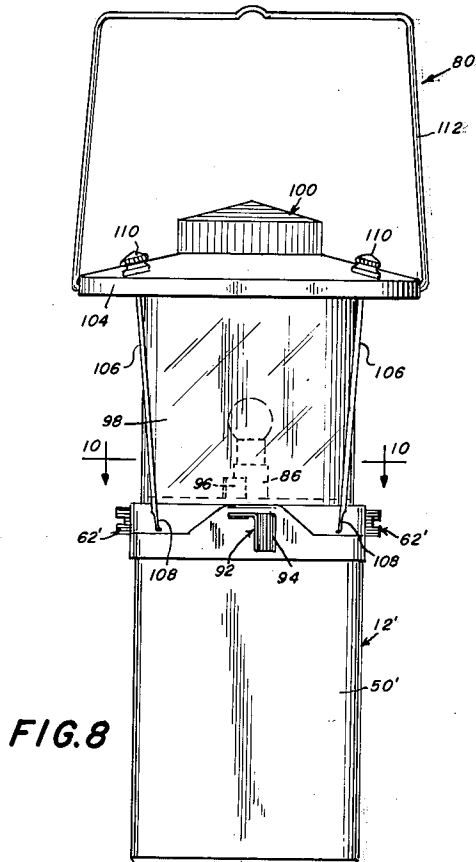
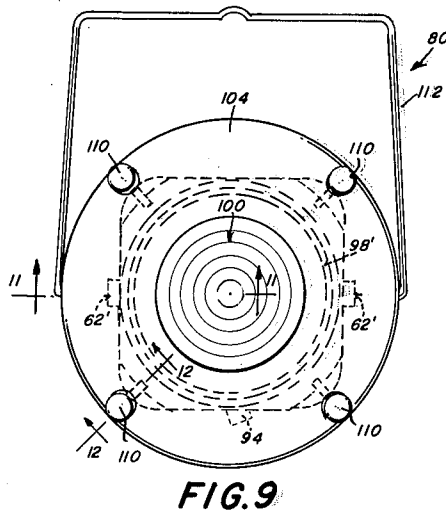
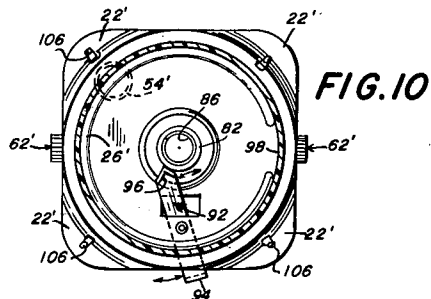
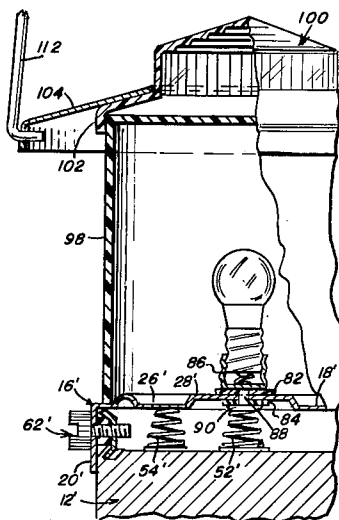
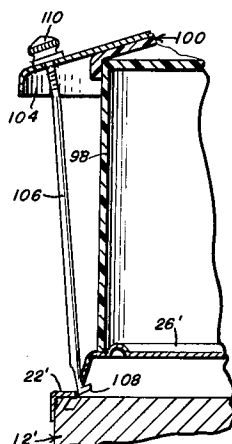
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2 Sheets-Sheet 2



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HAND LANTERN CONSTRUCTION

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3 Claims. (Cl. 240—10.61)

This invention relates to a hand lantern. More specifically this invention relates to a hand lantern of the type comprising a lamp assembly which clampingly engages the top of a dry cell battery. Still more specifically, this invention relates to a hand lantern having a lamp assembly in which clamp means are provided to clampingly engage an upwardly and inwardly directed flange on the top of the dry cell battery, said clamp means comprising a plurality of individual clamp units adapted independently to grip the flange at spaced points.

In the prior art there are disclosed hand lanterns of the type in which the lamp assembly clampingly engages the battery. However, in these units it has been customary that the clamping means comprise clamping jaws on opposite sides of the battery clampingly holding the entire battery therebetween. Such arrangement has proved ineffective as reliable attaching means in that when the lamp assembly becomes disjointed from one side of the battery the entire lantern falls apart.

Also in the prior art, the devices have required the separate attachment of the lamp assembly electrical leads to the battery. This operation in addition to the clamping operation has required an awkward and time-consuming manipulation of the battery terminals.

As an additional drawback, the devices of the prior art of this general type have the appearance not of a single, integral unit, but of a lamp assembly attached to a battery. Such devices having a makeshift appearance, are characterized by rough, unstreamlined profiles and jutting projections. On such projections it is possible to "catch" one's clothing and quite possibly to injure oneself.

A lantern embodying my present invention overcomes the drawbacks of the devices of the prior art. First, under the present invention the clamping means by which the lamp assembly is held onto the battery comprise separate and independent clamp units adapted to clampingly engage opposite sides of the top flange of the battery at spaced portions thereof. By this means when one of the clamping units becomes dislodged the other clamping unit holds the battery and lamp assembly integrally until the first unit is satisfactorily repaired: the lantern will not come apart.

Second, in accordance with the present invention, the battery is provided with upwardly projecting spring terminals, and the lamp assembly has on its under surface downwardly facing contacts, so that when the clamp units engage the battery, the spring terminals forcefully engage the lamp assembly contacts and the circuit is automatically established: there is no need to connect battery leads as a separate operation.

Third, in accordance with the present invention, the lantern assembly is formed with a base member which fits over and completely covers the top end of the battery giving the lantern the appearance and construction of an integral unit: there is a streamlined profile and there are no projections to "catch" on clothing or be otherwise harmful.

It is, therefore, an object of this invention to provide a hand lantern in which the lamp assembly is held onto the battery by a plurality of effective clamp units.

It is a further object of this invention to provide a hand lantern in which the electric connections between

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the lamp assembly and the battery are automatically made when the assembly is installed on the battery.

A still further object of this invention is to provide a hand lantern comprising a battery and a clamp-on lamp assembly which together give the effect of a single physical unit without distracting projections.

This invention embodies other novel features, details of construction and arrangement of parts which are hereinafter set forth in the specification and the claims, and illustrated in the accompanying drawings, wherein:

FIG. 1 is a side elevational view of a hand lantern embodying the invention;

FIG. 2 is a sectional view taken on the line 2—2 of FIG. 1;

FIG. 3 is a slightly enlarged sectional view taken on the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary sectional view taken on the line 4—4 of FIG. 3;

FIG. 5 is an enlarged sectional view taken on the line 5—5 of FIG. 4;

FIG. 6 is an enlarged perspective view of a clamping plate embodying the invention;

FIG. 7 is a perspective view of a battery according to the invention;

FIG. 8 is a front elevational view of a modified form of hand lantern embodying the invention;

FIG. 9 is a top plan view of the embodiment of FIG. 8;

FIG. 10 is a sectional view taken on the line 10—10 of FIG. 8;

FIG. 11 is a partial sectional view taken on the line 11—11 of FIG. 9; and

FIG. 12 is a partial sectional view taken on the line 12—12 of FIG. 9.

Briefly, the invention is a hand lantern comprising a dry cell battery and a lamp assembly. The lamp assembly includes a base member having an inverted-cup shape including a horizontal wall and a peripheral depending skirt. Clamp means are associated with this skirt. Lamp contacts are on the underside of the base member. The battery has upstanding top spring terminals and an upwardly and inwardly directed peripheral flange, and, in assembly, the base member fits over the top of the battery with the battery terminals forcefully engaging the lamp contacts and the skirt surrounding the upper portion of the battery sidewall. Thread means are provided to draw up the clamp means to engage the peripheral flange of the battery and hold the structure together as a single streamlined unit.

Referring still more specifically to the drawings, FIG. 1 shows a side elevational view of a hand lantern embodying the invention which is broadly designated 10. The hand lantern includes a dry cell battery 12 and a lamp assembly 14. The lamp assembly comprises a metal base member 16 which is shaped similar to an inverted cup or box and includes a flat, horizontal wall 18 and a depending peripheral skirt 20. As illustrated, the horizontal wall is substantially circular and the skirt at each corner of the base member slopes down to a horizontal landing 22 or shoulder at about one-half the height of the base member. For easy portability, a stylized handle 24 is secured to one side of the horizontal wall 18.

As shown in FIGS. 2 and 3, the base member is a metal stamping, the top horizontal wall of which has an upwardly impressed arcuate ridge 26 imparting strength and giving a distinctive appearance. Centrally of the arcuate ridge an upward boss 28 is impressed on the base member. The boss is formed with a central aperture. Against the upper surface of the boss is disposed the under side of the bight of a yoke 30, also apertured. On top of this bight and against the underside of the boss are disposed insulating washers 32 and 34 (FIG. 3) which may have

central portions extending into the apertures. A metal rivet 36 extends through the apertures in the bight and the boss, pivotally relating the yoke 30 and the base member 16. The lower portion of the rivet terminates in an enlarged electrically conductive head 38. The rivet 36 and the head 38 are electrically insulated from the yoke and the base member by washers 32 and 34.

The upper ends of the legs of the yoke 30 are formed with aligned holes. A headlamp 40 (FIG. 1) having a pair of spaced downwardly extending apertured ears 42 is pivoted to the upper end of the yoke by a pin 44 passing through the apertures in the ears and in the legs of the yoke 30. The headlamp, well known per se in the art, includes a reflector-light-lens unit or a sealed-beam unit and mounts an electric slide switch 46. The electrical circuitry of the hand lamp is also well known in the art: one terminal of the light is grounded to the metal frame of the head lamp 40; the other terminal is led to the switch 46 from which an insulated wire 48 is led out of the headlamp and connected under the upper head of the rivet 36. By this means, the enlarged lower end of the rivet and the underside of the horizontal wall of the base member constitute the two lamp contacts.

As shown in FIG. 7, the dry cell battery 12 embodying the invention is housed in a closed metallic container 50. On the top of the container are the battery terminals 52 and 54 comprising the two upstanding coil springs located centrally and eccentrically of the container respectively. Inclining inwardly of the battery about the upper peripheral edge thereof is an upstanding flange 56. This inclined flange is disposed at approximately 30 degrees from the vertical. Around the top surface of the battery container immediately inside the flange is formed a channel 58. The central portion 60 of the battery container is about of equal height with the top of the flange 56.

To hold clampingly the lamp assembly 14 on the battery container 50, clamp means 62 are provided. In the preferred embodiment, as shown in FIG. 3, the clamp means are disposed in the base member 16 on opposite portions of the skirt 20. At each of these points (FIG. 5) the skirt is formed with a single aperture and the clamp means comprise a headed, threaded member 64 extending inwardly through the aperture and a clamp plate 66. As is shown in FIGS. 5 and 6, the clamp plate may be a shallow channel-shaped member having an upper flange 68, a lower flange 70 and an intermediate web portion 72. The web portion 72 is apertured and tapped to receive the inside end of the threaded member 64. The upper and lower flanges of the clamp plate are outwardly deflected or spread as shown in FIG. 6 and the upper flange 68 is rounded convexly along its upper edge. The lower flange 70 of the clamp plate is deflected at an angle to complement the incline of the flange 56 of the battery container. To the inside surface of the intermediate web 72 of the clamp plate may be secured a resilient member 74 such as a spring or, in the preferred embodiment, a block or strip of sponge rubber apertured in registry with the tapped aperture of the web. In assembly, the threaded member has its head disposed on the outside of the skirt and its reduced threaded portion extends through the aperture in the skirt 20 and threadedly engages the tapped clamp plate 66. As may be noted from FIG. 3 both clamp means 62 in the preferred embodiment are similar.

In the assembly of the hand lantern embodying the invention the threaded members 64 are each unscrewed to permit the widest possible opening between each clamp plate 66 and the skirt. The resilience of the sponge rubber block 74 which urges the two members apart facilitates the opening. The base member 16 is then placed over the top of the battery and is urged downwardly against the force of the battery terminals 52 and 54 to the point at which the underside of the horizontal shoulders 22 of the base member about the top of the corners of the battery container 50. At this point the lower flanges 70 of the clamp plates extend down into the channel 58 in the

top end of the battery (FIG. 12). With the parts held in this relation, the threaded members 64 whose heads are preferably knurled and slotted as shown are turned, drawing up the clamp plates as tight as possible so that the lower flange 70 of each clamp plate pinches the inclined battery flange 56 against the skirt 20 of the base member.

To assure that the clamping action of each clamp plate against the skirt 20 is firm and effective, the upper flange 68 of the clamp plate (FIG. 4) has been made curved convexly along its distal edge so that the upper flange contacts the skirt 20 in only one point. By this means if there are irregularities in the flange 56 of the battery, the clamp plate will pivot about this point to accommodate them and contact and clampingly engage the battery flange 56 along the entire length of the lower flange 70.

With the base member thus installed on the battery container, the battery spring terminals are under compression against the lamp contacts 18 and 38: electrical contact between the battery and the lamp assembly is forcefully and unfailingly established.

Alternative Embodiment

An alternative hand lantern embodying the invention is shown in FIG. 8. In this embodiment parts corresponding to parts of the first embodiment are designated by the primed form of the reference numerals designating the parts of the first embodiment.

In the second embodiment the lamp assembly is broadly designated 80. The base member 16' is provided with clamp means 62' (FIG. 11) similar to that of the first embodiment. The base member 16' includes the horizontal wall 18' and depending skirt 20'. It is also provided with the corner shoulders 22', the arcuate ridge 26', the boss 28' and central aperture of the first embodiment. Insulating washers 82 and 84 are disposed on either side of the boss. Superposing the top washer is a conventional screw base bulb receptacle 86. A rivet 88, having a bulb tip terminal contact connected to its head, extends down through the lower insulated end of the receptacle, through the washers 82 and 84 and terminates at its lower end in a downwardly facing lamp contact 90.

As shown in FIG. 10, swing switch 92 is provided in the base member 16'. The center portion of the switch is pivoted to the underside of the base member by a metal grommet. One end extends out a slot in the skirt of the base member and terminates in a stylized actuator 94. The other end extends through a slot in the horizontal wall of the base member and terminates in an upwardly directed contact shoe 96. The shoe is convex toward the receptacle 86 and is adapted to contact or clear the side of the receptacle as the switch is swung to establish or break electric contact with the light.

As shown in FIGS. 10 and 11, a lens 98 superposes the base member. The lens is of inverted-cup shape and its mouth fits against the horizontal wall of the base member immediately about the outside of the arcuate ridge 26'. The ridge properly centers the lens. The inside of the lens may be frosted to create a translucent effect, hiding the bulb mounting and switch. Superposing the lens is a dome 100 which may be of tinted clear plastic. The dome has about its periphery a downturned flange 102 which extends down over and against the upper portion of the side wall of the lens 98.

The dome is formed with an inwardly and upwardly inclined shoulder over which fits an annular metal shade 104 extending outwardly therefrom as shown in FIG. 10. These three members, the lens 98, the dome 100 and the shade 104, are held down in proper relation by a plurality of hold-down ties 106. The ties terminate at their lower ends in upwardly deflected hooks 108 (FIG. 12) engaging in special apertures about the skirt of the base member. The upper ends of these hold-down ties are threaded and extend through apertures in the shade 104. The upper ends receive tapped finishing heads 110. A

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wire carrying bail 112 pivotally engaged in peripheral apertures in the shade completes the assembly.

From the above description, it can be seen that by my invention I have developed a clamp-on lamp assembly with unusually effective clamp means by the operation of which the electric contact with the lamp assembly is automatically and unfailingly established. In addition, a hand lantern embodying the present invention has integral streamlined appearance and structure, free of objectional or hazardous projections.

While this invention has been shown in but a limited number of forms, it will be obvious to those skilled in the art, that it is not so limited but is susceptible of various changes and modifications without departing from the spirit and scope of the claimed invention.

I claim:

1. A hand lantern comprising a dry cell battery and a lamp assembly, said battery being housed in a closed container having an upwardly and inwardly inclined flange extending about the upper peripheral edge thereof, said container having a battery terminal means in fixed position on the top thereof; said lamp assembly comprising a base member mounting a light and having a top wall formed with a downward skirt depending about the periphery thereof and having lamp assembly electric contact means in fixed position on the underside thereof; clamping means disposed under said base member within said skirt, said clamping means comprising a vertically disposed clamping plate, said clamping plate having a downwardly and outwardly inclined dependent flange, said clamping plate flange having an angle of inclination complementary with the angle of inclination of said battery container flange; means for holding said clamping plate toward said skirt; said lamp assembly being superposed upon said battery container with the depending skirt of its base member surrounding the upper portion of the side wall of said battery container, said clamping plate flange clampingly engaging said battery container flange and said lamp assembly electric contact means being in mutual engagement with said battery terminal means whereby the battery and the lamp assembly cooperate as in integral mechanical and electrical unit.

2. A hand lantern comprising a dry cell battery and a lamp assembly, said battery being housed in a closed container having an upwardly and inwardly inclined flange extending about the upper peripheral edge thereof, said container having battery terminal means in fixed position on the top thereof; said lamp assembly comprising a base member mounting a light and having a top wall formed with a downward skirt depending about the periphery thereof and having lamp assembly electric contact means in fixed position on the underside thereof, said skirt having an aperture therethrough; clamping means disposed under said base member within said skirt and adjacent to said aperture, said clamping means comprising a ver-

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tically disposed clamping plate, said clamping plate having a downwardly and outwardly inclined dependent flange, said clamping plate flange having an angle of inclination complementary with the angle of inclination of said battery container flange; a threaded member extending through said aperture and threadedly holding said clamping plate toward said skirt adjacent to said aperture; said lamp assembly being superposed upon said battery container with the depending skirt of its base member surrounding the upper portion of the side wall of said battery container, said clamping plate flange clampingly engaging said battery container flange and said lamp assembly electric contact means being in mutual engagement with said battery terminal means whereby the battery and the lamp assembly cooperate as an integral mechanical and electrical unit.

3. A hand lantern comprising a dry cell battery and a lamp assembly, said battery being housed in a closed container having an upwardly and inwardly inclined flange extending about the upper peripheral edge thereof, said container having battery terminal means in fixed position on the top thereof; said lamp assembly comprising a base member mounting a light and having a top wall formed with a downward skirt depending about the periphery thereof and having lamp assembly electric contact means in fixed position on the underside thereof, said skirt having an aperture therethrough; clamping means disposed under said base member within said skirt and adjacent to said aperture, said clamping means comprising a vertically disposed clamping plate having an upper and a lower flange, said lower flange being downwardly and outwardly inclined and having an angle of inclination complementary with the angle of inclination of said battery container flange, said upper flange being outwardly inclined; a threaded member extending through said aperture and threadedly holding said clamping plate toward said skirt adjacent to said aperture with said upper flange in contact with the inner surface of said skirt; said lamp assembly being superposed upon said battery container with the depending skirt of its base member surrounding the upper portion of the side wall of said battery container, said lower flange clampingly engaging said battery container flange and said lamp assembly electric contact means being in mutual engagement with said battery terminal means whereby the battery and the lamp assembly cooperate as an integral mechanical and electrical unit.

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