Sept. 4, 1928. 1,683,348

W. S. HAMM

ELECTRIC LANTERN

Filed March 8, 1924 2 Sheets-Sheet 1

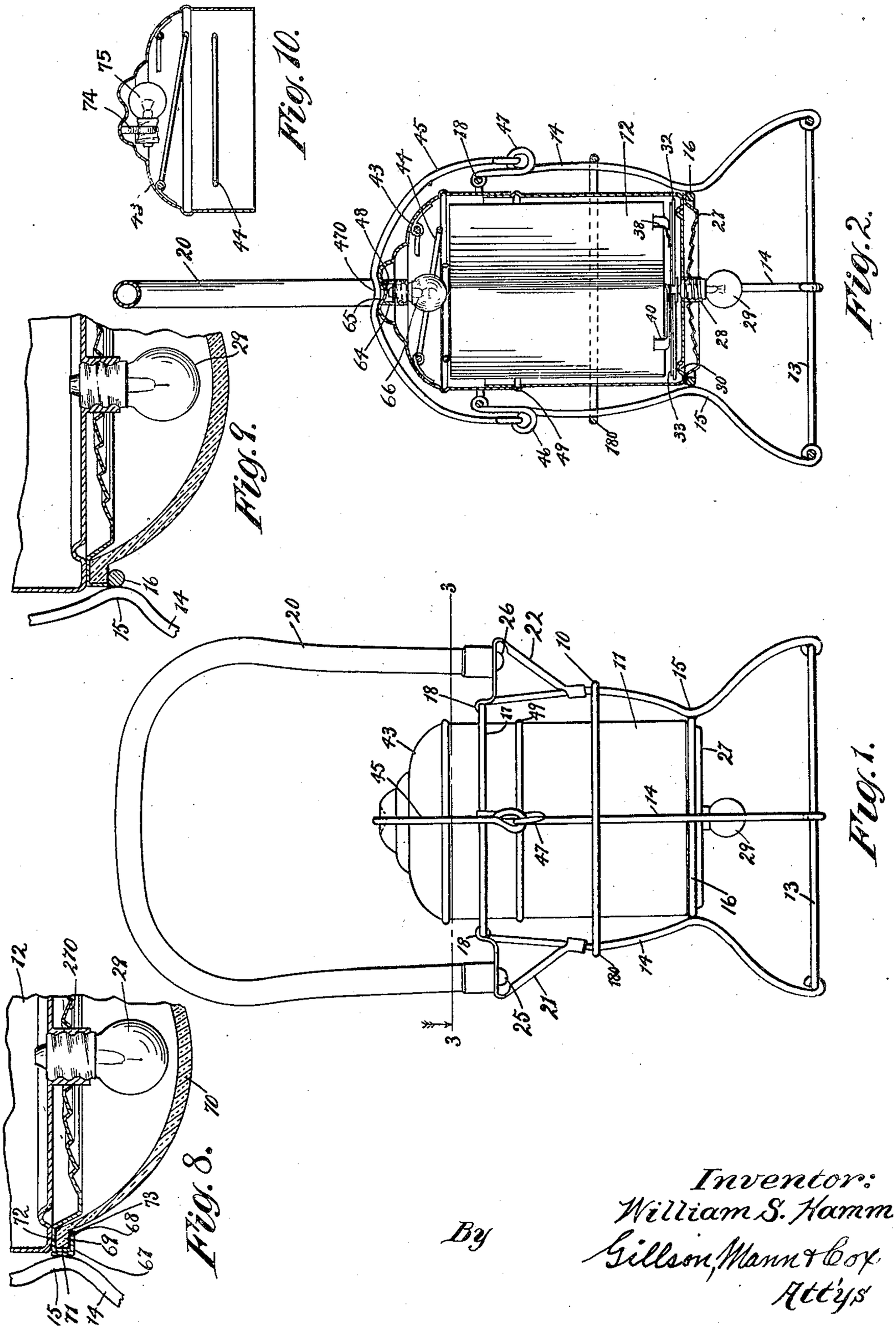

Fig. 10.

Fig. 2.

Fig. 9.

Fig. 1.

Fig. 8.

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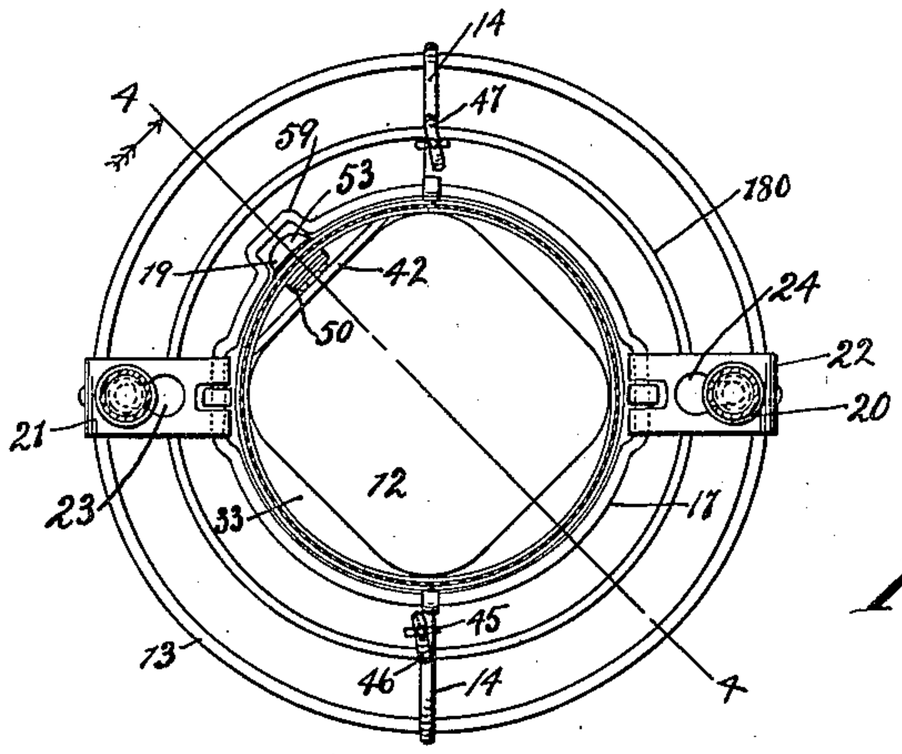

Fig. 3.

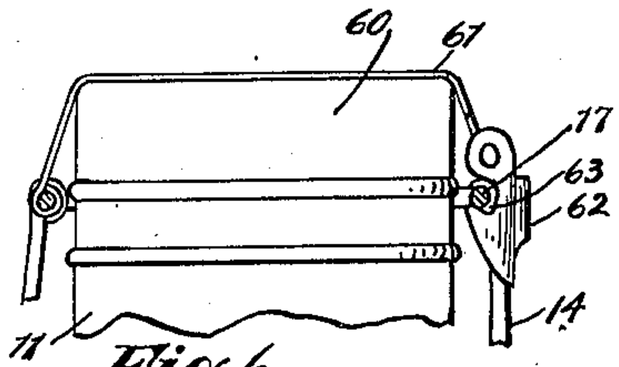

Fig. 6.

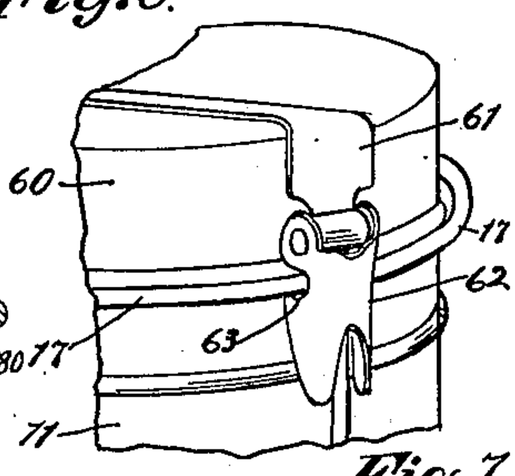

Fig. 7.

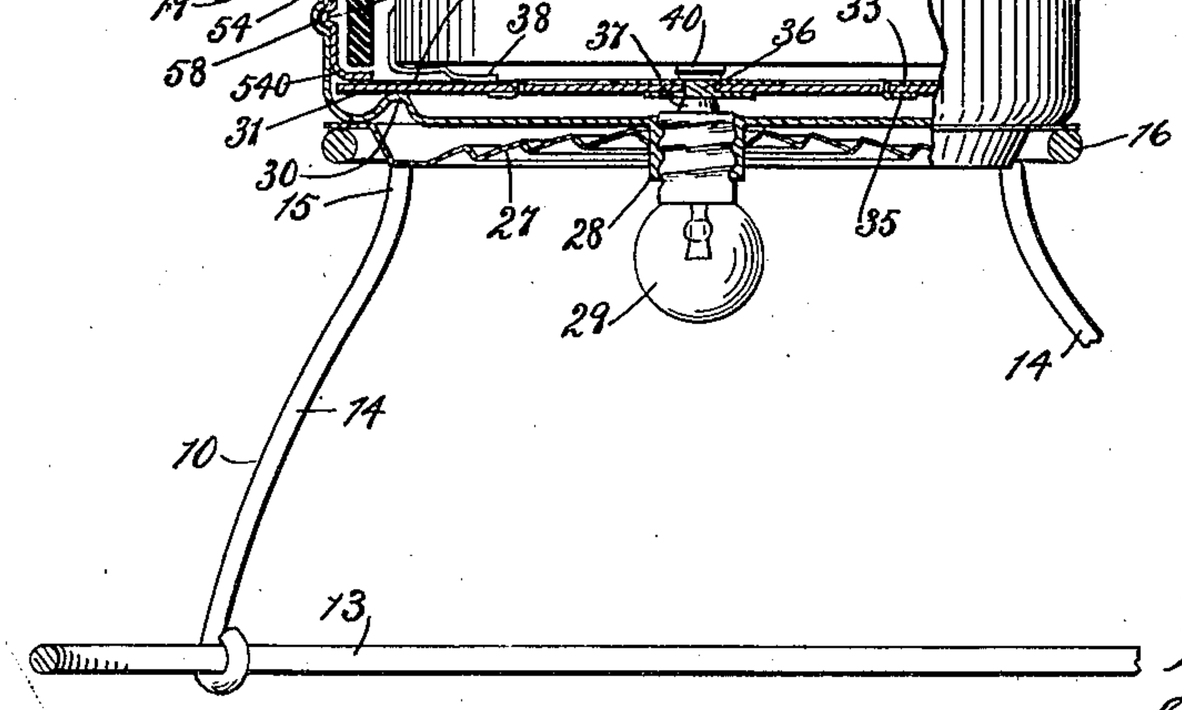

Fig. 4.

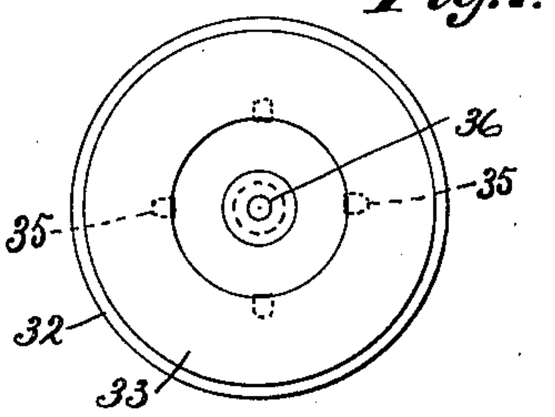

Fig. 5.

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UNITED STATES PATENT OFFICE.

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ELECTRIC LANTERN.

Application filed March 8, 1924. Serial No. 697,922.

This invention relates to lanterns, and more particularly to electric lanterns.

The principal objects of the invention are the provision of an electric lantern that is strong and sturdy, is not likely to become broken or get out of order, that is easily assembled, cheap to manufacture, efficient and reliable in operation, that is constructed to protect the battery against the elements and that simulates in appearance the conventional lantern having a skeleton frame.

Other and further objects and advantages of the invention will appear from the following description taken in connection with the accompanying drawings, in which

Fig. 1 is an elevation of a signal lantern embodying the present invention;

Fig. 2 is a vertical section on line 2—2 of Fig. 1;

Fig. 3 is a horizontal section on line 3—3 of Fig. 1;

Fig. 4 is a vertical section on line 4—4 of Fig. 3, with parts broken away;

Fig. 5 is a plan view of the contact member;

Figs. 6 and 7 are detail views showing a modified form of the device;

Fig. 8 is a sectional view of a modified form of the device with parts broken away;

Fig. 9 is a view similar to Fig. 8, showing a slightly modified construction; and

Fig. 10 is a detail vertical section of the closure for the battery container showing means for storing a replacement bulb.

In electric lanterns, it is desirable that the various parts or elements that make up the lantern be detachably connected together in such a manner that the whole may be assembled or disassembled or any part thereof removed or replaced with a minimum amount of time and labor. In the forms of the device selected to illustrate one embodiment of the invention the reference character 10 designates the lantern support, frame or cage, 11 the battery container, and 12 the battery.

The lantern support, cage or frame 11 may be of any suitable construction. Preferably it is a skeleton structure comprising a base, a body portion supported thereby, and a handle for said body portion. The support is substantially the same in appearance and similar in construction to the conventional type of signal lantern employed by railway employes at the present time. The base comprises a ring 13 to which are secured a plurality of wire supporting members 14 which are arranged symmetrically about said ring and extend upwardly therefrom. Their intermediate portions are bent inwardly as at 15 and are rigidly secured in any suitable manner as by soldering or spot welding to a support 16 which may be in the form of a ring which is adapted to support the battery container 11, as will presently appear. The upper sections of the supporting members 14 are bowed outwardly to form the body portion and have their upper ends secured to an upper ring or hoop member 17 as shown at 18 in Figs. 1 and 2.

An intermediate ring or guard 180 is secured to the bowed portions of the supporting members 14 for holding the same in proper spaced relation. The ring 180 is also held in spaced relation to the container 11 whereby the switch 19 is protected by said ring or hoop from accidental manipulation.

The lantern is provided with a bail 20 which is detachably but rigidly secured to the frame 10 by means of brackets 21 and 22 which are secured to the upper ring 17 and to the members 14 at opposite sides of the frame. The brackets 21 and 22 are provided with keyhole slots 23 and 24 in which are adapted to engage the headed studs 25 and 26 secured to the ends of the bail 20. The resiliency of the bail 20 holds said studs in the outer or restricted ends of the slots 23 and 24. The bail is removed by compressing the same and removing the studs through the enlarged portion of the slots.

The battery container 11 is mounted within the cage or frame 10 and is supported by the ring 16. A reflector 27 may be and preferably is interposed between the container and said ring. This reflector may be of any suitable construction, that shown being composed of a series of concentric bands, the cross section of each of which is a section of a parabola, with a common focus. The container is preferably provided with a central opening in which is secured a depending sleeve or socket 28 which is adapted to extend downward through an opening in the lens 27. An electric light bulb 29 is

adapted to be secured in said socket with its filament at the focal point of said lens.

The bottom of the container may, if desired, be provided with a bead 30 for supporting a conductor member 31. The conductor member 31 comprises a plate 32 of insulating material on the upper side of which is secured a metallic endless band or marginal contact or conductor member 33. The band is secured to the plate 32 in any suitable manner as by means of clips 35 integral with said band which extend through slots in said disk and are adapted to be bent over against the lower side thereof to retain the same within said slots, as shown in Fig. 4. The clips 35 are held in spaced relation to the bottom of the container by the bead 30. The member 33 is of less diameter than the disk 32 whereby the same is insulated from the sides and bottom of the container.

A central contact or conductor member 36 extends axially through said disk 32 and is adapted to be engaged by the central terminal 37 of the lamp bulb 29. The bulb is grounded on the sleeve or socket 28 as is usual in such constructions.

The battery 12 is carried by the container with one of its spring terminals 38 in contact with the annular band 33 and its other spring terminal 40 in contact with the central contact member 36 as more clearly shown in Fig. 4.

While the battery 12 is shown as being rectangular in cross section, it is understood that it may be otherwise. As shown, an angular type of battery is employed and a guide 42 is secured across the container, which insures the positioning of the battery therein in such a manner that the corners of the battery will not interfere with the manipulation of the switch 19. The use of a central and an annular contact member insures proper electrical connection in any manner in which the battery may be inserted in the container.

Suitable means are provided for properly maintaining the battery in electrical connection with contact members 33 and 36. As shown, the container 11 is provided with a lid 43 which is adapted to telescope the upper end of said container. A spring 44 secured in and carried by said lid is adapted to engage the battery and resiliently hold the same in lowered position.

The lid 43 is held in lowered position by any appropriate means, such as the bail shaped securing member 45 which is pivotally secured to the frame 10 as by having its ends connected to the loops 46 and 47 formed in two oppositely arranged supporting members 14 as clearly indicated in Fig. 2. The securing member 45 is provided between its ends with an inwardly extending bend 470 which is adapted to engage a depression 48 in the dome of the lid 43 for holding the parts in assembled relation with the lid in contact with a bead 49 on the receptacle. The resilience of the bail-like securing member 45 will prevent the projection formed by the bend 470 from becoming accidentally disengaged from the lid 43. The container 11 being supported on the ring 16 and the lid 43 being applied to it, the securing member 45 is forced into engagement with the depression 48, thereby urging the lid down upon the container, binding the latter to its seat, and also through the spring 44, insuring good electrical connection with the battery.

The container is provided with a suitable switch 19 comprising a resilient metallic strip 50 secured to a reinforcing strip 51 of insulating material by means of a fastening member 52. The strip 51 prevents the battery from coming in contact with the strip 50. The member 52 extends through a slot in the container and is secured to an operating member 53. A shield 54 which is more or less resilient is clamped against the container by the member 52 to form a weather-tight joint for protecting said slot in any position of said switch.

The strip 50 has its lower end 540 bent inwardly to extend beneath the strip 51 whereby when the same is lowered as shown in Fig. 4 it will engage the band 33 and ground the battery, i. e. close the circuit through the electric light. The upper and lower ends of the strip 50 may be provided with beads 55 and 56 which are adapted to snap into the depressions 57 and 58 respectively to hold the switch either open or closed.

The ring or hoop member 17 is provided with an offset loop or bend 59 for accomodating the operating member 53 of the switch 19 in removing the container from the frame.

The likelihood of breaking or burning out the filament or breaking the bulb renders it desirable to make provision for carrying extra bulbs for replacements. Means for accomplishing this is shown in Fig. 2 and comprises one or more sockets, in the present instance a single one, secured to the cap 43. Preferably the socket 64 is attached to the dome of the lid as at 65, and when the extra bulb 66 is secured therein it will be protected by the dome of the lid and the spring 44 which will extend about the same.

The form of the device shown in Figs. 6 and 7 differs from that just described in that the lid 60 has a flat top which is engaged by a different type of securing bail 61. The bail 61 is pivoted to swing in a vertical plane and its free end is provided with a latch member 62 pivoted thereto and provided with a notch 63 for engaging the upper ring or hoop member 17 for holding the lid on to the battery receptacle or con-

tainer. The remainder of the structure is substantially the same as that disclosed in Figs. 1 to 5, and need not be further described.

In the use of colored signals, it is often desirable to employ a colored transparent cover or bowl for the lamp instead of using colored electric bulbs. In Fig. 8 is shown a slight modification of the device that may be used with or without the colored cover or bowl. As shown, the band 64 for connecting the guards or supports 14 together at the bends 15 are L-shape in cross-section, the horizontal flange 68 of which affords a ledge on which the flange 69 of the bowl 70 is adapted to rest. The bowl 70 is of transparent material of the desired color.

In order that the relation of the fastening means 45 and the cap 43 shall not be affected by variation in the thickness of the flange of the bowl, the reflector 270 is provided with a flange having a depending portion 71 of such width as to support the reflector and the container above the flange of the bowl. The use of the depending portion 71 of the flange not only insures the correct position of the container for enabling the fastening means or bail 45 to properly engage the cap, but also relieves the flange of the bowl from all strain due to the compression of the cap by said fastening means 45. If desired, gaskets 72 and 73 of any suitable material such as rubber may be interposed between the reflector 270 and flange 69 and between the flange 69 and the ledge or flange 68, respectively, whereby the space between the reflector and light dome is air tight thus preventing the entrance of dust and dirt, and also preventing the tarnishing of the lens to a greater or less extent.

In the construction shown in Fig. 9, the special form of support for the bowl 70 is dispensed with, the bowl being seated on the supporting ring 16 of Figs. 1 and 2. In Fig. 10 there is shown a clip 74, secured to the inner surface of the cap 43 for holding an extra or replacement bulb 75.

In railway service the failure of the lantern, due to the destruction of the bulb filament, might result in disaster to a train, and it is important that the lantern be equipped with a replacement bulb for use in such contingency.

It is thought from the foregoing taken in connection with the accompanying drawings that the construction and operation of my device will be apparent to those skilled in the art. Various changes in size, shape, proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. An electric lantern comprising a frame, a supporting member on said frame, a battery container on said member, a closure for said container, a reflector supported between said container and said member, and means for holding said closure on said container and for clamping said container and reflector on said supporting member.

2. In an electric lantern, in combination, a skeleton frame and support provided with a seat at the juncture of the two main parts thereof, a battery container engaging the seat, an openable closure for the container, and unitary means for securing the closure upon the container and the container upon the seat.

3. In an electric lantern, in combination, a skeleton frame and support having a seat for a container above its lower end, a battery container removably engaging the seat, an openable closure for the upper end of the container and unitary means for holding the closure to the container and the container to the seat.

4. An electric device comprising a frame including guards, a container carried by said frame and protected by said guards, a battery in said container, a closure for said container, resilient means between said battery and said closure and means associated with said frame and engaging said closure for resiliently holding said battery within said container and said container on said frame.

5. In a lantern, in combination, a skeleton guard frame having an instanding ledge, and a light bowl, a reflector and a container all supported on such ledge.

6. In a lamp, a support provided with a ledge, a light bowl having a flange for engaging said ledge, a reflector having a depending portion for engaging said ledge about the flange of said bowl for protecting the same, and a battery container supported by said reflector.

7. A lantern comprising a body portion, and an approximately flat, concave reflector attached to the bottom of the body and formed of concentric radially curved bands having a common focal point located below the perimeter of the reflector, and a lamp secured on the axis of the reflector and projecting below its margin.

8. An electric lantern, comprising a skeleton frame, a portion of said frame forming a ledge, a reflector on said ledge, a container on said reflector, a lid for said container and a resilient member for engaging said lid for holding said parts in assembled relation.

9. An electric lantern comprising a frame having a base and a body portion, a container removably supported within said body portion, a cap for said container and a resilient bail member for holding said cap on said container and said container within said body portion.

10. In a signal lantern, a frame, a battery container removably carried by said frame, a lid for closing said container and a bail

member pivoted to said frame at each side thereof and provided with a bent portion for engaging a depression in said lid for resiliently holding the latter in position on said container and the container within said frame.

11. A hand lantern comprising an electric battery, a skeleton frame inclosing, and having a positive seat for the battery, a lamp located below the battery, and a clamping element carried by the frame and urging the battery to the seat.

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