T. J. MADIGAN.

BATTERY HAND LAMP.

APPLICATION FILED APR. 6, 1920.

1,364,393.

Patented Jan. 4, 1921.

Fig. 1,

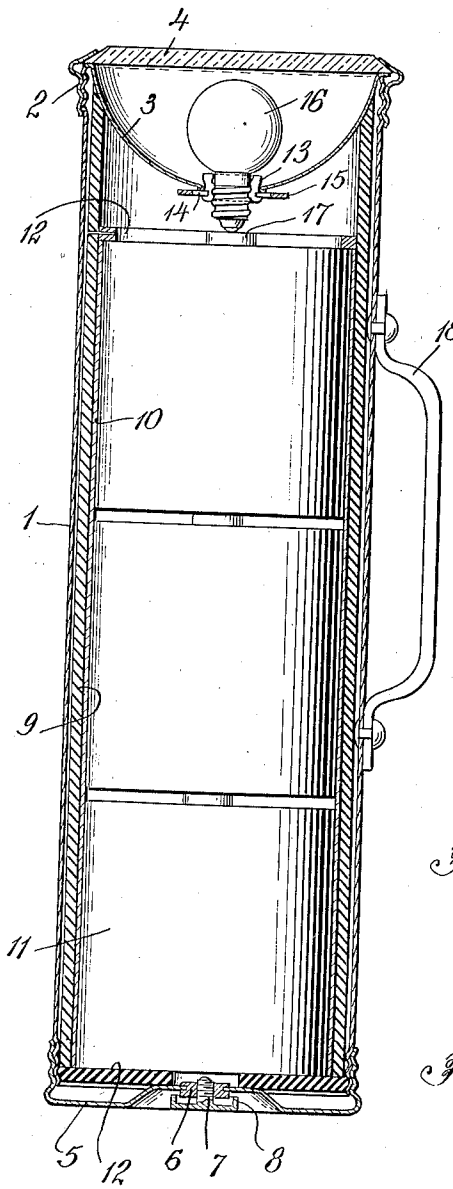


Fig. 2,

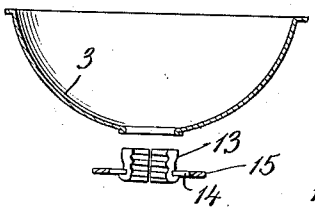


Fig. 3,

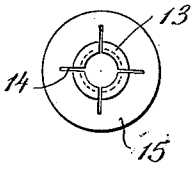


Fig. 4,

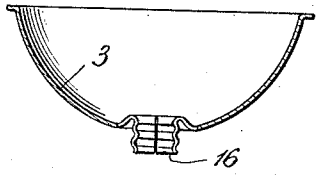


Fig. 5,

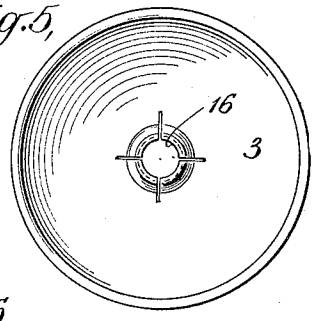


Fig. 6,

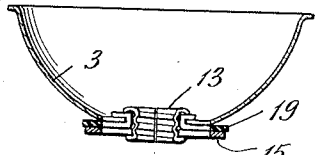
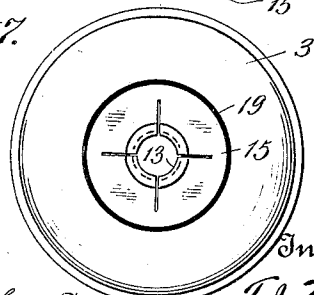


Fig. 7.



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UNITED STATES PATENT OFFICE.

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BATTERY HAND-LAMP.

1,364,393. Specification of Letters Patent. Patented Jan. 4, 1921.

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To all whom it may concern:

Be it known that I, THOMAS J. MADIGAN, a citizen of the United States, residing at Brooklyn, in the county of Kings, State of New York, have invented certain new and useful Improvements in Battery Hand-Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Battery hand lamps have proved very helpful to firemen, salvage workers and others who are called upon to go into unlighted buildings, often under conditions of danger and where reliability of the lamp is of prime importance. Under these trying conditions ordinary battery hand lamps have been found unreliable in two particulars. The switch mechanism, which often is of complicated construction, may have gotten out of order without the knowledge of the fireman, with the result that the lamp will not light up when he needs it most and when he has no time for making adjustments or locating the fault. Also, due to the rough usage to which these lamps are subjected on fire engines and the like, the incandescent lamp bulb may have gotten loose in its socket and so opened the circuit at the socket or even dropped out entirely.

It is the object of the present invention to provide a hand lamp wherein the lamp bulb is yieldingly gripped in its socket and will not become loose therein due to rough handling.

It is a further object to provide a hand lamp larger in dimensions than the ordinary hand lamp and so simplified as to its switch mechanism and other details as to offer maximum reliability and permanency of lighting under very severe conditions.

The details of the present invention and further objects and advantages of the embodiment hereinafter particularly disclosed will become clear from the following detailed description taken in conjunction with the accompanying drawings wherein:

Figure 1 is a sectional elevation of a hand lamp embodying the novel features of the present invention;

Fig. 2 is an exploded view of the reflector and its coöperating lamp socket;

Fig. 3 is a top view of the socket;

Fig. 4 shows a reflector wherein the split socket is made integral with the reflecting surface;

Fig. 5 is a plan view of the same;

Figs. 6 and 7 are, respectively, a sectional elevation and a bottom view of a modified form of socket.

In the embodiment illustrated, the cylindrical casing 1 of the hand lamp is of heavy sheet metal twelve to fourteen inches long and three inches in diameter with threads pressed into the metal at either end of the casing. Threaded to the front end is the usual ring 2 for holding reflector 3 and lens 4 against the end of the casing. At the bottom end of the casing and threaded thereto is a sheet metal cap 5, in the central opening of which is a bushing 6 having a threaded opening in which is rotatably mounted a stud 7 carrying a disk 8 by which the stud may be rotated to move it into or out of engagement with the naked zinc bottom of an adjacent dry cell and thus make or break the circuit through the lamp. Preferably, stud 7 and its disk 8 are housed in a recess in the bottom cap 5 so that the hand lamp will stand upright on its bottom cap.

Casing 1 is lined with an insulating tube 9 of hard fiber or other suitable material within which, enveloped in the usual paper carton 10, are a plurality of dry cells 11 of which three are shown in the drawing. These are placed end to end in series relation as is usual. A soft rubber disk 12 separates the lowermost dry cell from metal cap 5 and is removable when the dry cells are to be renewed. Tube 9, at the upper edge of the topmost dry cell, is provided with a ring 12 rigidly attached to the tube by nails or the like, against which the can of the topmost battery bears, thereby preventing the dry cells from shifting about in the casing and perhaps crushing in the inner fragile terminal of the lamp bulb. Reflector 3 has a central opening, as shown in Fig. 2, into which may be inserted the lamp socket, therein shown as comprising four segments 13, each soldered or otherwise permanently attached to a yielding finger 14 of a disk 15 and preferably formed therein by slitting the socket and the disk, as shown in Figs. 2 and 3. With this arrangement of parts, the split lamp socket can be inserted into the central opening of the reflector to receive

the threaded base of the incandescent lamp 16 and by screwing the lamp in far enough, the segments are caused to spring outward at their upper ends, as shown in Fig. 1, thereby taking a tight grip on the threads of the lamp and also taking a tight grip on the edge of the central opening of the reflector. The lamp will not thereafter shake loose in its socket and a good electrical connection to the lamp is at all times insured.

In the modification shown in Fig. 4, the lamp socket is integral with the reflector and comprises a plurality of resilient segments 16 formed by splitting the socket as with a saw or milling cutter. In Figs. 4 and 5 the socket is shown as comprising four segments, but more or less than this can be used if desired.

In the embodiment illustrated in Fig. 1, the electrical circuit is from the topmost battery electrode 17 through lamp 16 to its threaded base, and segments 13 and thence through reflector 3 and metal casing 1 to bottom cap 5 from which, when stud 7 is screwed in, the current flows into the bottom of the stack of dry cells. Under some circumstances, as when the switch mechanism is more complicated in character, it may be desirable to insulate the lamp socket from the reflector. Such an arrangement is illustrated in Figs. 6 and 7 where the four segments 13 and their supporting metal disk 15 are insulated from the inner edge of reflector 3 by means of an insulating disk 19 folded over the edge of the reflector opening and split in the same way that the lamp socket and its disk 15 are split. This gives enough resiliency at the socket to insure the gripping action essential to the present invention.

With the hand lamp constructed as above described, no amount of toying with the switch mechanism will wear it out or render it unreliable, and the hand lamp as a whole will stand rough handling and heavy vibration without danger of shaking the lamp out of its socket or so loosening it therein as to destroy the reliability of the lamp.

Although the hand lamp herein illustrated and described is large and heavy and adapted to be carried by a handle 18, with a battery capacity for many hours of continuous burning, the features of novelty hereinafter claimed are also applicable to hand lamps of much smaller size and used in relations where reliability is not of such vital importance as under the circumstances particularly mentioned herein. Although but three specific embodiments of the present invention are herein shown and only one of them is shown in assembled relation in a hand lamp, it will be understood that numerous details of the construction shown may be altered or omitted within the scope of the appended claim without departing from the spirit of this invention.

I claim:—

In a battery hand lamp, the combination of a reflector having a central opening, a split, threaded socket in said opening and a disk having resilient arms to which the parts of said socket are secured; substantially as described.

In testimony whereof I affix my signature.

THOMAS J. MADIGAN.