

G. D. GALLAGHER.
BATTERY HAND LAMP.
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1,361,846.

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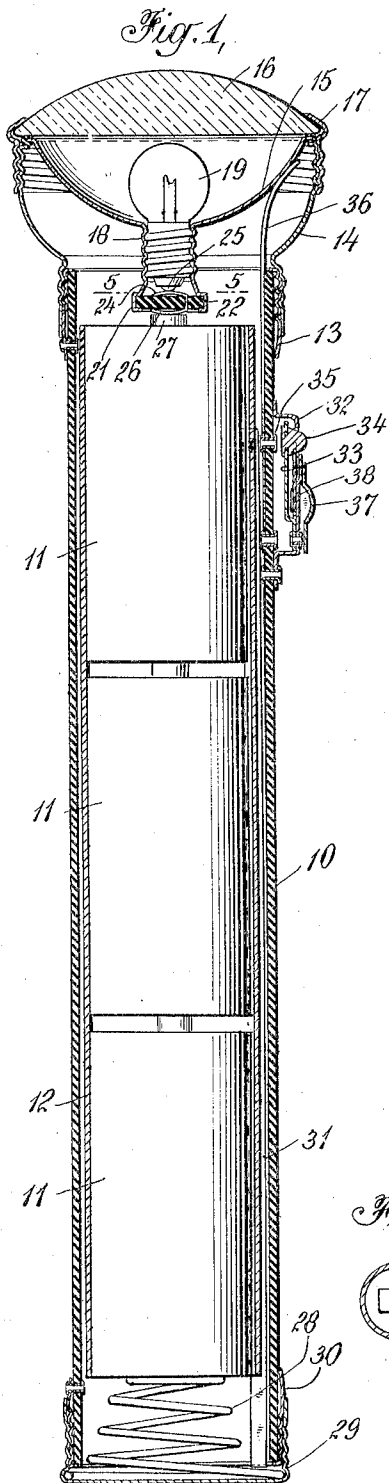
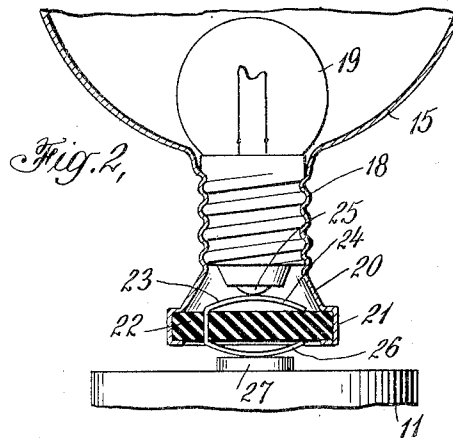
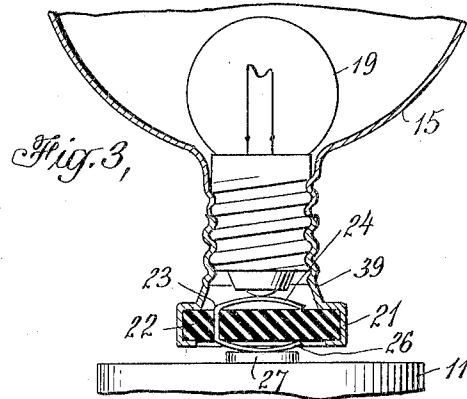
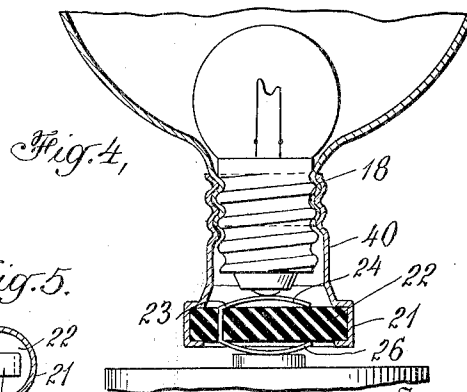
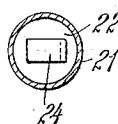


Fig. 5.



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UNITED STATES PATENT OFFICE.

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BATTERY HAND-LAMP.

1,361,846.

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To all whom it may concern:

Be it known that I, GEORGE D. GALLAGHER, a citizen of the United States, residing at Washington, District of Columbia, 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.

This invention relates to hand lamps and particularly to arrangements for preventing injury to the incandescent bulbs of the lamps by shocks or undue pressure transmitted against their terminals by movements of the batteries within the lamp casings. In practically all of the cylindrical case hand lamps now manufactured, the battery, which consists of a number of dry cells placed end to end within a carton and connected in series, is held in place against the base of the lamp by means of a spring at the opposite end of the casing. The battery is relatively heavy and sudden movements of the hand lamp may cause the battery to move within the casing and deliver blows upon the base of the lamp. The shocks thus imparted to the lamp may result in breakage of its bulb or filament, or the crushing in of its glass base.

It is an object of this invention to provide a device for absorbing shocks due to movements of the battery within the case, which shall be simpler in construction and cheaper to manufacture than are prior arrangements for the same purpose. The device is so constructed that it may be detached from the lamp or placed thereon as desired, thus permitting it to be applied to existing structures without in any other way modifying the latter.

In accordance with the invention the shock absorber consists of a tube closed at one end by an insulating disk through which extends a U-shaped strip of metal, one leg of which serves as a spring to press against the upper or carbon terminal of the battery, while the other leg serves as a spring to press against the inner terminal of the lamp. The tube may be made integral with the threaded socket of the reflector into which the base of the lamp is screwed, or it may be made as a separate member adapted to be screwed over the threaded

socket of the reflector, or directly onto the end of the lamp base where it projects beyond the socket of the reflector, with the front end of the tube abutting against the end of the socket.

The particular nature of the invention, as well as other objects and advantages thereof will appear more clearly from a description of certain preferred embodiments thereof as shown in the accompanying drawings, in which:

Figure 1 shows in longitudinal section a complete hand lamp having one form of the invention embodied therein;

Fig. 2 is an enlarged detail view of the embodiment shown in Fig. 1;

Fig. 3 is a similar view of a modification of the invention;

Fig. 4 is a similar view of another form of the invention; and

Fig. 5 is a view in section along the line 5—5 of Fig. 1.

The hand lamps to which the invention may be applied may be of any construction. For the purpose of illustration there is shown in Fig. 1 a hand lamp consisting of an insulating casing 10 adapted to contain a battery composed of a number of dry cells 11 placed end to end within a carton 12 in accordance with the usual construction of batteries of this character. One end of the casing 10 carries a collar 13 upon which is screwed a member 14 which serves as a support for the reflector 15. The reflector is surmounted by a lens 16 held in place by a ring 17 screwed upon the outer end of the member 14. The reflector is provided with a threaded socket 18 adapted to receive the base of a miniature lamp 19.

In the embodiment of the invention shown in Figs. 1 and 2 the reflector socket 18 is provided with an integral flaring extension 20 which terminates in a spun channel 21 within which is seated a disk 22 of suitable insulating material. Extending through the insulating member is a resilient conducting member 23 preferably of U-shape. The legs of this member are curved slightly so as to form springs, one of which 24 presses against the inner terminal 25 of the lamp, while the other one 26 is adapted to be engaged by the carbon electrode 27 of the upper cell of the battery. The battery is held within the casing 10 and against the spring contact 26

by means of a spring 28 within a cap 29 adapted to be screwed upon a collar 30 at the other end of the casing 10.

The circuit of the lamp may be controlled by any suitable switch mechanism associated with the casing. As shown herein this mechanism consists of a conducting strip 31 fastened within the casing and having its outer end in electrical connection with the cap 29 and therefore in connection with the zinc terminal of the battery. The other end of the strip is electrically connected by means of a rivet to a housing 32 attached to the exterior of the casing. Within the housing 32 is a spring finger 33 provided with a push button 34 adapted to be brought into engagement with a rivet 35 which holds in place within the casing a conducting strip 36, the free end of which is in engagement with the reflector 15. The spring finger 33 and push button 34 provide an arrangement by which the circuit of the lamp may be intermittently closed. But in many cases it may be desired to retain the circuit of the lamp in permanently closed condition and for this purpose, the housing 32 is provided with a thumb piece 37 slidably mounted upon the exterior of the housing by means of tongs 38 which extend within the housing. Whenever the thumb piece is advanced along the housing its front edge is adapted to engage and depress the push button 34 into engagement with the rivet 35 thus establishing the circuit of the lamp so long as the thumb piece remains in advanced position.

In the lamp shown in Figs. 1 and 2 and described above the shock absorber of the invention is in the form of an integral extension of the threaded socket 18 of the reflector, but in Figs. 3 and 4 there are shown modifications of the invention in which the shock absorbers are constructed as separate members.

The modification shown in Fig. 3 consists of a threaded tubular member 39 adapted to be screwed upon a portion of the base of the lamp with its end abutting against the threaded socket of the reflector, which is made short enough to permit a portion of the lamp base to project beyond the same. The remaining portions of the device shown in Fig. 3 are substantially the same as the corresponding portions of the device shown in Figs. 1 and 2; that is, they comprise a channel 21 within which is spun in an insulating disk 22 carrying a U-shaped conducting member 23, the legs of which engage the inner terminal of the lamp and the carbon terminal of the battery.

In some hand lamps the threaded socket 18 of the reflector may be of such length as to prevent a sufficient portion of the lamp base from extending beyond the socket to permit the shock absorber to be screwed

thereon. In Fig. 4 there is shown a modification of the invention particularly adapted for use with such lamps. In this case the tubular member 40 is provided with a threaded portion adapted to be screwed upon the outside of the reflector socket 18. As in the case of the other embodiments of the invention the member 40 terminates in a channel portion 21 adapted to receive an insulating disk 22 containing a U-shaped resilient conducting member 23 adapted to engage the inner terminal of the lamp and the carbon terminal of the battery.

The devices shown in Figs. 3 and 4 are particularly adapted to be sold separately and applied to existing hand lamps of any of the usual types, but it will be understood that these devices may form parts of hand lamps as manufactured and sold. It will be seen from the above description of the several modifications of the invention that there are provided shock absorbing devices of simple construction which require no special adjustment to apply them to the hand lamps with which it is intended that they shall be used, or if desired, they may be formed integrally with the lamp sockets during the manufacture of the reflectors. The U-shaped conducting members may be rapidly and cheaply manufactured and placed within the insulating disks with a minimum amount of labor, thus eliminating the use of coil springs and telescoping members sometimes employed in shock absorbing devices.

While certain preferred embodiments of the invention have been shown and described, it will be understood that various changes in the details of construction may be made without departing from the principle of the invention as defined in the appended claims.

I claim:—

1. In a battery hand lamp comprising a casing having a battery therein and a reflector in circuit with said battery and mounted upon one end of the casing and provided with a threaded socket into which the base of an incandescent bulb may be screwed to receive battery current through said reflector, the combination of a threaded tube associated with the socket of the reflector, an insulating member mounted at the inner end of the tube, and a flat U-shaped conducting member extending through the insulating member and having one leg serving as a spring to press directly against the inner terminal of the lamp and the other leg serving as a spring to press against the carbon terminal of the battery.

2. In a battery hand lamp comprising a casing having a battery therein and a reflector in circuit with said battery and mounted upon one end of the casing and provided with a threaded socket into which

the base of an incandescent bulb may be screwed to receive battery current through said reflector, the combination of a threaded tube associated with the socket of the reflector, a flat insulating member spun into the inner end of the tube, and a flat U-shaped conducting member of relatively thin resilient material extending through the insulating member, and having its legs extending along the sides of the member and slightly curved, whereby said legs are reinforced by said insulating member and one of said legs serves as a spring to press against the inner terminal of the lamp, and the other leg serves as a spring to press against the carbon terminal of the battery.

3. In a battery hand lamp comprising a casing having a battery therein and a reflector in circuit with said battery and mounted upon one end of the casing and provided with a threaded socket into which the base of an incandescent bulb may be screwed to receive battery current through said reflector, the combination of a threaded tube associated with the socket of the reflector and provided at its free end with an inwardly directed channel, a flat insulating member spun into the channel and a flat resilient conducting member extending through the insulating member and adapted at one end to press directly against the inner terminal of the lamp and at the other end to press directly against the carbon terminal of the battery.

4. In a battery hand lamp comprising a casing having a battery therein and a reflector in circuit with said battery and mounted upon one end of the casing and provided with a threaded socket into which the base of an incandescent bulb may be screwed to receive battery current through

said reflector, the combination of a threaded tube adapted to be screwed upon the portion of the base of a lamp that projects beyond the socket of the reflector with its end abutting against the end of the socket, an insulating member permanently mounted at the inner end of the tube and a flat resilient conducting member extending through the insulating member and adapted at one end to press directly against the inner terminal of the lamp and at the other end to press directly against the carbon terminal of the battery.

5. A battery hand lamp comprising a casing adapted to receive a battery, a reflector in circuit with said battery and mounted upon one end of the casing and provided with a threaded socket, an incandescent bulb adapted to be screwed into the socket to receive battery current through said reflector, a threaded tube associated with the socket of the reflector, an insulating member spun into and closing the inner end of the tube, a resilient conducting member extending through the insulating member and having on one side thereof a curved portion adapted to be engaged by the inner terminal of the lamp and on the other side of said member a curved portion adapted to be engaged by the carbon terminal of the battery, and means at the other end of the casing for pressing the battery terminal against the curved portion of the conducting member to compress the latter and hold the battery firmly in place in the casing, said insulating member serving to limit the deformation of the curved portions of said conducting member, substantially as described.

In testimony whereof I affix my signature.
GEORGE D. GALLAGHER.