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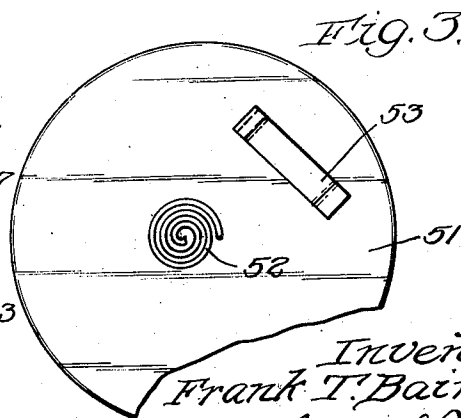
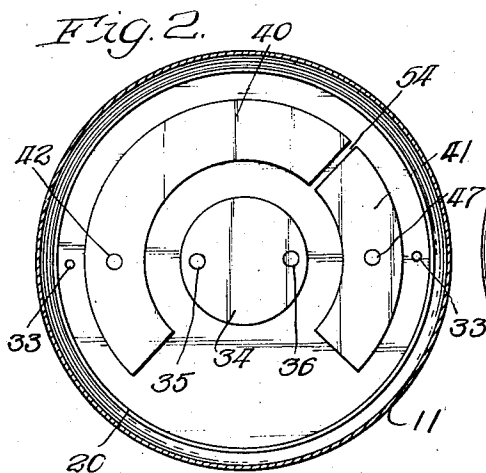
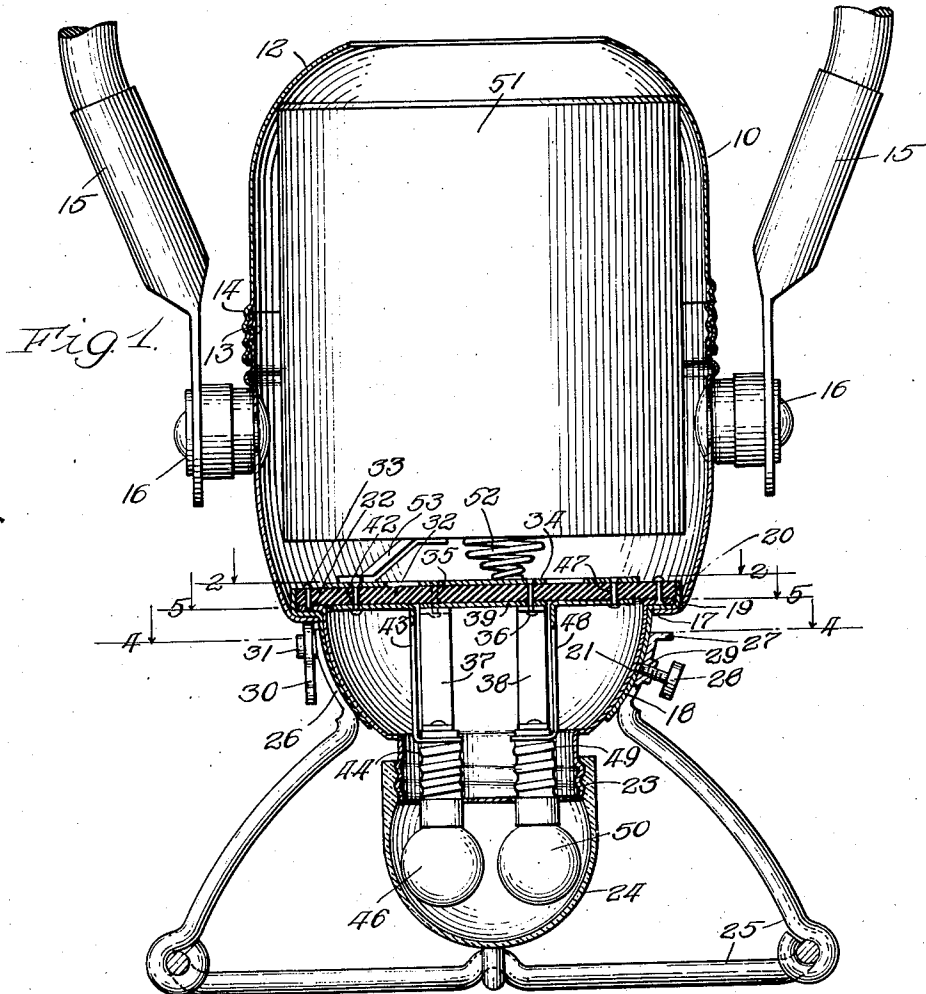
F. T. BAIRD

2,369,637

ELECTRIC LANTERN

Filed April 10, 1942

2 Sheets-Sheet 1



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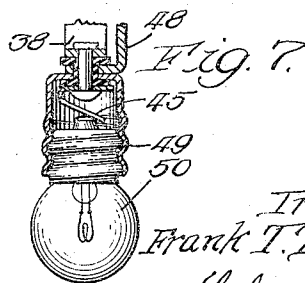
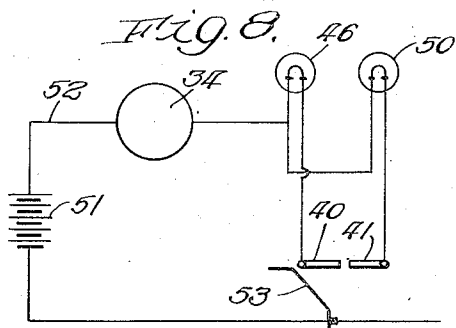
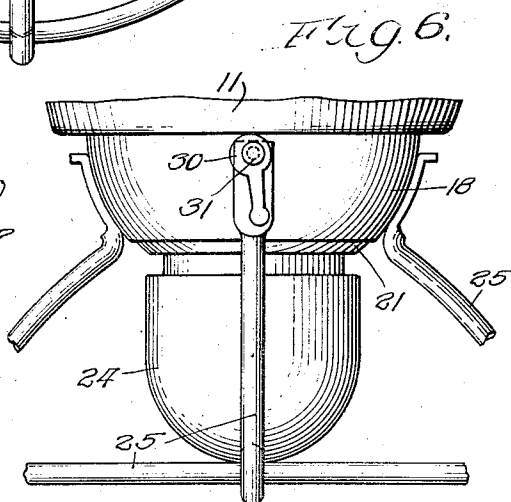
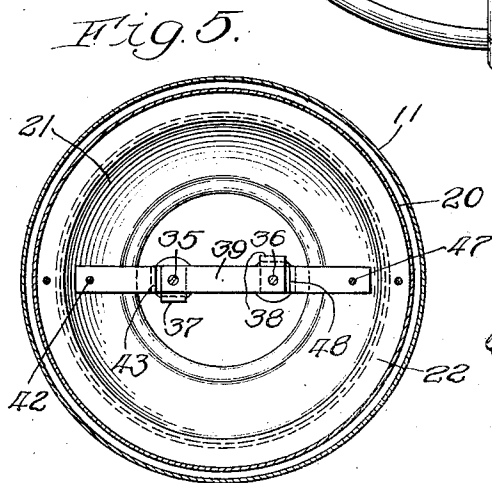
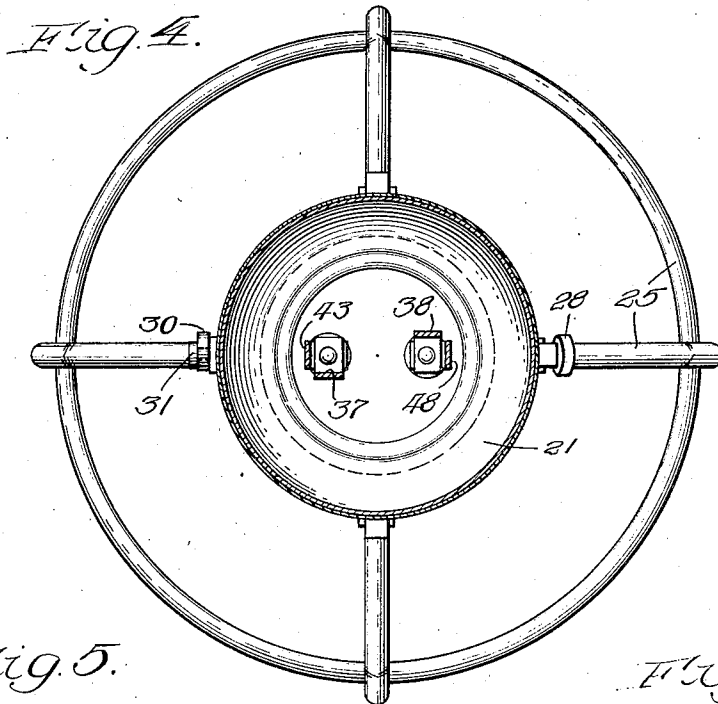
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,369,637

ELECTRIC LANTERN

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Application April 10, 1942, Serial No. 438,461

4 Claims. (Cl. 240—10.63)

This invention relates to portable electric lanterns or lamps adapted for general use, but more particularly intended as a railway lantern. Lanterns used by train men are apt to be subjected to rough usage and should have particular characteristics to make them adapted or desirable for such use.

The objects of this invention are to provide an improved electric lantern for the uses intended, which will be simple and durable in construction and particularly efficient in operation; to provide an electric lantern having a novel switch which may be actuated by moving the main portions of the lamp structure which are movable relatively to each other; to provide an electric lantern having a source of electricity and a switch for connecting the source with one or more lamps or bulbs without the use of any switch lever or the like; to provide an electric lantern having an enclosed switch and having means for locking the switch in either "off" or "on" position; to provide a portable electric lantern with a frame or supporting portion which is yieldable or resiliently connected with the main body; and to provide such other improvements in construction and advantages in operation as will appear more fully hereinafter. In the accompanying drawings illustrating this invention,

Fig. 1 is a longitudinal sectional view of a lantern embodying this invention with parts broken away for convenience in illustration;

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

Fig. 3 is a bottom plan view of the battery showing its terminals or contacts;

Fig. 4 is a sectional view taken substantially on the line 4—4 of Fig. 1;

Fig. 5 is a sectional detail taken on the line 5—5 of Fig. 1;

Fig. 6 is a side view of a portion of the lantern taken from the left hand side of Fig. 1;

Fig. 7 is a sectional detail of the bulb sockets; and

Fig. 8 is a wiring diagram showing the circuits for two lamps.

As shown in these drawings, the lantern has a body or casing 10 comprising a lower base portion 11 and an upper or cap portion 12, these parts being detachably and adjustably connected by any suitable means such as the threads 13 on the base which engage with corresponding threads 14 on the top or cap. The lantern is provided with a bail or handle 15 which is preferably pivotally connected to the base by pivots

16. This handle is preferably in the form of a loop or bail for convenience in carrying the lantern on the arm as well as in the hand.

The base 11 converges towards its lower end and terminates in an inwardly extending flange 17 which defines a circular opening in the base. An auxiliary base section or ring 18 fits in the opening in the base and has an outwardly extending shoulder 19 that rests on the flange 17, and also has an upwardly extending peripheral flange 20. The ring 18 is approximately in the form of a spherical segment and supports a somewhat similarly shaped lamp supporting sub-base member 21 which, for convenience, will be designated as a reflector. The upper portion of the reflector 21 has an outwardly extending flange 22 that rests on the shoulder 19 and fits within the flange 20 of the ring 18. The lower end of the reflector 21 is threaded as shown at 23 for engagement with a globe 24. The outer surface of the reflector 21 is polished and the flat surface forming the end of the threaded portion, together with the adjacent exposed surface serves to effectively reflect the light from the bulbs, and this is particularly noticeable when the globe 24 is omitted. The outer surface of the ring 18 is also preferably polished and coacts with the reflector 21 in projecting the light rays.

The lantern has a supporting stand 25 preferably formed of wire as shown with legs 26, the upper ends of which are shaped to conform with the auxiliary base or ring 18 and are secured thereto in any suitable manner as by rivets or spot welding. The upper ends of the legs have outwardly extending projections 27 which serve as stops or abutments for purposes which will presently be described. The ring 18 is rotatable with respect to the reflector 21, but in order to fasten these parts together, I provide a set screw 28 which extends through a threaded hole 29 extending through an embossment on one of the legs and also through the ring 18 so that the end of the set screw will engage with the reflector 21 as shown in Fig. 1. A locking cam 30 is pivoted at 31 to one of the legs 26 and is adapted to engage with the lower face of the flange 17 when it is desired to fasten the stand 25 and attached parts against movement with respect to the body or casing.

A switch and lamp supporting disc 32 formed of insulating material fits freely within the up-standing flange 20 and rests on the flange 22 and is secured to the latter by means of rivets 33 or other suitable means so that it will rotate with

the reflector 21. The disc 32 carries a central contact plate 34 which is connected by rivets 35 and 36 to lamp socket supporting bars 37 and 38. These parts are also further electrically connected by means of a bus bar or connecting plate 39 which will tend to maintain the circuit in the event of failure of contact through either one of the rivets. The disc 32 also carries contact segments 40 and 41 as best shown in Figs. 1 and 2. The segment 40 is connected by rivet 42 with a lamp socket supporting bar 43 which coacts with the bar 37 to support one of the lamp sockets 44. The overlapping ends of the bars 37 and 43 are insulated from each other and a yielding or spring contact 45 is provided for engagement with the central terminal of the bulb 46 as shown in Fig. 7, such socket arrangement being of more or less common construction. The segment 41 is connected by means of a rivet 47 with a lamp socket supporting bar 48 which coacts with the bar 38 to support a second lamp socket 49 for a lamp 50, the socket arrangement being the same as just described with reference to the socket 44. The center contacts of the lamp bulbs are thus both connected through the connections just described with the contact plate 34. The other contact of the lamp 46 which is provided through the usual threaded socket connection is connected with the segment 40 and the corresponding contact of the lamp 50 is connected with the segment 41.

A battery 51 which may be either a dry battery or a storage battery is mounted in the casing body 10. The center or positive terminal of the battery comprises a spring or resilient contact 52 which engages with the plate 34 and is positioned eccentrically so that when the plate is revolved with respect to the terminal, the terminal will follow a circular path around the center of the plate. The negative or other terminal 53 of the battery is a spring contact or wiper and is positioned so that its lower end will engage with the segments 40 and 41. The engaging end of this contact is sufficiently wide so that it will bridge the gap 54 between adjacent ends of the segments as shown in Fig. 2, this being for the purpose of completing circuits through both segments simultaneously to light both of the lamps. The spring contacts 52 and 53 have sufficient strength or resiliency to support the battery and to press the upper end thereof closely in engagement with the cap 12 whereby there will be sufficient friction between the battery and the cap to rotate the battery when the casing is turned with respect to the base or stand and parts connected therewith. The circuits for the lamps, as shown in Fig. 8, are from the battery 51 through contact 52 to the plate or contact 34, thence through the bars 37 and 38 to the center contacts of the lamps 46 and 50 respectively. The opposite terminal of the battery is connected with the spring contact or switch blade 53 which is adapted to make contact with the segments 40 and 41. When contact is made with segment 40, the lamp 46 will be lighted and when contact is made with both of the segments, the lamps 46 and 50 will both be lighted. Then as the blade or contact 53 moves around and makes contact with 41 only, the lamp 50 will be lighted and when it is out of engagement with the segments, the circuit will be broken so that neither lamp will be lighted. This switch operation for turning the lights off and on is accomplished by rotating one of the principal structural portions of the lamp,

namely, the body or casing with respect to another of the principal structural features of the lamp, namely, the stand and parts connected therewith.

This turning the lamps off and on may be accomplished in several ways: for instance, with the cam 30 in releasing position and the set screw 28 tightened, the user may hold the stand 25 with one hand and turn the body or casing 10 with the other hand either by grasping the body directly or by using the handle. As the casing is turned, the battery terminal or contact 53 wipes across the several switch segments to complete the circuit with one or more lamps or to cut off the circuit as above described. The threads between the lower part of the casing 11 and upper part of the cap 12 are sufficiently long so that the cap may be screwed down to give a normal pressure on the battery and hold the battery terminals in contact with the coacting switch terminals while producing sufficient friction between the cap and the battery to cause rotation of the battery with the casing. Then if it is desired to fasten or lock the parts with the switch members in predetermined position, the cap or top 12 may be screwed farther down to increase the tension on the spring contacts 52 and 53 so that the pressure will prevent the accidental or unintentional rotation of the battery with respect to the coacting switch members and therefore avoid any likelihood of the lantern being jarred or unintentionally left in either lighted or unlighted position. If the set screw 28 is loosened, the reflector 21 may be turned with respect to the other parts of the lantern to operate the switch for lighting the lamps.

In using lanterns, particularly for railway purposes, I have found that if the casing is rigidly secured to the stand, any jar to the stand, which is the part that usually strikes when the lantern is subjected to rough usage, tends to strain or injure the fastenings between the stand and the casing, and may also injure the casing or the filaments of the lamp bulbs. In accordance with the present construction, the stand 25 and parts associated therewith are movably mounted in the casing and the parts are mainly held in operative position by the tension of the spring contacts 52 and 53, which tend to hold the disc 32 and parts in which it is mounted against the flange 17. Consequently, when the stand is hit or strikes any object, the strain is taken up by the springs and tends to prevent injury to the parts. Any lateral force applied to either the casing portion or the stand portion would tend to cause a pivotal or hinging action about the adjacent point of contact between the flange 17 and the shoulder 19 and any longitudinal force applied to either of these portions would tend to move one portion axially with respect to the other, and in each instance, the force would be resisted by the springs 52 and 53. The movement between the stand and casing is preferably limited by the projections or abutments 27 which may engage with the flange 17 if the stand is moved a sufficient distance out of alignment with the casing. In some instances, this freedom of movement may not be desirable, in which case the user may swing the fastening cam 30 into locking position against the flange 17 and thereby lock the stand and parts associated therewith rigidly in position with respect to the casing.

While I have shown a preferred form of my invention as applicable to a lantern having two bulbs, it is apparent that the same may be adapt-

ed for use with one bulb only and other parts may be modified or changed without departing from the scope of the invention, and therefore I do not wish to be limited to the particular structure shown and described except as specified in the following claims in which I claim:

1. In an electric lantern, the combination of a casing comprising two parts having threaded engagement which provides for longitudinal adjustment between said parts, a battery mounted in the casing and engaging with one end thereof to hold it against rotary movement with respect to the casing, a supporting ring rotatably mounted in the opposite end of the casing and projecting outwardly through an opening therein, a reflector member fitting in the ring and projecting therefrom, a disc of insulating material secured to the inner end of the reflector and rotatable therewith, means carried by the disc and extending outwardly through the reflector for holding electric bulbs, switch contact members on the disc, compression spring battery terminal contacts interposed between the battery and the disc and adapted to engage with said switch contact members, and circuits from the switch contact members to the bulbs, the switch contact members being positioned so that circuits from the battery will be opened and closed as the disc is rotated by turning the reflector member.

2. In an electric lantern, the combination of a casing comprising two parts detachably connected together, a ring rotatably mounted in one end of the casing and projecting through an opening therein, a reflector fitting in the ring and projecting beyond the same, a globe engaging with the lower end of the reflector, means for releasably fastening the reflector and ring together, a stand formed of wire or the like secured to the ring and extending beyond the globe, lamp sockets mounted in the reflector, lamps carried by said sockets and enclosed in the globe, a battery in the casing, a switch enclosed in the casing and circuits from the battery to the lamps including said switch, the arrangement being such that the switch may be actuated by rotating the casing and parts movable therewith with respect to the stand and parts connected therewith.

3. In an electric lantern, the combination of a casing including a lower section and an upper section having threaded engagement therewith, a handle secured to the lower section, a stand, reflector means secured to the stand and rotatably mounted in one end of the casing, a disc of insulating material carried by the reflector means and positioned within the casing, a center contact on the disc, switch segments carried by the

disc, a battery mounted in the casing with one end having frictional engagement with the casing whereby it may be rotated therewith, a spring terminal on the battery engaging with the center terminal on the disc and mounted eccentrically, a second spring terminal on the battery adapted to engage with said segments, said spring terminals serving to hold the battery in frictional engagement with the casing, lamp sockets mounted in the reflector member, and circuits from said lamp sockets to the center contact on the disc and to said segments, said circuits including a bus bar on the lower face of the disc for connecting two of the circuit members leading from the disc, the arrangement being such that when the casing or parts connected therewith is rotated with respect to the stand and parts connected therewith, the switch will be actuated to open and close the circuits from the battery to the lamps.

4. In an electric lantern, the combination of a battery casing having an inwardly projecting flange at the bottom thereof defining a circular opening, a supporting ring fitting in said opening and having an outwardly extending shoulder resting on said flange whereby it is movably mounted in the casing, a stand secured to said supporting ring, a reflector member rotatably mounted in said supporting ring and having a flange extending outwardly over the flange on said ring, adjustable means for locking the reflector member to the ring, a lamp socket associated with said reflector member and extending outwardly through the lower end thereof for receiving a light bulb, a disc mounted on the upper end of the reflector member, means for securing the disc to said member, switch contacts on said disc, conductors from said contacts to the lamp socket, a battery mounted in the casing, spring contacts on the battery interposed between the battery and the disc and adapted to coact with the first named contacts for opening and closing the circuit to the lamp, said springs being sufficiently strong to support the battery in normal position with its opposite end in engagement with the casing whereby the battery will be held against rotation in the casing, said springs also serving to hold the inwardly projecting flange on the casing in yielding engagement with the flange on the supporting ring whereby the stand and parts connected therewith will have a limited movement with respect to the casing which is resisted by said springs, and means on the stand adapted to engage with the flange on the casing to limit the movement of the stand and parts connected therewith with respect to the casing.

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