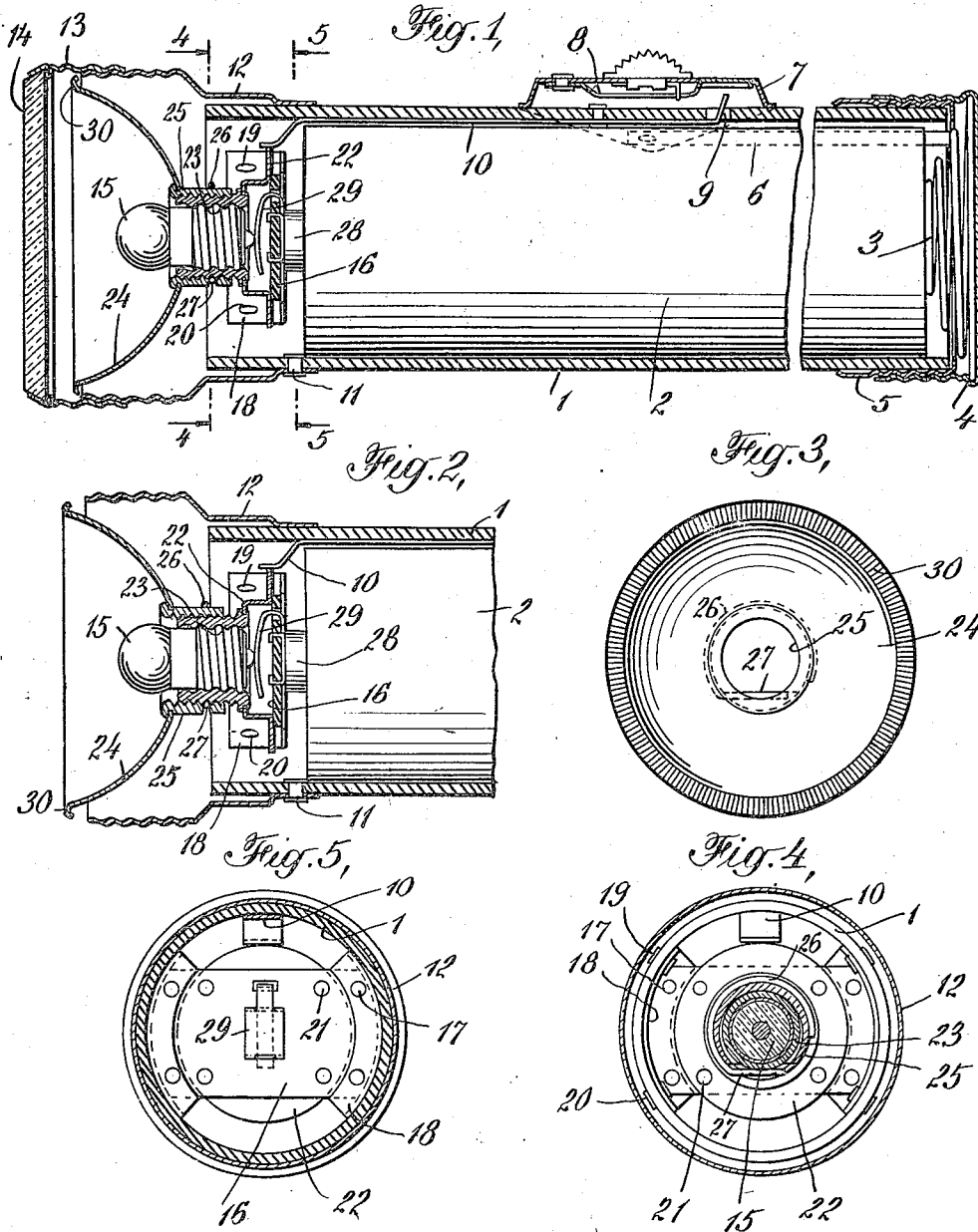


F. L. HUMISTON.  
SPOTLIGHT.  
APPLICATION FILED OCT. 25, 1921.

1,421,944.

Patented July 4, 1922.



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# UNITED STATES PATENT OFFICE.

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## SPOTLIGHT.

1,421,944.

Specification of Letters Patent.

Patented July 4, 1922.

Application filed October 25, 1921. Serial No. 510,207.

*To all whom it may concern:*

Be it known that I, FREDERICK L. HUMISTON, a citizen of the United States, residing at New Haven, in the county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Spotlights; 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.

The present invention relates to battery hand lamps of the type in which the reflector can be shifted with respect to the lamp bulb to change the character of the beam of light delivered by the hand lamp and to concentrate the beam on a spot of limited area when desired.

It is an object of the present invention to provide an arrangement wherein the battery and lamp are held in relatively fixed positions in the casing, but wherein the reflector is movable with respect to the lamp and its support to change the spread of the beam of light.

It is a further object of the present invention to protect the inner and fragile terminal of the lamp from destructive thrust of the battery, to provide reliable circuit connections, and to house the adjustable parts of the hand lamp in such manner that inadvertent changing in the character of the beam of light is in large measure guarded against.

In the accompanying drawings—

Fig. 1 is a sectional elevation of one embodiment of the present invention;

Fig. 2 is a fragmentary section of the same, showing the reflector moved axially of the lamp bulb to change the spread of the beam of light;

Fig. 3 is an end view of the reflector;

Fig. 4 is a section on the line 4—4 of Fig. 1;

Fig. 5 is a section on the line 5—5 of Fig. 1.

In the embodiment shown in the drawing, the case 1 is of insulating material and contains a battery 2 of dry cells arranged end to end in series connection in accordance with standard practice. The lower naked bottom of the battery makes electrical connection with a coiled spring 3 carried by a bottom cap 4 threaded to a collar 5 which is electrically connected by a strip 6 with a

metal housing 7. Riveted to this housing is a yielding contact finger 8 by which electrical connection can be made or broken to the outwardly bent end 9 of a stationary conductor 10 which leads to the front end of the casing. Mounted on the front end of the casing, as by rivets 11, is a flaring metal head 12 to which is threaded a collar 13 carrying a lens 14. This lens may be plain, as shown, or may be of other cross-section.

The support for the lamp 15 comprises an insulating element 16, preferably in the form of a cross-bar or bridge, each end of which is secured by rivets 17 to an angle plate 18 attached to the fiber casing by rivets 19 and 20. Secured to this insulating element as by rivets 21 is an inverted metal cup 22, the edge of which is in electrical connection with the yielding front end of conductor 10. Secured to this cup or contact plate is a metal lamp socket 23 into which the lamp base is screwed. Socket 23 also has screw-threads on its outer cylindrical surface for the support of the lamp reflector 24. This reflector has an extension 25 threaded over socket 23 and adapted to rotate thereon to shift the reflector axially of the casing and thereby change the relative positions of the reflector and lamp bulb to change the character of the beam of light delivered by the hand lamp.

A wire spring 26 encircles the threaded extension of the reflector and has one bent end 27 (Fig. 3) passed through a slot to lie directly in contact with the threads on socket 23, thereby acting as a yielding check against inadvertent rotation of the reflector on the socket. The upper terminal 28 of the battery rests against and makes electrical connection with one end of a flat spring 29 which passes through a slot in the insulating element 16, and is bent over to engage the inner terminal of the lamp. By this construction, the inner and fragile lamp terminal is protected from the forward thrust of the batteries induced by the bottom spring 3 and likewise protected from such blows as might result from the rebound of the battery if the hand lamp were dropped. The outer edge of reflector 24 is spaced from and therefore insulated from the metal head 12, and has no part in the flow of current from the battery through the lamp. The rounded front edge of the reflector may be knurled at 30 to facilitate

manual rotation of the reflector on its support.

With the several elements constructed and assembled as shown in Fig. 1, a change in the character of the beam of light can be effected by first unscrewing collar 13 to give access to the reflector, and then, by pressing with the thumb and fingers on the knurled edge 30 of reflector 24, the operator can rotate the reflector on the threaded lamp socket and so shift it axially of the casing, thereby changing the relation of the reflector to the lamp and likewise changing the character of the beam of light delivered by the hand lamp. Throughout these manipulations, the lamp and its support and the batteries remain unchanged in position. After suitable adjustment has been made, the collar 13 and its supporting lens can again be screwed into position and thereafter will serve to house and protect the reflector from inadvertent rotary movement. Spring 26 likewise guards against accidental rotation of the reflector.

A metal tube can be used in place of the insulating tube 1 without any change other than that of insulating from it the front conductive strip 10. Other changes in the construction and arrangement of the several parts of the hand lamp may be made without departing from the spirit of my invention as defined by the appended claims.

I claim:—

1. In a hand lamp, the combination of a casing, a battery therein, a lamp, a support for said lamp, and a reflector rotatable on said support to move axially of said casing.

2. In a hand lamp, the combination of a casing, a battery therein, a lamp, a support for said lamp, and a reflector threaded to said support and rotatable thereon to move axially of said casing, and thereby change the spread of the beam of light from said hand lamp.

3. In a hand lamp, the combination of a casing, a battery therein, a lamp, a support for said lamp, and a reflector rotatable on said support to move axially of said casing, the rim of said reflector being spaced from and electrically insulated from the front end of said casing.

4. In a hand lamp, the combination of a casing, a battery therein, a lamp, a support for said lamp, a reflector rotatable on said support to move axially of said casing, and means yieldingly holding said reflector against inadvertent rotation.

5. In a hand lamp, the combination of a casing, a battery therein, a lamp, a support for said lamp, a reflector threaded to

said support and rotatable thereon to move axially of said casing, and thereby change the spread of the beam of light from said hand lamp, and a lens and lens-supporting ring threaded to the front end of said casing, and protecting said reflector against inadvertent rotation.

6. In a hand lamp, the combination of a casing, a battery therein, a lamp support against which said battery bears and a reflector rotatable on said support to move axially of said casing.

7. In a hand lamp, the combination of a casing, a battery therein, a lamp, a socket for said lamp, a reflector threaded to said socket and movable axially in said casing, the rim of said reflector being spaced from said casing, and a lens-supporting collar removable from said casing to give access to said reflector when the spread of the beam of light is to be altered.

8. In a hand lamp, the combination of a casing, a battery therein, an insulating element secured to said casing, a lamp, a socket for said lamp supported by said insulating element, a spring electrically connecting the inner terminal of said lamp with one terminal of said battery, and a reflector threaded to said socket and movable axially in said casing when the spread of the beam of light is to be altered.

9. In a hand lamp, the combination of a casing, a battery therein, a spring bearing against the bottom of said battery, an insulating element secured to said casing and taking the forward thrust of said battery, a lamp, a socket for said lamp mounted on said insulating element, a reflector threaded to said socket and movable axially in said casing, the rim of said reflector being spaced from said casing, and a lens-supporting collar removable from said casing to give access to said reflector when the spread of the beam of light is to be altered.

10. In a hand lamp, the combination of a casing, a battery therein, a spring bearing against the bottom of said battery, an insulating element secured to said casing and taking the forward thrust of said battery, a conductor mounted on said insulating element, a lamp, a socket for said lamp mounted on said conductor, a reflector threaded to said socket and movable axially of said casing, the rim of said reflector being spaced from said casing, and a lens-supporting collar removable from said casing to give access to said reflector when the spread of the beam of light is to be altered.

In testimony whereof I affix my signature.

FREDERICK L. HUMISTON.