

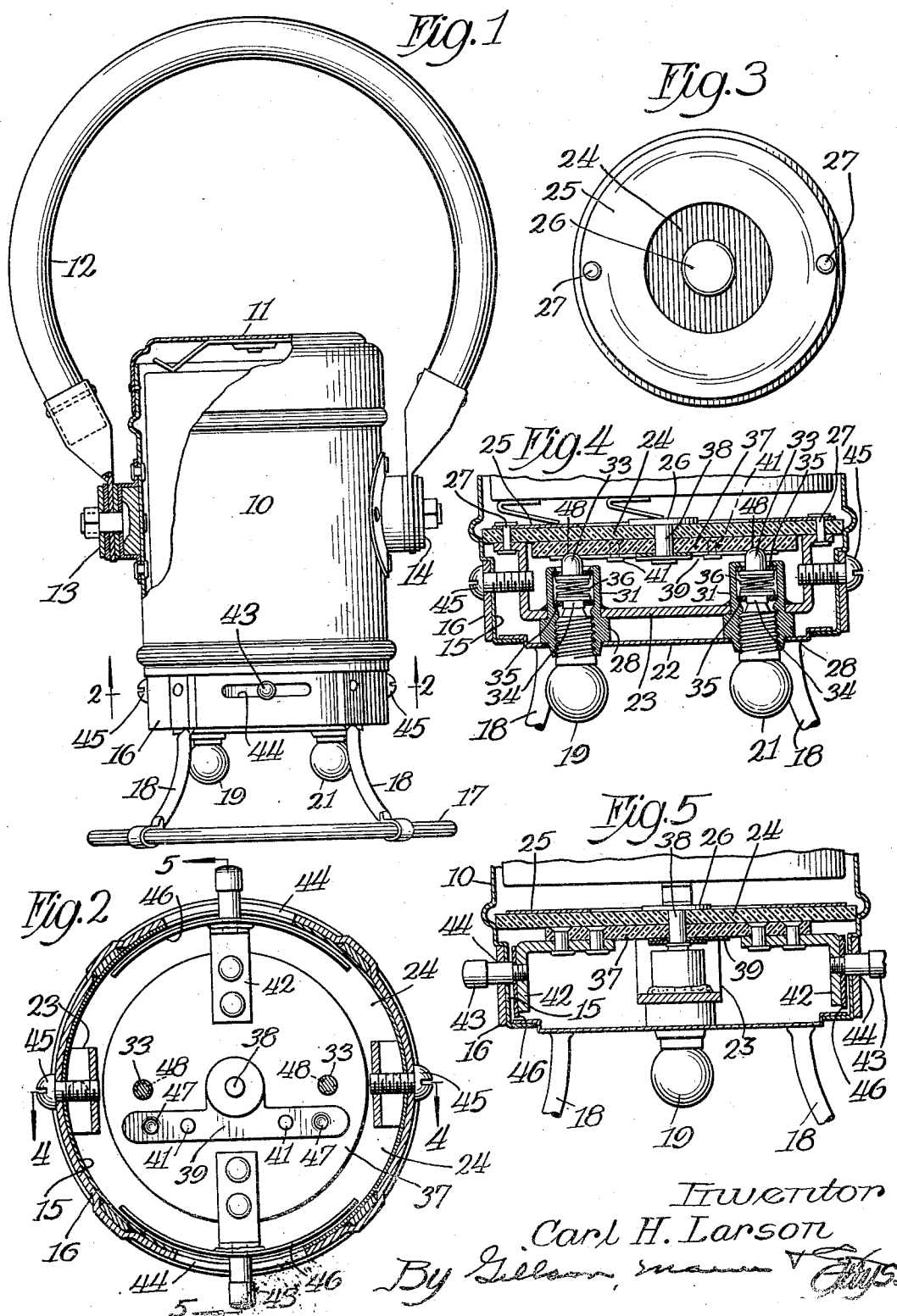
Jan. 3, 1933.

C. H. LARSON
ELECTRIC HAND LANTERN

1,893,292

Filed Oct. 18, 1930

2 Sheets-Sheet 1



Inventor
Carl H. Larson

By *Gilson*, *maker* *Eng.*

Jan. 3, 1933.

C. H. LARSON

1,893,292

ELECTRIC HAND LANTERN

Filed Oct. 18, 1930

2 Sheets-Sheet 2

Fig. 6

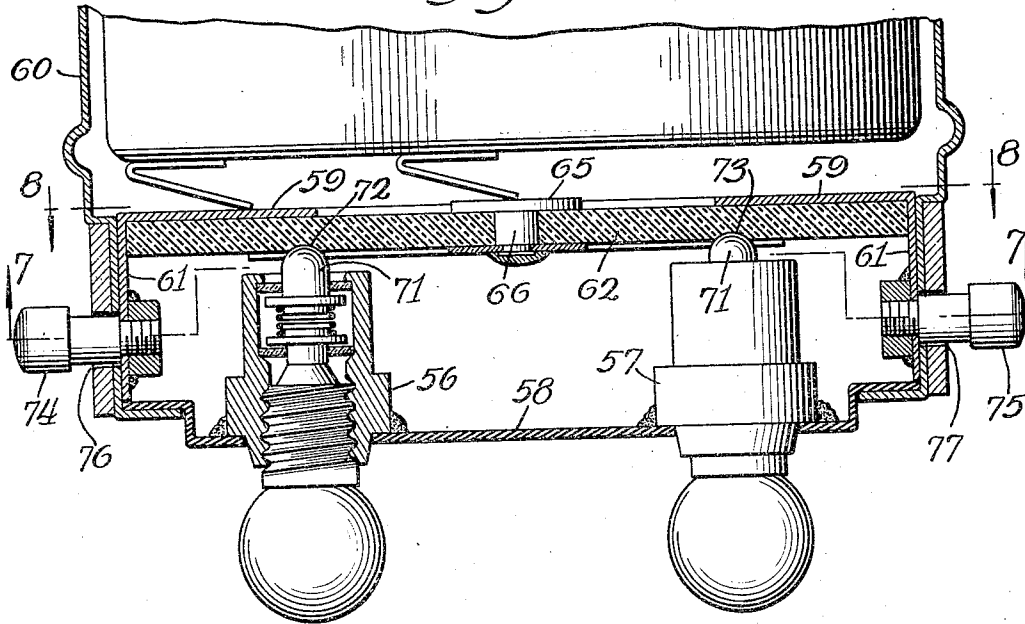


Fig. 7

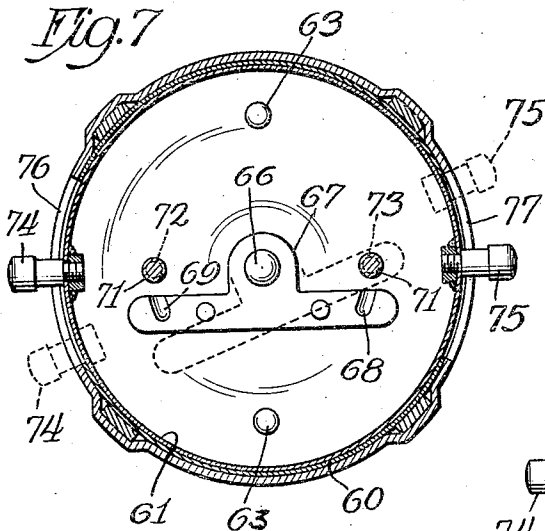
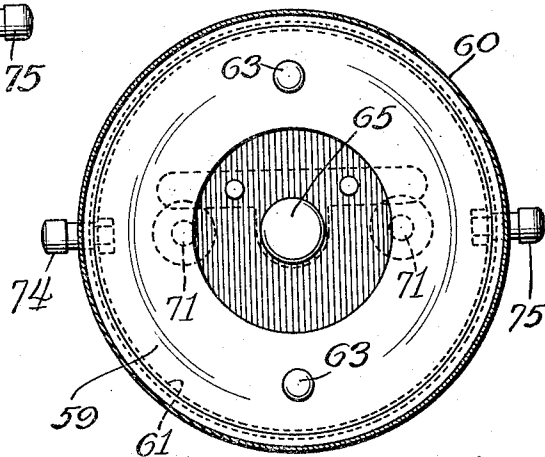


Fig. 8



Inventor
Carl H. Larson
By *Gilson, Mann & Co. Attys.*

UNITED STATES PATENT OFFICE

CARL H. LARSON, OF ELKHART, INDIANA, ASSIGNOR TO THE ADLAKE COMPANY, A CORPORATION OF ILLINOIS

ELECTRIC HAND LANTERN

Application filed October 18, 1930. Serial No. 489,553.

This invention relates to electric hand lanterns and has for its objects to provide a rugged and simple hand lantern and particularly to provide switch mechanisms for the lantern which have a minimum number of parts and such surety of operation that the performance of the device will have a certainty exceeding the rigorous standards of railway practice.

These and other 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 the lantern;

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

Fig. 3 is a top view of the partition illustrated in Figs. 2 and 4.

Fig. 4 is a vertical, diametrical section through a portion of the lantern, as indicated by the line 4—4 on Fig. 2;

Fig. 5 is a vertical, diametrical section through the same portion of the lantern, but at right angles to the view shown in Fig. 4, as indicated by the line 5—5 on Fig. 2;

Fig. 6 illustrates a vertical, diametrical section through the switch mechanism and a portion of the lantern with a modified form of switch;

Fig. 7 is a bottom view of the switch on the line 7—7 of Fig. 6; and

Fig. 8 is a top view of the switch on the line 8—8 of Fig. 6.

With reference to the figures, the lantern is composed of a sheet metal casing 10 which for convenience I prefer to make cylindrical. A removable cover 11 closes the upper end of the casing, and a bail 12 which is preferably made of insulating material is attached to the casing at the trunnions 13 and 14. I prefer to restrict the lower portion 15 of the casing, as shown in Fig. 4, and to force thereover an annular ring 16 supported on a base ring 17 by a plurality of legs 18. Preferably, the diameter of the base ring 17 exceeds that of the casing 10 to form a more effective guard for the lamps 19 and 21 and the switch knobs 43.

The lower end of the casing is closed by a polished reflector 22. It is a matter of manu-

facturing preference whether the reflector 22 shall be integral with the casing 10 or separate therefrom. It is here shown as separate, since I prefer to make the casing of heat treated aluminum and the reflector out of chromium plated brass.

The construction of the switch may be understood by reference to Figs. 2, 3, 4 and 5.

A bridge 23 (here shown as a single strap, but which may be a cup or any convenient form) carries an insulating disk 24 which, preferably, is riveted thereto. Upon the upper face of the disk 24 are riveted a metal annulus 25 and a central contact plate 26. The rivets 27 which connect the bridge 23 and the plate 24 may extend through the annulus 25 and electrically connect it to the bridge.

The lamp sockets 28 and 28 extend through the bridge 23 and are here shown as soldered to it. Any mechanical fastening which is electrically secure is acceptable. The sockets comprise the conventional metal threaded shells 31, 31, insulated spring plungers 33, and spring contacts 34. These are maintained in proper position by the insulating washers 35 and are pushed outwardly by the springs 36.

A second circular plate 37 of insulating material is pivoted upon the stud 38 which electrically connects the contact plate 26 with a contact strip 39. This strip may also be held on the plate 37 by rivets as at 41, 41. Two small angle pieces 42, 42 are also riveted to the disk 37, the downwardly extending portions of which carry the knobs or handles 43. Clearance slots 44 for the handles are cut through both the casing 10 and ring 16.

Dirt and cinders are prevented from sifting into the switch assembly by the dust shields 46 which are held in position upon the angles 42 by the knobs or handles 43.

The entire switch assembly is held in place by the screws 45 passing through the ring and casing and tapped into the bridge 23.

Pushing upon either knob 43 rotates the disk 37 and causes contact to be made with either of the spring plungers 33. The depressions 47, 47 in the contact 39 and depressions 48, 48 in the insulating disk 37 form sockets into which the plungers are forced

and maintain the switch in its on or off positions.

The exigencies of railway service, for which this lantern is particularly adapted, demand that a lamp be held in instant readiness in case of failure of the first lamp. The switch and socket arrangement just described produce this result.

It, of course, follows that the mechanism is equally adapted to be used when but one lamp and socket is necessary, or where more light or a larger light source is required, the switch could be arranged to light the two lamps simultaneously.

The modification shown in Fig. 6 combines the function of the bridge and the reflector into one element as far as the support of the sockets is concerned and maintains the spaced relationship between the revolving plate and the socket terminals by means of a skirt. With reference to the figure, it is noticed that the sockets 56 and 57, the construction of which is similar to those previously described, are soldered to the reflector 58. The outer terminal of the battery engages an annular plate 59 which turns at right angles at the inner periphery of the casing 60 to form a cylindrical skirt 61. A disk 62 of insulating material is riveted to the plate 59 at 63, 63. The central terminal of the battery engages a small contact plate 65 which is connected through a central rivet 66 to a contact strip 67 riveted to the opposite face of the insulating disk 62. As before, depressions 68 and 69 are formed in the contact strip which are engaged by the plungers 71 when the switch is in proper position. The depressions 72 and 73 are engaged by the plungers 71 when the switch is in the off position. Studs 74 and 75 are screwed into the skirt 61. For strength and safety, they may engage nuts which are soldered to the skirt or be tapped into any thickness provided in the metal of the skirt. Clearance for the studs 74 and 75 is provided by the circumferential slots 76 and 77. In this modification, the contact is completed merely by pushing upon the studs 74 and 75. The dust shields illustrated in Figs. 2 and 5 are unnecessary since the skirt 61 itself performs the function.

The simplicity of the switch mechanisms illustrated assures long life and dependable operation in the rigorous service for which these lanterns are designed to be used.

What I claim, therefore, is:

1. In a lantern, a casing for a battery, a transverse support at one end of the casing carrying a lamp socket, an insulating disk carried by the support having an annular contact for one terminal of the battery upon its upper face, a second contact thereon, a pivotally mounted disk having a strip of conductive material thereon electrically connected to said second contact adapted to make and break a circuit through the lamp and

the other terminal of the battery, a base fitting over a portion of the casing, angle members upon the disk, and diametrically located handles affixed to the angle members extending through circumferential slots cut in the casing.

2. In a lantern, a casing for a battery, a transverse support at one end of the casing carrying a lamp socket electrically connected therewith, a fixed insulating disk having a contact for one terminal of the battery upon its upper face adjacent to its margin electrically connected with the support, a central contact thereon for the other battery terminal and a strip of conductive material movably mounted beneath the insulating disk, said strip being electrically connected to said second contact and adapted to make and break a circuit through the lamp and the other terminal of the battery by being moved relatively to the lamp socket.

3. In an electric lantern of the class described, the combination of a casing adapted to house a battery, a combination switch and lamp mounting assembly associated with the casing, said assembly comprising an insulating disk, a relatively small, centrally located, metallic contact member on the upper face of the insulating disk adapted to engage one terminal of the battery, a second metallic contact also on the upper face of the insulating disk, but spaced from the central contact member, adapted to engage the other terminal of the battery, a lamp, a socket member for supporting the lamp beneath the insulating disk, means for permanently electrically connecting the second contact to the socket, a metallic conductor electrically connected with the central contact member having contact means whereby relative movement between the metallic conductor and the lamp will cause the means to connect with the lamp base to thereby complete an electrical circuit through the lamp.

4. In an electric lantern of the class described, the combination of a casing adapted to house a battery and being open at its lower end, a combination switch and lamp mounting assembly adapted to close said opening, said assembly comprising an insulating disk, a relatively small centrally located, metallic contact member on the upper face of the insulating disk adapted to engage one terminal of the battery, a concentric metallic annulus also on the upper face of the insulating disk, but spaced from the central contact member, adapted to engage the other terminal of the battery, a lamp, a socket member for supporting the lamp beneath the insulating disk, said socket member including a resilient base extension for the lamp, means for permanently electrically connecting the annulus to the socket, a metallic conductor electrically connected with the central contact member and arranged

whereby relative movement between the metallic conductor and the lamp will cause the conductor to connect with the lamp base to thereby complete an electrical circuit through the lamp, and means for holding the connecting conductor in selected position including a depression therein into which the resilient base extension of the lamp is adapted to fall.

5. In an electric lantern, a casing, lamp sockets attached to a head closing one end of the casing, an annulus of conductive material bearing upon the head closely fitting the inner wall of the casing and maintaining a rotatable switch plate of insulating material in spaced relation to the sockets, spring pressed plungers forming the central contacts on the sockets, a conductive element on switch plate adapted to engage the plungers, battery contacts upon the opposite side of the switch plate, and means to rotate the plate.

6. In an electric lantern, a casing having one open end, a cylindrical section in the casing adjacent the closed end, an annulus conforming to the interior of the casing and freely rotatable therein maintained in the cylindrical section, an insulating disk mounted upon the annulus bearing plates forming contacts adapted to engage the terminals of a battery, sockets projecting through the end of the casing and contact elements carried by the plate adapted to engage one terminal of the socket.

7. An electric lantern having a casing provided with a cylindrical section adjacent one end, an insulating disk mounted within the casing and freely revolvable therein, a skirt depending from the disk and serving to maintain the disk in spaced relation with respect to the adjacent end of the casing, a plurality of lamp sockets projecting through the end of the casing, contact plates carried upon the disk adapted to engage the terminals of a battery, and a conductive element upon the opposite side of the disk and in electrical communication with one of the contact plates adapted to engage a terminal of a socket, upon the revolution of the disk.

In testimony whereof I affix my signature.
CARL H. LARSON.