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FOCUSING DEVICE FOR ELECTRIC LAMPS.

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1,408,528. Patented Mar. 7, 1922.

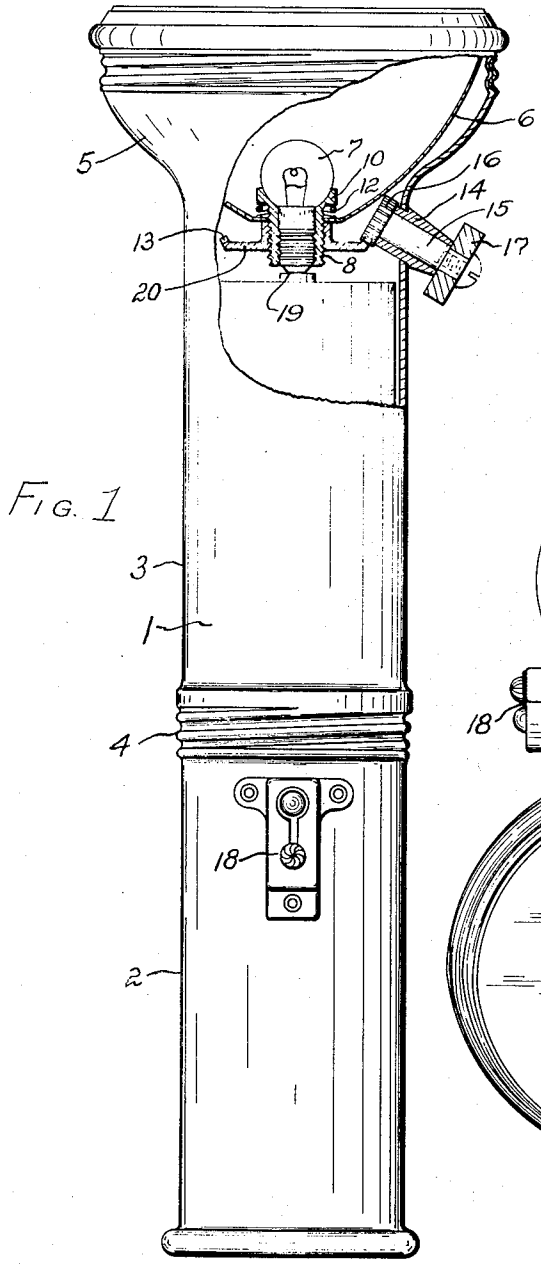


FIG. 1

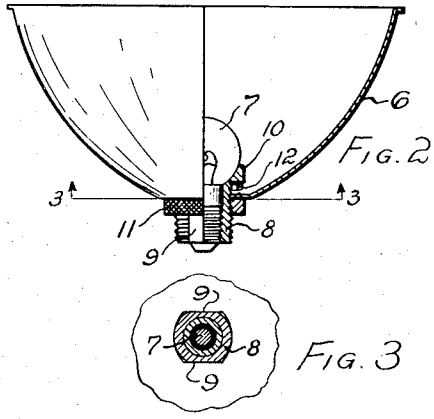


FIG. 2

FIG. 3

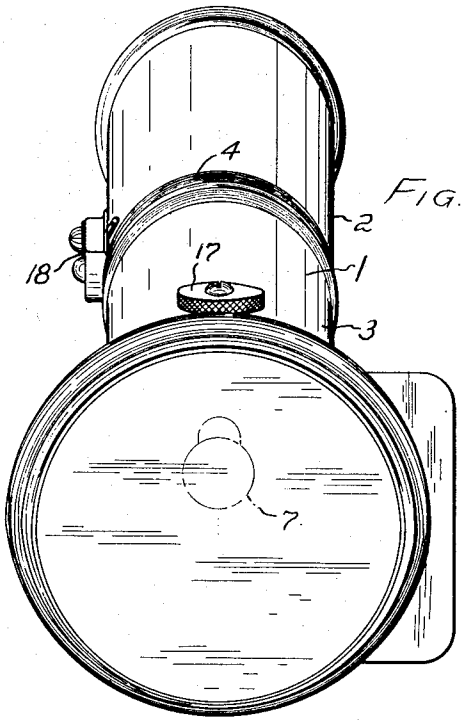


FIG. 4

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1,408,528. Specification of Letters Patent. Patented Mar. 7, 1922.

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To all whom it may concern:

Be it known that I, ANKER S. LYHNE, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Focusing Devices for Electric Lamps, of which the following is a specification.

This invention relates to flashlights and more particularly to means for focussing the light with regard to the reflector. Hitherto it has been common practice to make casings for flashlight batteries carrying at one end a reflector with a lamp secured in a permanent socket in the reflector, thereby allowing no provision for moving the lamp with regard to the reflector and consequently not permitting any alteration in the focussing of the lamp. As lamps are made in various designs the filament is not always in the exact position required for proper focus, and the result is in such lamps a failure to obtain the best results from the reflector. To overcome this difficulty I have devised a form of flashlight in which the position of the lamp with regard to the reflector is easily adjustable. My invention is embodied in the device described in the following specification and illustrated in the accompanying drawing, of which—

Figure 1 is a side view showing certain parts in section;

Figure 2 is a half section and half side view of the assembled lamp and reflector showing a modified form of adjusting nut;

Figure 3 is a cross-section on the line III—III of Figure 2; and

Figure 4 is a perspective view of the assembled flashlight.

1 denotes a casing for the battery which is made in two parts, 2 and 3, connected at 4. Casing member 3 is flared at one end as at 5 to receive the reflector 6. Lamp 7 is secured within bushing 8 which is hollow and internally threaded to receive the lamp. Bushing 8 is also externally threaded, the threads and a portion of the bushing being squared off on two sides 9, as shown in Figure 3, to prevent the bushing from rotating. Reflector 6 is provided with a central orifice shaped to conform to the cross-section of the bushing so as to permit the latter to move longitudinally therein. Bushing 8 has a collar 10 adjacent the end within the reflector 6. Collar 10 may be integral with bushing 8 or may be securely fixed thereto by welding or other suitable means. A nut 11 engages the external threads on bushing 8. A helical spring 12 surrounds bushing 8 between collar 10 and reflector 6. The periphery of nut 11, as shown in Figure 2, is knurled to provide for manual adjustment of the nut.

In Figure 1 is shown a modified means for adjusting the nut 11 when the lamp and reflector are assembled within casing 1. Integral with nut 11 is a disc 20 provided on its periphery with gear teeth 13. Secured in the side of casing member 3 is a bushing 14 within which rotates a shaft 15 having gear 16 on its inner end and having a knurled disc 17 on its outer end for adjusting, the gear 16 meshing with gears 13.

Means are provided for grounding the outer terminal or the shell of the battery in casing 1 through a switch 18 carried on casing member 2. Reflector 6 and bushing 8 complete the circuit between the threads of the lamp and casing 1, while the central contact of the lamp is directly in contact with the central pole of the battery as at 19. A spring (not shown) in the lower end of casing member 2 maintains the central pole of the battery always in contact with the central contact of the lamp.

The operation of the device is obvious. In addition to the advantage of convenient focussing, this invention affords a spring seating for the fragile lamp, cushioning it against shock and protecting it both in use and in shipment. The arrangement shown in Figure 1 permits ready adjustment of focus without removing the reflector 6, which would necessitate removal of the usual threaded cap and lens.

In the foregoing description it is assumed that casing 1 is made of conducting material. Where it is desirable to make the casing a non-conducting material, it is a simple matter to complete the circuit by providing conducting strips between the terminals which otherwise would be grounded in the casing.

What I claim is:

1. In combination with a source of illumination and a reflector, focussing means comprising an externally threaded bushing partially squared off to prevent rotation and carrying said source of illumination, said reflector having an orifice conforming to the cross-section of the bushing and permitting longitudinal motion of the bushing therethrough, a collar on the bushing on one

side of said orifice, a nut threaded on the bushing on the opposite side of said orifice, and a spring around said bushing between said collar and said reflector, for holding said nut against the latter.

2. In combination, a reflector provided with an opening therein, an externally threaded lamp support mounted and longitudinally movable in said opening, said support and opening formed to coact to prevent rotation of said support, a collar on said support on one side of the reflector, a nut threaded on said support on the other side of the reflector, and a spring between the reflector and said collar.

3. In a flashlight comprising a battery, a casing for the same, an incandescent electric lamp and a reflector secured to said casing, focussing means comprising a hollow bushing having internal and external threads, the former for carrying said lamp and the latter partially squared off to prevent rotation of the bushing, said reflector having a central orifice conforming to the cross-section of the bushing and permitting longitudinal motion of the bushing therethrough, a collar on the bushing within the reflector, a nut threaded on the bushing between the reflector and the battery, and a spring around said bushing between said collar and said reflector for holding said nut against the latter, the central contact of the lamp being in contact with the central pole of the battery, and the casing being connected with the outer pole of the battery, said reflector and bushing completing the circuit.

4. In a flashlight comprising a battery, an incandescent electric lamp, a reflector, and a casing for said battery and reflector, said casing having a flared open end for securing said reflector therein, and means for completing the circuit of said battery through said lamp, focussing means comprising a hollow bushing having internal and external threads, the former for carrying said lamp and the latter partially squared off to prevent rotation of the bushing, said reflector having a central orifice conforming to the cross-section of the bushing and permitting longitudinal motion of the bushing therethrough, a collar on the bushing within the reflector, a nut threaded on the bushing between the reflector and the battery, a spring around said bushing between said collar and said reflector for holding said nut against the latter, and means external to said casing for rotating said nut.

5. In a flashlight comprising a battery, an incandescent electric lamp, a reflector, and a casing for said battery and reflector, said casing having a flared open end for securing said reflector therein, and means for completing the circuit of said battery through said lamp, focussing means comprising a hollow bushing having internal and external threads, the former for carrying said lamp and the latter partially squared off to prevent rotation of the bushing, said reflector having a central orifice conforming to the cross-section of the bushing and permitting longitudinal motion of the bushing therethrough, a collar on the bushing within the reflector, a nut threaded on the bushing between the reflector and the battery, a spring around said bushing between said collar and said reflector for holding said nut against the latter, said nut having gear teeth, and geared means meshing with said teeth and extending through said casing for rotating said nut from the outside.

In testimony whereof I affix my signature.

ANKER S. LYHNE.