

July 6, 1926.

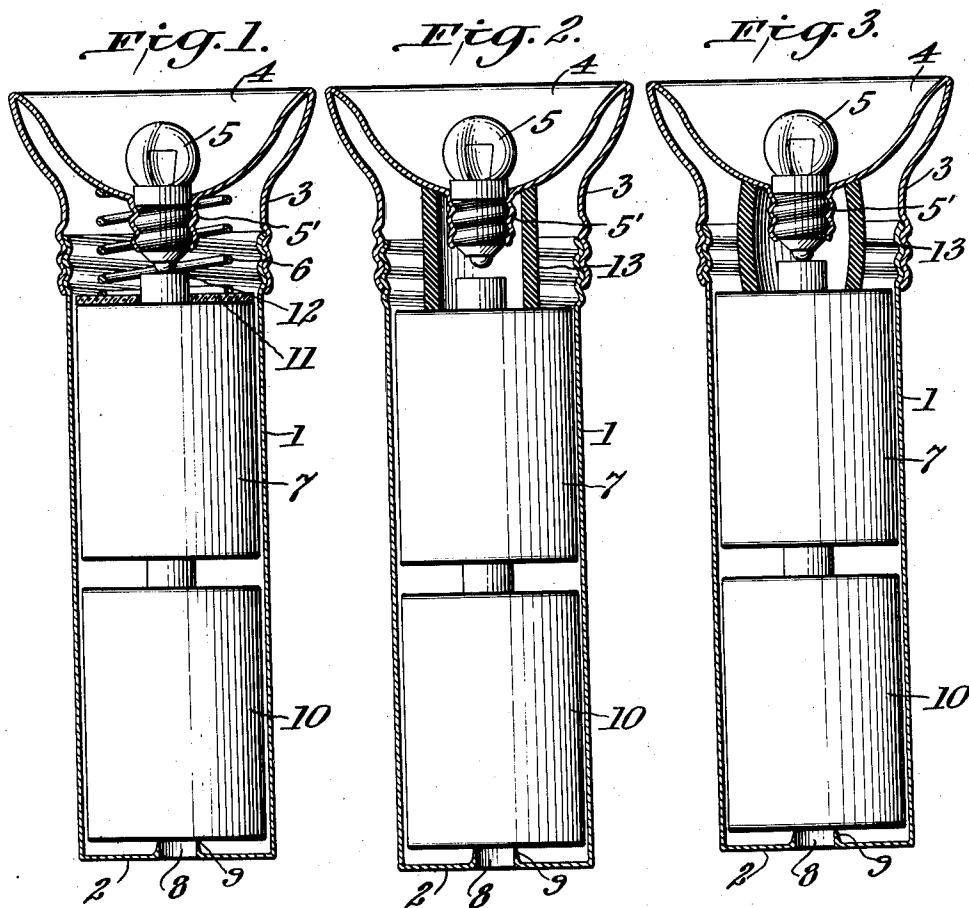
N. M. HOPKINS

1,591,627

HANDLAMP

Filed Sept. 20, 1922

2 Sheets-Sheet 1



Inventor:

Harold Monroe Hopkins,
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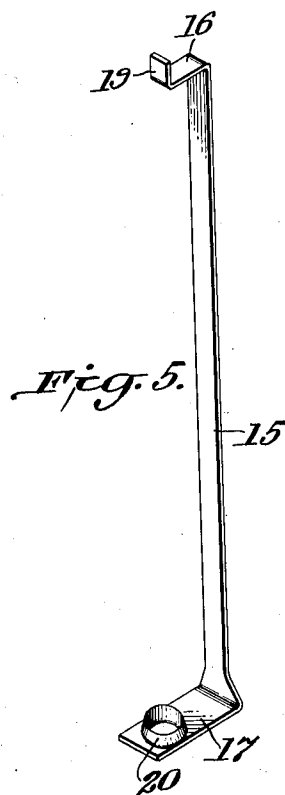
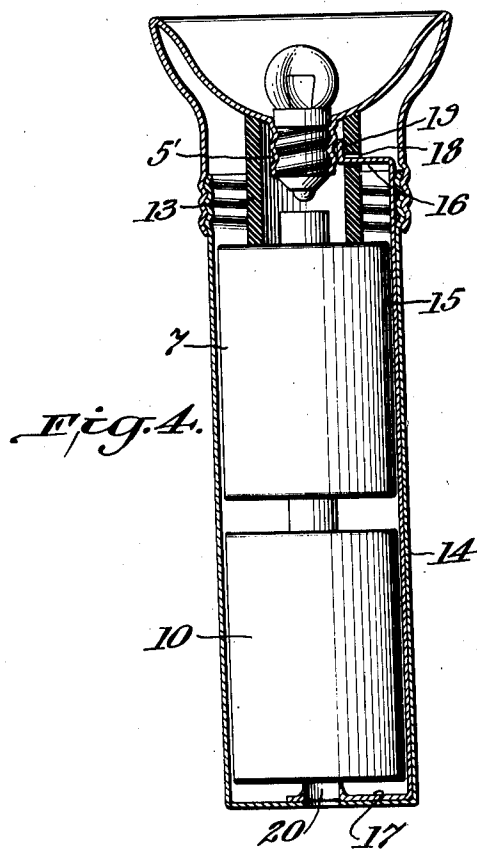
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UNITED STATES PATENT OFFICE.

NEVIL MONROE HOPKINS, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO NATIONAL CARBON COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

HANDLAMP.

Application filed September 20, 1922. Serial No. 589,391.

This invention relates to battery operated hand lamps and particularly to that type in which a head member, carrying a lamp bulb, is adjustable upon a tubular casing. The principal object of the invention is to simplify the construction of such devices so far as is consistent with efficiency and ease of operation.

Hand lamps manufactured according to the preferred form of the present invention consist of an integral tubular casing having an apertured bottom of special form, a lamp-carrying head adjustable upon the casing, and resilient means between the lamp and a battery contained in the casing, the circuit through the lamp being controlled by adjustment of the head. In the accompanying drawings:

Fig. 1 is a vertical section through the improved hand lamp, showing the battery cells in elevation;

Fig. 2 is a similar view, showing a modified form of resilient means;

Fig. 3 is a view similar to that of Fig. 2, the lamp being shown in operative position;

Fig. 4 is a vertical section through a hand lamp having a non-conductive casing; and

Fig. 5 is a perspective view of the conductor strip used in the device of Fig. 4.

Referring to Fig. 1 of the drawing, numeral 1 denotes a casing having a bottom 2 integral therewith. Casing 1 is preferably made from sheet brass or aluminum stamped or drawn into the desired shape, but the invention is not limited to casings made from these metals nor to any particular method of metal working. A metallic head member 3, preferably shaped to form a reflective surface 4, is screw-threaded to engage cooperating threads at the upper portion of casing 1. A lamp bulb 5 is received by a threaded central socket 5' in reflector 4. A coil spring 6 is under compression between the base of the reflector and the top of battery cell 7. The spring encircles the carbon pole of that cell but is well spaced from it to prevent the possibility of contact. The casing bottom 2 is provided with an aperture 8 defined by an upstanding wall 9 having a relatively sharp edge presenting a substantially level support upon which the zinc base of cell 10 rests. The zinc cups of cells 7 and 10 are jacketed in paper or are otherwise suitably protected from contact

with the casing wall. A fiber washer 11 may be placed on the top of cell 7 to prevent the possibility of the spring cutting into the seal or coming into contact with the zinc wall of the cell.

The circuit through the lamp 5 is closed and opened by screwing the head member 3 in and out, respectively. When the head is turned outwardly from the position shown in Fig. 1, the inner terminal 12 of the lamp is moved out of contact with the carbon pole of cell 7, and this spaced relation is maintained by the action of spring 6. The thrust of the spring against the head member is sufficient to insure its remaining in adjusted position.

One of the important advantages of the present construction is the means for making contact with the base of the lowest battery cell. The upturned sharp edge of wall 9 scores or abrades the zinc to a sufficient extent to insure clean metallic contact at all times, and the wall provides an integral path by which the current may pass to the casing. A permanent low-resistance connection is thus obtained in a very simple manner.

A further advantage of the construction just described is that the aperture 8, formed by striking up the casing bottom to provide the contact wall 9, permits the easy ejection of the cells. If the cells become bound in the casing they may be readily displaced by inserting a rod, a pencil for example, through the aperture. Also, the top edge of the wall 9 supports the battery squarely in the casing, thereby reducing the tendency of the battery to fit obliquely in the casing and become bound therein.

In the form of the invention shown in Figs. 2 and 3, the construction differs from Fig. 1 only in the substitution of a resilient non-metallic member for the coil spring 6. The resilient member may be a rubber tube 13 placed between the reflector 4 and the top of cell 7. When the lamp is not in use, the tube 13 spaces the opposed lamp and battery terminals (Fig. 2). When the head member 3 is screwed inwardly to bring the lamp into operative position (Fig. 3), the tube is compressed or bowed outwardly and exerts a pressure upon the head sufficient to hold it in adjusted position.

It is possible to dispense with resilient members. The slight freedom of movement

of the battery, when the head is screwed outwardly, suffices to break the circuit at either the zinc or carbon pole, but the battery movements, although unimpeded by a spring, are not sufficiently extensive to give rise to destructive impact upon the lamp. However, the resilient members 6 and 13 have useful functions, as above pointed out, and will usually be employed.

Figs. 4 and 5 illustrate an embodiment of the invention in which a non-conductive casing 14 is used. A metallic strip 15 carries the current from cell 10 to the outer lamp terminal. The strip is bent at its ends to provide arms 16 and 17 extending at right angles to its body portion. Arm 16 passes through a slot 18 in the resilient tube 13, and has an upturned end 19 held by the tube against the metallic reflector socket 5'. Arm 17 extends beneath cell 10 and is punched to provide the upstanding wall 20, upon which the zinc bottom of the cell rests. A clean zinc contact surface is maintained by engagement of the edge of wall 20 with the cell bottom, in the same way as in the devices of Figs. 1 and 2, and a low resistance path from cell 10 to the lamp is provided at all times. The strip 15 may be held in position by the cells and resilient tube 13 or may be secured to the casing in any suitable way.

I am aware that it has heretofore been proposed to construct flashlights with spring-pressed head members adjustable to regulate the circuit through the lamp, and I claim this construction only in combination with the other advantageous features of the present invention. The devices illustrated herein are preferred forms capable of being modified with respect to various details of construction without departing from the invention as defined in the appended claims.

I claim:—

1. In a hand lamp, a casing containing a

battery provided with a contact surface, a closure for one end of said casing, an aperture in the closure for introducing a rod to eject the battery, and an upstanding member having a narrow marginal portion encircling said aperture and positioned between the closure and the contact surface, said upstanding member being in electrical connection with one terminal of the lamp.

2. In a hand lamp, a casing containing a battery provided with a contact surface, a closure for one end of said casing, an aperture in the closure for introducing a rod to eject the battery, an upstanding member having a narrow marginal portion encircling said aperture and positioned between the closure and the contact surface, said upstanding member being in electrical connection with one terminal of the lamp, and resilient means arranged to press the contact surface against said upstanding member.

3. In a hand lamp, a casing containing a battery provided with a contact surface, a closure for one end of said casing and integral therewith, an aperture in the closure for introducing a rod to eject the battery, said aperture having a raised marginal portion, and resilient means arranged to press the contact surface of the battery against said raised marginal portion.

4. In a hand lamp, a casing containing a battery provided with a contact surface, a closure for one end of the casing bearing an upstanding member in circuit with the lamp, said member having a sharp edged annular portion pressed against the contact surface of the battery, whereby the contact surface is abraded to insure good contact but the pressure against the contact surface is distributed to avoid rupturing the battery.

In testimony whereof, I affix my signature.

N. MONROE HOPKINS.