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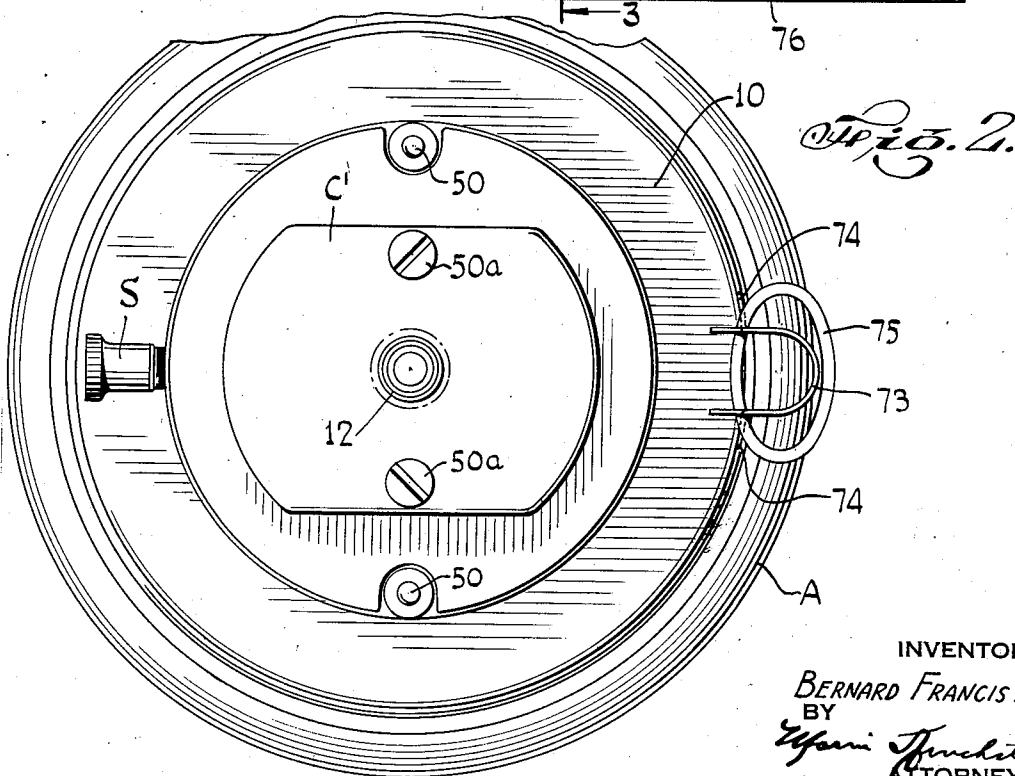
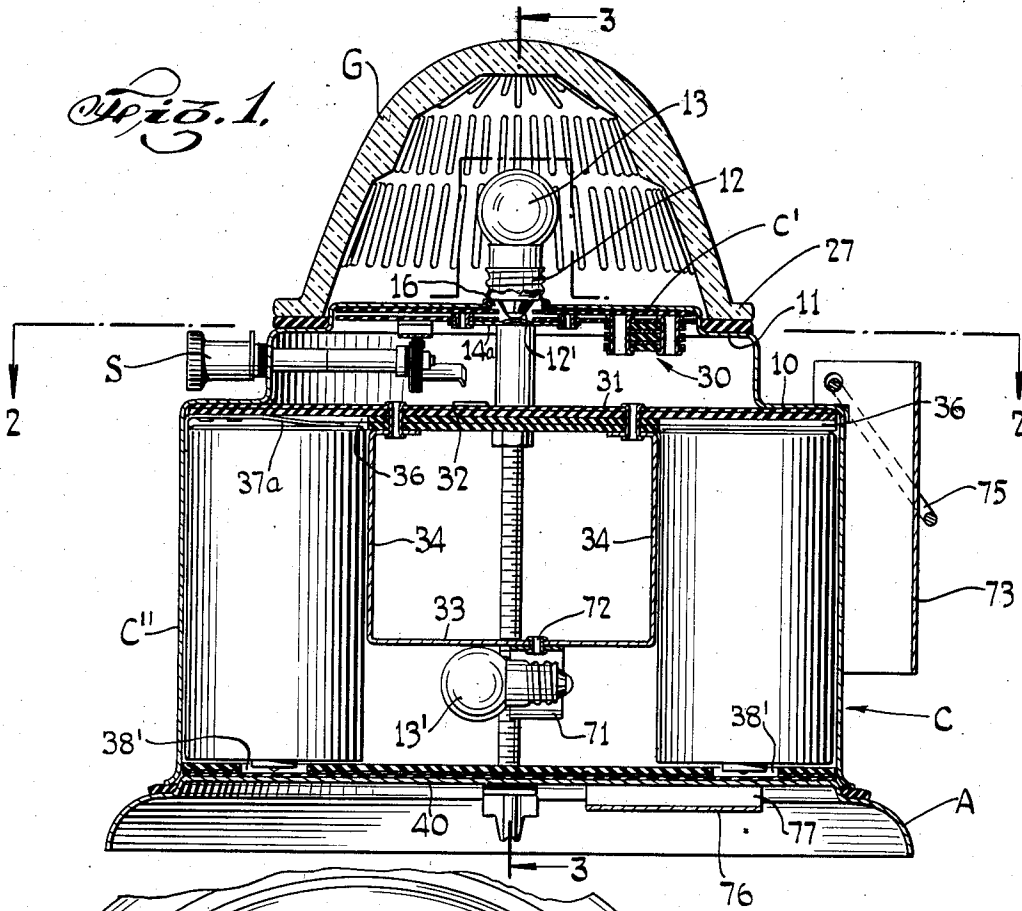
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2,224,742

ELECTRIC DEVICE

Filed Aug. 18, 1937

3 Sheets-Sheet 1



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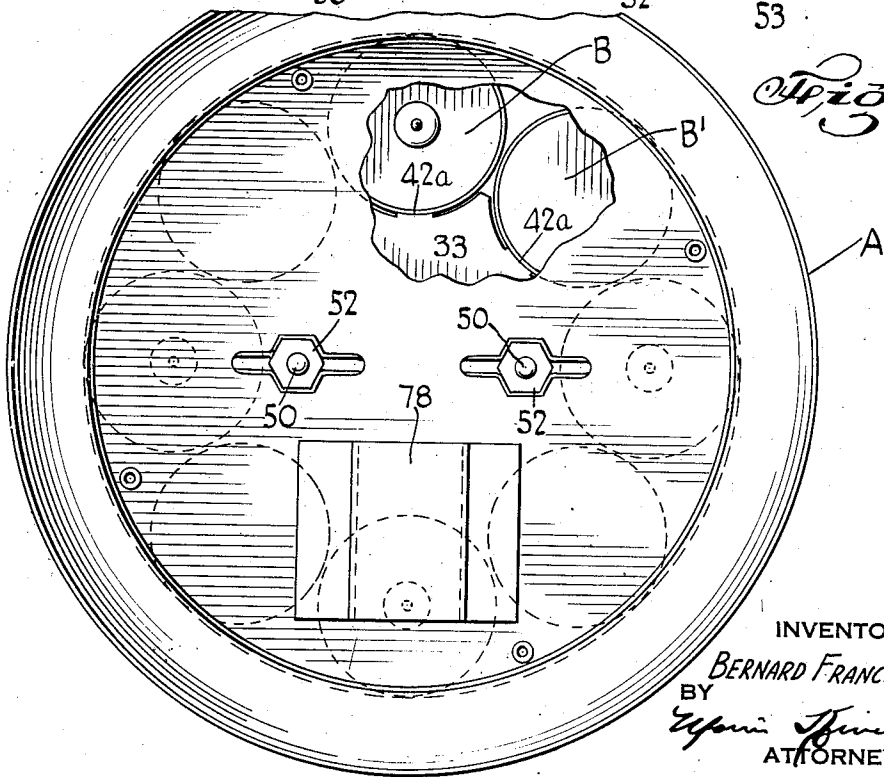
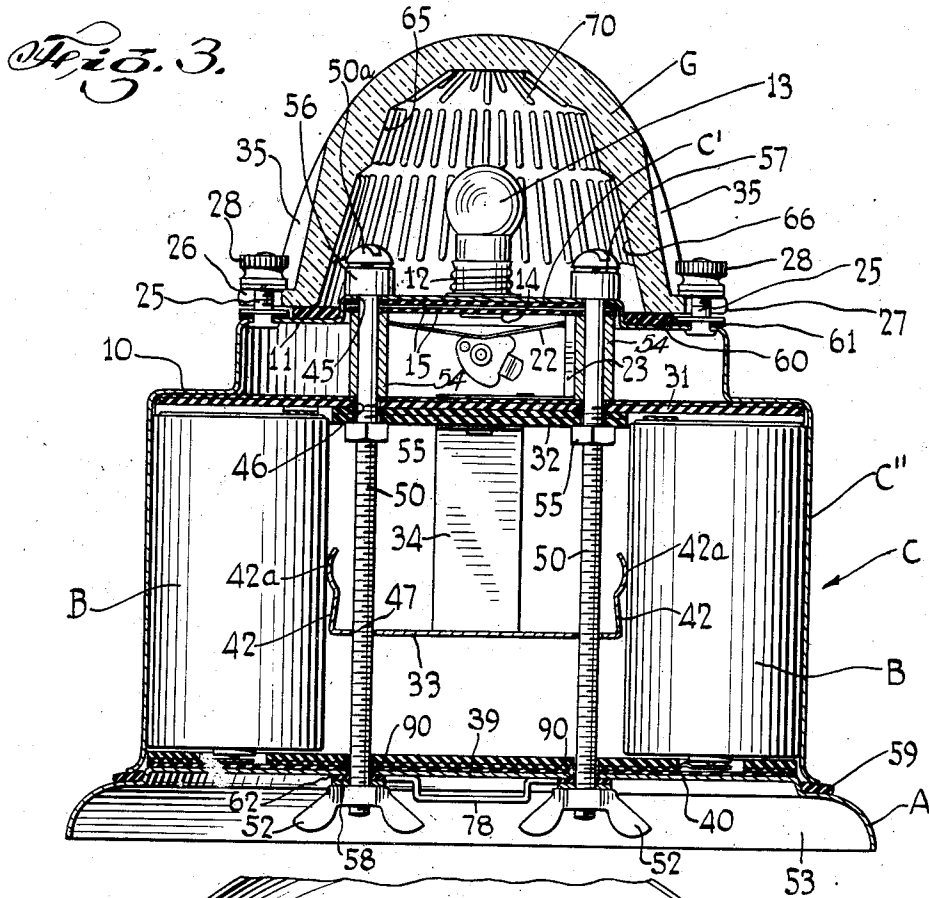
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ELECTRIC DEVICE

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3 Sheets-Sheet 2



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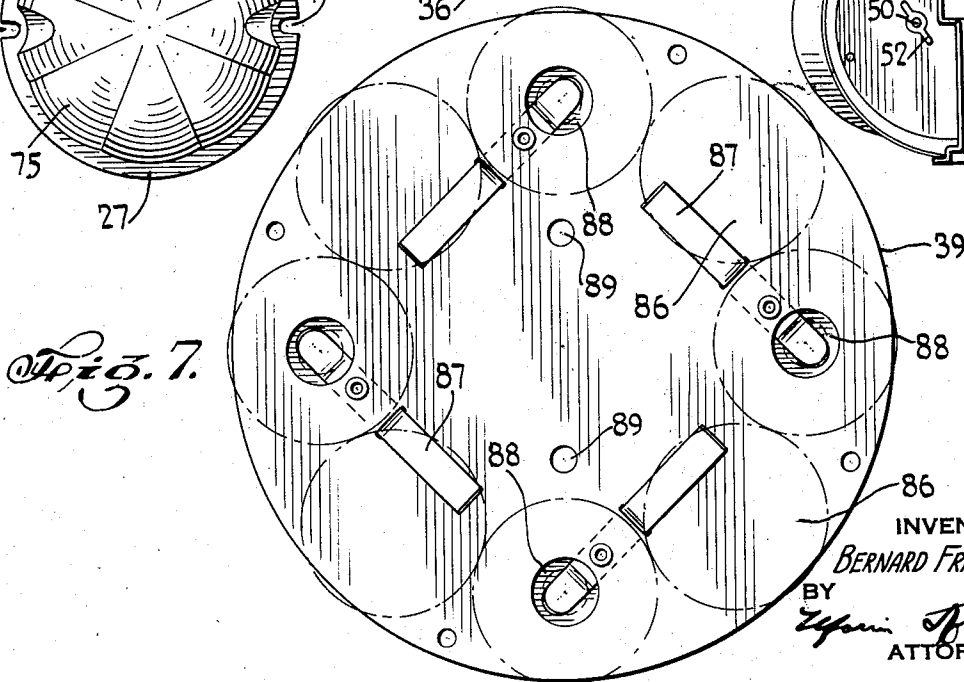
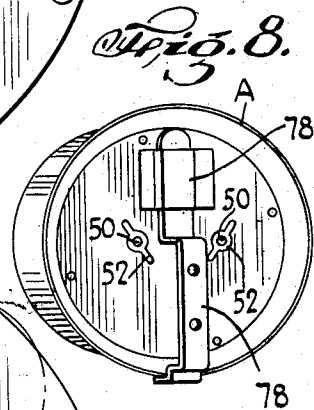
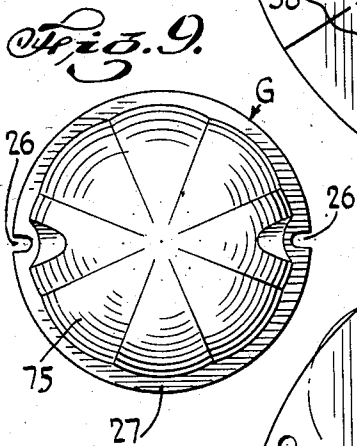
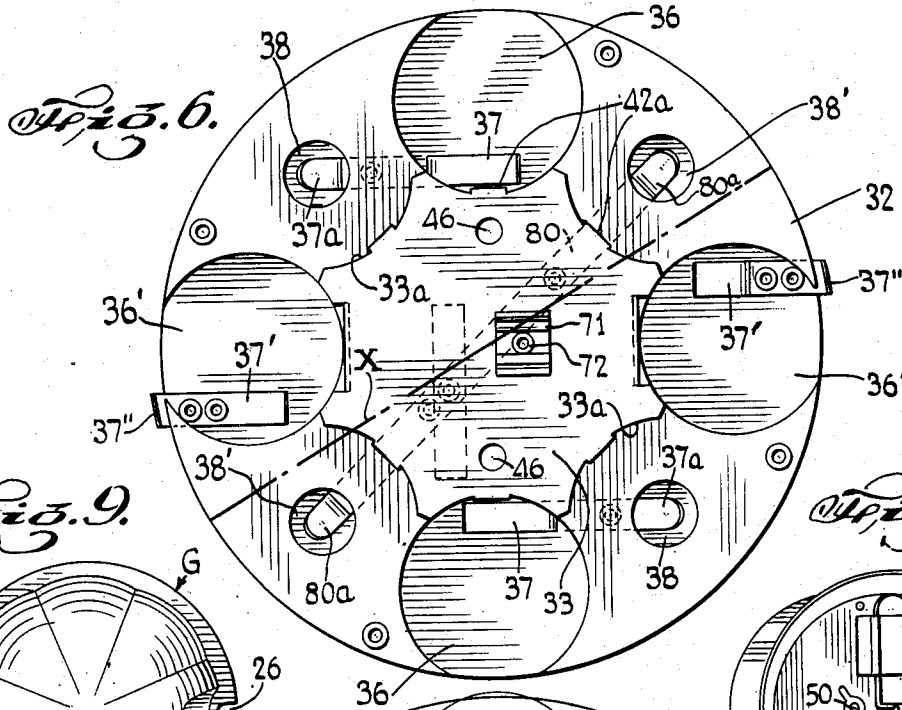
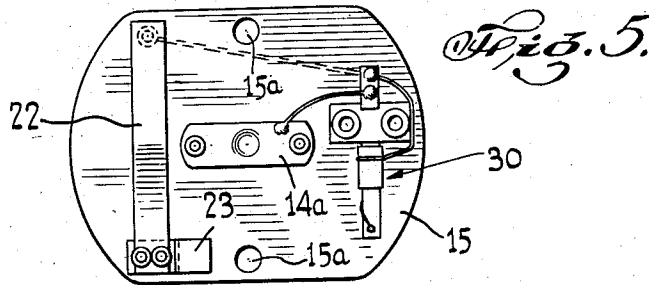
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ELECTRIC DEVICE

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3 Sheets-Sheet 3



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2,224,742

ELECTRIC DEVICE

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Application August 18, 1937, Serial No. 159,664

4 Claims. (Cl. 240—10.6)

This invention relates to portable electric lanterns. More particularly this invention relates to the type of portable electric lanterns adapted for use as a caution or safety light, and embodying an intermittent flashing device designed to further attract attention and to decrease consumption from the power source.

One of the objects of my invention is to provide a portable electric lantern of the character described having a novel and improved housing construction, and means of assembly therefor, and which includes improved means for housing a plurality of battery cells.

Another object of my invention is to provide a portable electric lantern of the character described having a translucent dome of novel construction and design adapted to diffuse the rays of light from a light source within said dome.

Still another object of my invention is to provide a portable electric lantern of the character described which shall have maximum lighting life by providing a double battery circuit in parallel.

Still another object of my invention is to provide a portable electric lantern of the character described which shall comprise relatively few and simple parts, which shall be easy to assemble, which shall be relatively inexpensive to manufacture and to maintain, which shall be highly waterproofed and electrically insulated, which shall be adapted to the use of standard size unit flashlight batteries, which shall be rugged in construction, yet neat in appearance and which shall operate with a high degree of efficiency.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

Certain features shown and described but not claimed in this application are described and claimed in my copending application, Serial No. 159,663 filed simultaneously herewith.

In the accompanying drawings, in which is shown one of the various possible embodiments of this invention:

Fig. 1 is a vertical section view of a portable electric lantern embodying my invention;

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

Fig. 3 is a cross-sectional view taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is a bottom plan view of the device illustrated in Fig. 3;

Figs. 5, 6 and 7 are detail views of portions of the device shown in Figs. 1 to 4; and

Fig. 8 is a bottom perspective view, of reduced

size, of the device shown in Figs. 1 and 3, illustrating one of its uses.

Fig. 9 is a plan view of the light transmitting dome.

Referring now in detail to the drawings, I have disclosed a portable electric lantern constructed in accordance with my invention and adapted for use as a safety device on highways or for any other similar use. The said lantern comprises a metallic housing or casing C supported on a base A in a manner soon to be described. The casing C may comprise a cylindrical side wall C' having a stepped construction adjacent the top thereof forming annular shoulders 10 and 11 and a top wall C'' which may be integral with the wall C'. Fixed to the top wall C' is a metallic screw shell 12 of usual construction and design and adapted to receive therein the threaded shank of an electric lamp 13. The lamp 13 is provided with an electrical contact portion 12' adapted to project thru an aperture 16 in the top wall C' to contact a conductor member 14 carried by an insulated plate 15. The member 14 and plate 15 are so designed and arranged in cooperation with a switch S, as to energize the lamp 13 from a source of supply, such as for example a plurality of batteries, in a manner as fully shown and described in my said co-pending application Serial No. 159,663. As shown in Fig. 5 of the drawings, and as described in my said co-pending application, the plate 15 may also, if desired, support a flasher device 30 designed to cause intermittent flashing of the lamp 13 to provide a flash safety signal light of the type designed to be used by automobilists on highways when they are obliged to stop for repairs at night, or for any other similar uses. The plate 15 also carries a pair of contact members 22 and 23 adapted to cooperate with a switch S rotatably mounted in the wall C' of the casing and constructed and arranged as described in my said co-pending application.

Mounted on the shoulder 11 is a dome G of translucent material such as glass and adapted to surround and enclose the lamp 13 projecting upwardly therein as shown. The dome G may be detachably secured to the casing C by any suitable attaching means, such as for example, a pair of screw threaded pins 25 (see Fig. 3) and which may be diametrically disposed and rigidly attached to the shoulder 11 of the casing C and adapted to project upwardly therefrom. The pins 25 are received in a pair of diametrically opposed notches 26 in the flange 27 of the dome G. A pair of knurled nuts 28 may be screwed to the pins 25 to releasably retain the said globe in attachment with the casing C. To facilitate the mounting of the nuts 28, the globe G is provided with recessed portions 35 in the outer surface thereof adjacent the notches 26.

In accordance with my invention, I have pro-

vided means for mounting a plurality of battery cells B and B' connected in series in a circular path adjacent the cylindrical wall C''. To this end I have provided a structure which may comprise the laminated discs 31 and 32 of insulating material (or a single disc may be employed, if desired) and a plate 33 parallel to the discs 31 and 32 and connected thereto in spaced relationship by means of a pair of arms 34 which may be integral with the plate 33 at one of their ends and having their opposite ends fixed to the underside of the disc 32.

The undersurface of the disc 32 is provided with a plurality of diametrically disposed recessed areas 36 and 36' adapted to receive therein one end of the dry cells B. The said recesses 36 and 36' are provided with resilient conductor members 37 and 37', respectively, adapted to electrically contact one pole of the cells B. Interposed between each pair of cells B is a cell B' adapted to have the opposite pole thereof from that of the cells B received in a plurality of diametrically opposed recesses 38 and 38', circumferentially disposed between the recesses 36 and 36'. It is noted that each of the contact members 37 has an extending portion 37a thereof disposed in the adjacent recess 38, while the ends 80a of the resilient contact members 80 are disposed in the recesses 38'. It is also noted that the contact members 37' disposed in the recesses 36' have extending portions 37'' adapted to contact the metallic casing C. To complete the circuit thru the batteries B and B' there is provided a second disc member 39 similar to the disc 32 and adapted to rest upon the top wall 40 of the base A. The disc 39 is also provided with a plurality of spaced recesses 86 and the recesses 88 interposed between the said recesses 86. The disc 39 is slightly turned out of direct alignment with the disc 32 so that the recesses 36 and 36' of the disc 32 are in axial alignment with the recesses 88 of the disc 39 and the recesses 38 and 38' of the disc 32 are in axial alignment with the recesses 86 of the disc 39. A plurality of resilient contact members 87 are adapted to interconnect opposite poles of adjacently disposed batteries, in a manner similar to the construction of the member 37. To aid in positioning the battery cells B and B', the plate 33 is provided with a plurality of arcuate notches 33a in the periphery thereof to conform to the peripheral contour of the batteries. To retain the said batteries in position the plate 33 may be provided with integral extending arms 42 (see Fig. 3) provided with arched portions 42a designed to frictionally and resiliently engage the side walls of the battery cells B and B'.

It is thus seen from the above described construction that the circumferentially disposed batteries are arranged in two independent circuits comprising groups of four adjacently disposed battery cells connected in series, while the two circuits are connected in parallel by means of the casing wall and the member 80. The advantage of this type of construction lies in the fact that in emergencies the device may be operated on one circuit only. Also, the life of the battery cells is thereby increased. For convenience in recognizing the two independent circuits the disc 32 may be provided with a dividing line X or if desired each half of the disc 32 on opposed sides of the line X may be colored differently.

As will be seen from Figs. 6 and 7 of the drawings, the recesses 38, and 38' in the disc 32, and the recesses 88 in the disc 39 are so constructed

and arranged with respect to the portions 37a and 80a of the contact members 37 and 80 that only one end of the cells B' will be able to make contact therewith. In other words, if a cell B' were inserted in a reversed position, there would be no electrical contact made, thus preventing a possible short circuit. It is also noted that a short circuit will be prevented when a battery cell B is reversed in the recesses 36 and 36' in the disc 32, and in the recesses 88 in the disc 39 due to the fact that the contact members 37 and 37' are disposed at a spaced distance from the center of the recesses 36 and 36' and out of possible contact with the centrally disposed terminal member of one end of the cell B. Only when the proper end of the cell B is placed in the recesses 36 and 36' will there be a proper electrical contact made.

By my invention I have provided the following construction for maintaining the plate 15, the discs 31, 32 and 39 as well as the battery cells B and B' in proper assembled relationship with respect to the casing C and the base A.

The top wall C' is provided with a pair of spaced apertures 45. In registered alignment with the apertures 45 are the pairs of apertures 15a in the plate 15, 46 in the discs 31 and 32; 47 in the plate 33; 89 in the disc 39, and 90 in the top wall 40 of the base A. By my invention I have provided a pair of relatively long rods or screws 50 adapted to be passed thru the pairs of apertures 45, 15a, 46, 47, 89 and 90, above described, and having the heads 50a thereof adapted to abut the outer surface of the top wall C'. The screws 50 may be retained in position by a pair of wing nuts 52 adapted to abut the bottom surface of the wall 40 of the base A. The wing nuts 52 are designed to be received in the hollow area 53, so as to clear the bottom edge of the said base A, when it rests upon a flat surface. To maintain the proper spacing of the plate 15 with respect to the discs 31, 32, as shown in the drawings, I provide a pair of tubular spacer members 54 freely received on the screws 50, as shown, one end of which is held in abutting relationship with the plate 15 while the other end thereof abuts the discs 31, 32. A pair of nuts 55 which may be screwed on the screw 50, serve to maintain the proper spacing of the plate 15 and the discs 31, 32.

It is thus seen from the above described construction that the two members 50 serve to hold in assembled relationship the essential elements of my flasher device and switch members.

If desired, a pair of spacer members 56 may be provided between the screw heads 50a and the top surface of the casing wall C'. Also suitable lock washers 57 and 58 may be employed if desired.

I have also provided means for rendering my lantern weatherproof so that it may be adapted for use in all sorts of weather. To this end, I have provided between the junction of the base A and the casing wall C', a suitable packing such as a rubber washer 59. Also between the flange 27 of the dome G and the portion 11 of the top casing wall C' I have provided a rubber washer member 60. There is also provided rubber washers 61 between the members 25 and the casing portion 11, and a pair of washers 62 between the undersurface of the base wall 40 and the nuts 52. Also, as clearly shown and described in my co-pending application Serial No. 159,663, the switch S is waterproofed, making the entire device waterproof.

By my invention, I have also provided an improved construction for the dome G, which is

clearly illustrated in Figs. 1, 3 and 9 of the drawings and which will now be described. The dome G is preferably made of translucent material such as glass and may be suitably colored if desired. It is noted that the inner surface of the dome is constructed of a stepped formation, defining a number of circumferential ridges 65 and 66, each of which are provided with a plurality of spaced ribs 70 which are designed to diffuse the light from the lamp 13 in such manner that the rays of light will be visible from any angle and from a relatively great distance. By the above described construction, I am able to use a lamp which is of relatively small size in order to produce relatively large amount illumination. As shown in Fig. 9, the outer surface of the dome G is arranged in a plurality of rounded sectors 75 terminating in an area adjacent the top of the dome, to further aid amplification of the illumination furnished by the lamp 13.

As shown in Fig. 1, there may also be provided a spare bulb carrier which comprises a resilient clip member 71 attached to the plate 33 by any suitable attaching means, such as an eyelet fastener 72 as shown, and which is adapted to carry a spare bulb 13'.

There may be provided if desired a receptacle 73 which comprises a substantially U-shaped metallic member provided with flanges 74 which are adapted to be fixed to the outer surface of the casing wall C''. The receptacle 73 is adapted to hold a flag or similar signalling article so that my portable device may be used during the day when an electric light would be ineffective. The receptacle 73 may be provided with a ring member 75 adapted for carrying or storing the same by hanging the portable lantern on a hook when not in use.

There may also be provided if desired a member 76 which may be fixed to the wall 40 of the base A and which is provided with a guideway into which there is adapted to be inserted a suitable fastening member 78 (see Fig. 8) adapted for use in attaching the flasher device to an automobile to serve as a tail light upon failure of the automobile tail light, or which may be used for any other similar purpose where a light is desired.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An electric device of the character described comprising a casing having a cylindrical side wall, a top wall and a bottom wall, a socket mounted in said top wall and adapted to receive an electric light bulb therein, a plurality of battery cells in said casing, said cells having projecting terminals of reduced diameter at one end thereof and arranged in a circular path adjacent said side wall, a flat circular insulating member overlying said bottom wall, said member being provided with a plurality of spaced recessed

areas of the same size as and adapted to receive therein the said projecting terminals of alternate battery cells, a second plurality of recessed areas interposed between said first named recessed areas, said last named recessed areas being larger than said first set of recessed areas and adapted to receive therein the ends of the remainder of said battery cells opposite to that of the projecting terminal ends, electrical contact members cooperating with adjacent recessed areas adapted to connect said plurality of battery cells in series, and means for connecting said battery cells to said socket.

2. An electric device of the character described comprising a casing having a cylindrical side wall, a top wall, and a bottom wall, a socket mounted in said top wall and adapted to receive therein an electric light bulb, an insulating disc overlying said bottom wall, a second insulating disc adjacent said top wall, a plurality of battery cells interposed between said discs and arranged in a circular path adjacent said side wall, said cells having projecting terminals of reduced diameter at one end thereof and each of said discs being provided with a plurality of spaced recessed areas of the same size as and adapted to receive therein the said projecting terminals of half of said plurality of battery cells, a second plurality of recessed areas, said last named recessed areas being larger than said first set of recessed areas and interposed between said first named recessed areas adapted to receive therein the ends of the second half of said battery cells opposite to that of the projecting terminal ends, electrical contact members cooperating with adjacent recessed areas adapted to connect said plurality of battery cells in series, and means for connecting said batteries to said socket.

3. An electric device of the character described comprising a casing having a cylindrical side wall, a top wall and a bottom wall, means to position a plurality of batteries, each having a flat base terminal and a centrally projecting top terminal, in an annular path in fixed relationship relative to each other and adjacent said side wall, said means comprising an upper and a lower spacing plate of insulating material and a member disposed between said plates and within the annulus formed by said batteries, said means being adapted to receive adjacent battery cells with the terminals thereof oppositely disposed, means carried by said spacing plates to electrically connect said terminals in predetermined order, said connecting means comprising electrically conductive members having a contacting portion disposed centrally of a battery and a contacting portion disposed adjacent the periphery of an adjacent battery, whereby if similar terminals of a pair of adjacent batteries are adjacently disposed, said connecting means will be rendered ineffective, and means to move said spacing plates together relatively toward each other to firmly clamp said batteries therebetween, said bottom wall and said lower spacing plate being removable to provide access to the interior of said casing.

4. An electric device as set forth in claim 3 wherein those portions of said electrically conductive members not contacting said terminals of said batteries are insulated from said batteries by said plates.

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