Feb. 26, 1929. 1,703,749

F. W. RAHM

FLASH LIGHT

Filed April 25, 1925

Fig. 1.

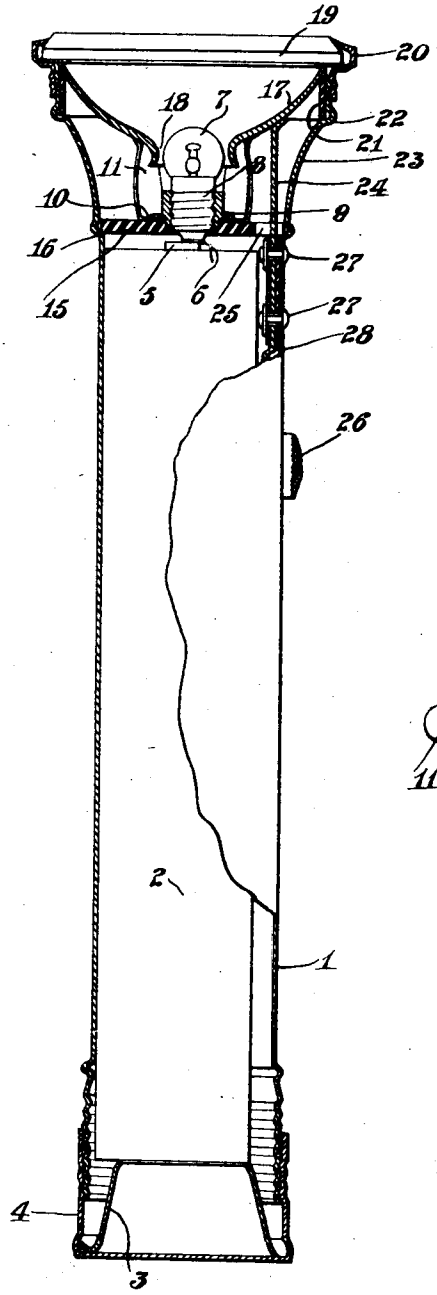
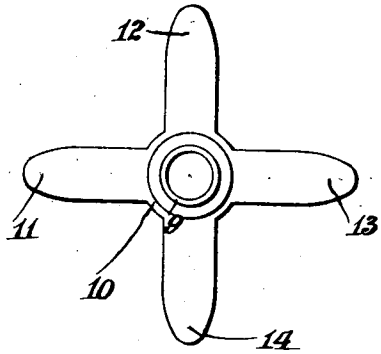


Fig. 2.



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Patented Feb. 26, 1929. 1,703,749

UNITED STATES PATENT OFFICE.

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FLASH LIGHT.

Application filed April 25, 1925. Serial No. 25,727.

This invention relates to flashlights and more particularly to a new and useful focusing arrangement for flashlights.

The present invention is an improvement on the focusing device disclosed and claimed in the copending application of William F. Hendry, Serial No. 22,962, filed April 9, 1925, and its purpose is to provide a device by means of which the electric light bulb is at all times substantially centered within a relatively large opening of the reflector through which the bulb is adapted to pass.

In accordance with this invention the focusing is controlled by a spring which forms part of the lamp socket. The socket is stamped out of a piece of metal with a cup-shaped flange from which a plurality of fingers project into engagement with the lower surface of the reflector. By means of these fingers the reflector will be properly centered with respect to the light bulb and these fingers will serve for the purpose of controlling relative movements of the bulb and the reflector and also to absorb shocks that may result in the destruction of the lamp filament.

The invention will be more fully understood from the following detailed description of a preferred embodiment thereof and the appended claims.

In the drawings, Fig. 1 is a sectional view illustrating the essential parts of a flashlight; and Fig. 2 is a top view of the lamp socket in an intermediate stage of its manufacture.

The flashlight consists of a tubular metallic casing 1 enclosing a dry cell battery 2. The zinc electrode of the battery is in contact with a flange 3 projecting from a cap 4 which is in screw-threaded engagement with the lower end of the tubular casing 1. The carbon electrode 5 of the battery contacts with one terminal 6 of an incandescent electric light bulb 7. The other terminal of the lamp 7 is connected with a metallic screw-threaded base 8. The base 8 is in screw-threaded engagement with a metallic socket 9 provided with a cup-shaped flange 10. As illustrated in Fig. 2, the cup-shaped flange 10 is stamped out of a resilient piece of metal with four spring fingers 11, 12, 13, 14. These fingers are bent up at right angles. The socket 9 and its flange 10 are fastened to a disc or diaphragm 15 of insulating material which is seated on an annular shoulder 16 provided in the casing 11. On top of the lamp and socket assembly is placed a metallic reflector 17 provided with an opening 18 which is sufficiently large to permit passage of the light bulb 7. The reflector is seated on the four spring fingers 11, 12, 13, 14 and is firmly held in place by means of a lens 19 clamped to the end of the casing 1 by means of a ring 20. The reflector 17 is insulated from the casing by means of a sleeve 21 seated on a shoulder 22 provided in the bell-shaped end 23 of casing 1. By rotating the cap 4 the battery 2 may be reciprocated within the casing and will force the bulb 7 with its socket against the tension of spring fingers 11, 12, 13, 14, effecting thus any desired focusing. The spring fingers slide along the lower surface of the reflector 17 and when the cap 4 is unscrewed, cause the bulb with its socket and the battery 2 to return to their normal position. At all times the spring fingers maintain the bulb 7 properly centered with respect to opening 18.

The disc 15 is prevented from rotating by means of a contact spring or switch element 24 passing through a notch 25 provided in the insulating disc 15. The circuit of the lamp extends through terminal 6, the battery 2, the casing 1, contact spring 24, reflector 17 with which the spring is in engagement, the spring fingers 11 to 14, the flange 10, socket 9, base 8, back to the other terminal of the lamp. The circuit is controlled by means of a button 26 which cooperates with the spring 24, the latter being fastened to the casing 1 by means of rivets 27, but is insulated therefrom by a suitable wrapper 28.

What I claim is:

1. In a flashlight, a reflector and a lamp movable with respect to each other, means whereby the reflector and lamp are relatively adjusted to focus the light, a socket for the lamp, and a plurality of resilient projections on said socket engaging said reflector, tending to force said reflector and lamp away from each other.

2. In a flashlight, a reflector and a lamp movable with respect to each other to focus the light, a socket for said lamp supported below said reflector and movable with said lamp, and a plurality of spring fingers projecting from said socket into engagement with said reflector to oppose in one direction the focusing movement.

3. In a flashlight, a casing, a battery and a metallic reflector in said casing, an incandescent light bulb adapted to pass through an opening in said reflector, an insulating disc

supported in said casing, a socket for the base of said bulb carried by said disc, one terminal of the light bulb projecting through said disc into engagement with one electrode of said battery, a cup-shaped flange for said socket, a plurality of spring fingers projecting from said flange into engagement with the lower surface of said reflector, and screw-threaded means for moving said battery within said casing against the tension of said spring fingers.

4. In a flashlight, an electric light bulb having a socket, a reflector, means for moving said bulb with respect to said reflector for focusing the light, and a plurality of spring fingers secured at one end to said socket and engaging with their free ends said reflector to oppose the focusing movement.

5. A flashlight comprising a casing, a battery in said casing, means for moving the battery longitudinally of said casing, a reflector at one end of said casing, a diaphragm having an aperture therein between said battery and said reflector, an open ended lamp socket between the diaphragm and the reflector, and resilient members carried by said socket and adapted to engage the reflector to align the reflector with the socket and normally to bias the socket away from the reflector.

6. In a flashlight, a casing, a reflector mounted near one end of said casing, a lamp socket in said casing inwardly of said reflector, resilient means extending outwardly from said socket and engaging said reflector for centering said reflector and tending to move said socket away from said reflector.

7. In a flashlight, a casing, a lens and an insulating sleeve engaging said casing, a reflector between said lens and sleeve, said casing being provided with a shoulder, a shiftable diaphragm engaging said shoulder, a socket secured to said diaphragm, resilient means on said socket engaging said reflector and normally biasing said socket away from said reflector and a switch element on said case, said diaphragm being provided with a notch for engaging the switch element whereby rotation of said diaphragm is prevented.

In testimony whereof I have signed my name to this specification this 10th day of April, 1925.

FREDERICK W. RAHM.