H. ROTHENBERG.

PORTABLE ELECTRIC LIGHT.

APPLICATION FILED MAY 29, 1916.

1,289,274. Patented Dec. 31, 1918.

Fig. 1.

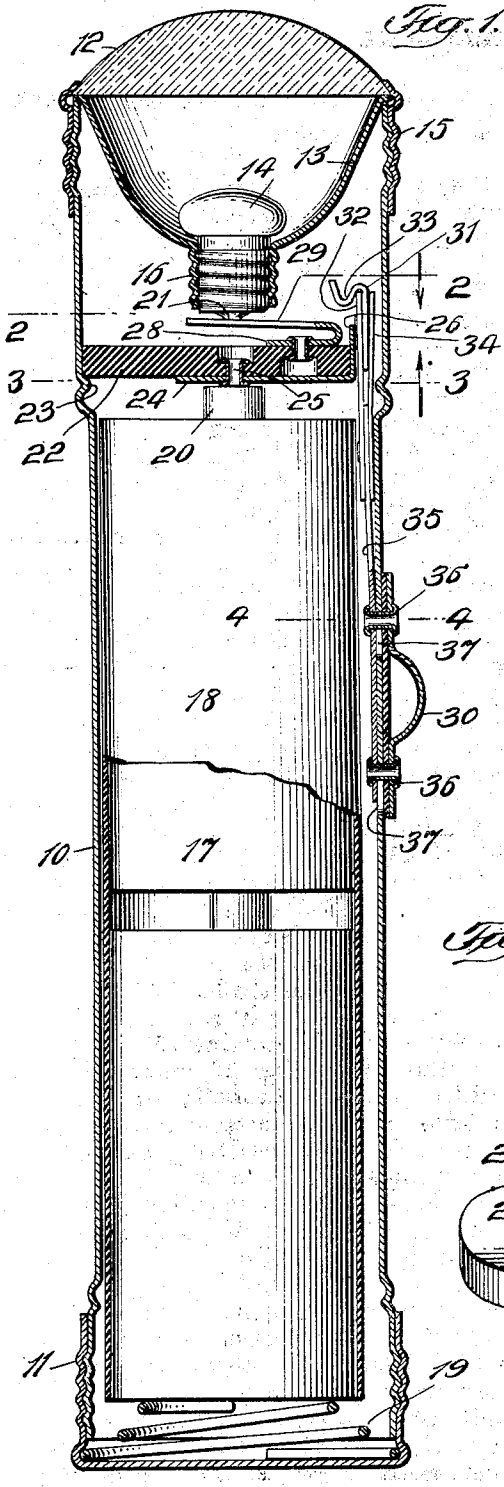


Fig. 2.

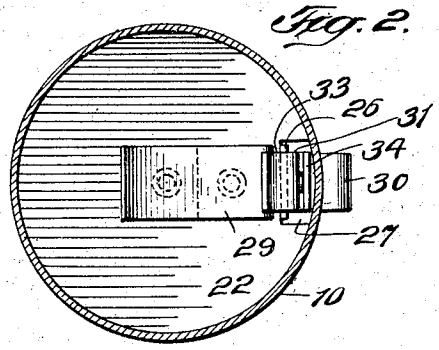


Fig. 3.

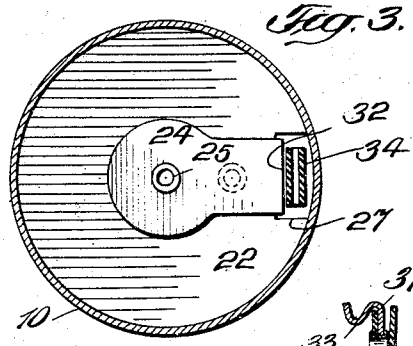


Fig. 4.

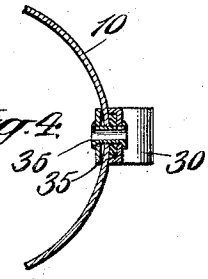


Fig. 5.

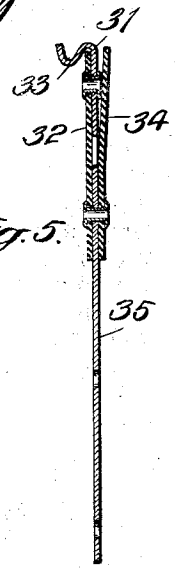
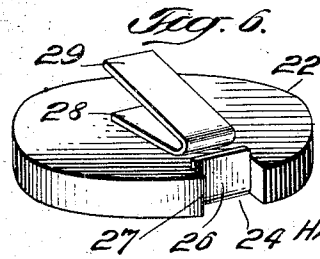


Fig. 6.



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UNITED STATES PATENT OFFICE.

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PORTABLE ELECTRIC LIGHT.

1,289,274. Specification of Letters Patent. Patented Dec. 31, 1918.

Application filed May 29, 1916. Serial No. 100,510.

To all whom it may concern:

Be it known that I, HARRY ROTHENBERG, a citizen of the United States, and a resident of Ridgewood, in the county of Queens and State of New York, have invented certain new and useful Improvements in Portable Electric Lights, of which the following is a specification.

The invention pertains more particularly to the character of electric flash lights to be held in the hand and lighted, as occasion may require, by the manual movement of a slide applied upon the exterior casing of the device.

My invention pertains more particularly to novel means for completing the circuit between the lamp and battery. The flash light of my invention comprises an exterior metal casing, a plural cell battery contained therein and at its side walls insulated by the wrapping on the battery therefrom, a conductor, such as a spring, engaging the negative pole of the battery and a removable cap at the lower end of the casing, a lens, reflector and electric bulb at the other end of the casing, a disk of insulating material interposed between the bulb and positive pole of the battery and having on one side a metal plate in constant engagement with said pole of the battery and on its other side a plate, preferably in the form of a leaf-spring, in constant engagement with one terminal of the bulb, and a circuit making and breaking switch connected with a manually operative slide on the exterior of the main casing and adapted, when moved in one direction, to electrically connect the two plates carried by said insulating disk, so as to complete the circuit and to break the circuit between said plates when moved in the other direction, thereby extinguishing the lamp.

The novel features of my invention pertain more particularly to the insulating disk carrying the conducting plates, and the switch for making and breaking the circuit at said plates.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is a central longitudinal section, with the wrapping on the battery partly broken away, of a portable flash light embodying my invention;

Fig. 2 is a transverse section through the same taken on the dotted line 2—2 of Fig. 1;

Fig. 3 is a like section through the same taken on the dotted line 3—3 of Fig. 1;

Fig. 4 is a transverse section through a portion of the same taken on the dotted line 4—4 of Fig. 1;

Fig. 5 is a central vertical section through the switch and features connected therewith, detached from the casing, and

Fig. 6 is a detached perspective view of the insulating disk carrying conducting plates on its opposite sides.

In the drawings 10 designates a tubular metal casing having a closing cap 11 at its lower end and at its other end a lens 12, reflector 13, and electric lamp 14, the lens and reflector being connected with the casing 10 by means of a threaded band 15, as usual, and the reflector 13 having a threaded inner sleeve portion 16 to receive the threaded body of the lamp 14, in the customary manner. One terminal of the lamp is in electrical connection with the reflector 13.

Within the casing 10 is placed a plural cell battery 17 having a wrapping 18 of insulating material. Within the lower end of the casing 10 and being in electrical connection therewith, is confined a coiled spring 19 which is in constant engagement with the negative pole of the battery 17 and acts to press the battery in a direction toward the outer end of the casing 10.

Within the casing 10, intermediate the positive pole 20 of the battery and the lower terminal 21 of the lamp, is secured a transverse disk 22 of insulating material, said disk being seated on an annular shoulder 23 formed by grooving the casing 10 inwardly. The disk 22 has secured on its lower side a conducting plate 24 by means of a rivet 25 which does not extend, preferably, through the upper surface of the disk, and said plate 24, which is in the form of a strip of metal, extends laterally and then is bent upwardly, forming an upwardly extending arm 26, said arm being within a recess 27 cut in the edge of the disk 22. The plate 24 is in constant electrical connection with the positive pole 20 of the battery, but normally is not in electrical connection with any other feature of the device. Upon the upper side of the disk 22 is secured a plate 28 which I preferably form of spring metal and of the outline illustrated in Fig. 1, said plate being

secured at one end portion to the disk 22 and then folded over upon itself to create a spring member or arm 29, which is engaged by the lower terminal 21 of the lamp and constitutes a conductor in electrical connection with said terminal. I prefer to employ the spring arm 29 because the flexible nature of the arm permits the lamp to be normally screwed against it without straining the lamp or the sleeve 16, and the flexibility of said arm 29 also assures efficient electrical engagement between itself and the terminal 21 of the lamp. The plate 28 is secured to the disk 22 by means of an eyelet rivet, as shown in Fig. 1, and is normally not in electrical connection with the plate 24 carried at the opposite side of the disk 22.

The switch for making and breaking the circuit is connected with a slide 30 mounted on the exterior of the casing 10 and adapted to be moved manually. The switch proper consists of a short metal plate 31 secured to a strip of insulating material 32 and having its upper end bent downwardly and then upwardly or into approximately V-outline, as at 33. The body of the switch 31 is insulated from the casing 10 by a supplemental strip of insulating material 34, which is interposed between the body of the switch 31 and the inner wall of the casing 10. The lower portions of the insulating strips 32, 34 have secured between them a metal strip 35 which is spaced at its upper end from the lower end of the switch 31 and connected by eyelet-rivets 36 with the end portions of the slide 30. The casing 10 is formed with slots 37 through which the rivets 36 extend and which permit said rivets to have a sliding movement under the actuation of the slide 30. The switch 31, insulating strips 32, 34, and metal strip 35 are all within the casing 10 and connected together and to the slide 30, which is on the exterior of the casing. When the slide 30 is moved toward the outer end of the light, it will push the parts connected with the switch 31 in an outward direction or to the position shown in Fig. 1, there being no circuit through the lamp when said switch is in that position. When the slide 30 is moved in an opposite direction or toward the handle-end of the light, the V-member 33 of the switch is carried inwardly against the upper end of the arm 26 of the plate 24 and the bent portion of the plate 28, and at such time bridges over the gap between the adjacent portions of the plates 24, 28 and completes the circuit through the lamp, the lamp igniting and remaining lighted so long as the switch-member 33 is permitted to connect the plates 24, 28. When it is desired to break the circuit and extinguish the lamp, it is simply necessary to push the slide 30 in an outward direction so as to effect the movement of the switch-member 33 from its engagement with the plates 24, 28. When the switch-member 33 is in circuit-making position the circuit will be from the negative pole of the battery through the spring 19, casing 10 and reflector 13 to one terminal of the lamp 14 and from the positive pole of the battery through the plate 24, switch 31 and plate 28 to the other terminal of the lamp 14.

I illustrate the preferred means for carrying out my invention without intending to limit myself to the specific details thereof further than the appended claims may require.

What I claim as my invention and desire to secure by Letters Patent, is:

1. In a portable electric light, a casing containing a battery and having at one end an electric lamp bulb and lens, an insulating member intermediate the positive pole of the battery and the base of the lamp and having a conductor on its lower face in engagement with said positive pole of the battery, and a second conductor on the other face adapted to engage said base of the lamp, and a switch mounted on the casing adapted when moved in one direction to electrically connect the positive battery terminal with the base of the lamp and when moved in an opposite direction to disconnect the same and break the circuit, the negative pole of the battery being in electrical connection with the lamp, said switch comprising an exposed thumb piece and a slide connected thereto within said casing, said thumb piece and slide being insulated from said second conductor.

2. In a portable electric light containing a battery and having at one end an electric lamp bulb and lens, an insulating member intermediate the positive pole of the battery and one terminal of the lamp and having on its lower face a conductor in engagement with said pole of the battery and on its other face a conductor in engagement with said terminal of the lamp, and a switch mounted on the general casing adapted when moved in one direction to connect said conductors and when moved in an opposite direction to disconnect the same and break the circuit, the negative pole of the battery being in electrical connection with the lamp, and said switch comprising a slide within said casing, an exposed thumb-piece connected with said slide and a conducting member connected with said slide and insulated therefrom and from the general casing of the light and having an inwardly extending arm adapted to span the space between the adjacent portions of said conductors.

3. In a battery hand lamp, the combination of a casing, a battery and a lamp therein, means connecting the base of the battery with the outer terminal of the lamp,

and switch mechanism for connecting the upper terminal of the battery with the inner terminal of the lamp, said mechanism including contact members connected, respectively, with the inner lamp terminal and the upper battery terminal, a contact blade, movable within said casing and longitudinally thereof, into and out of engagement with said contact members to make or break electrical connection between said battery and said lamp, and a sliding thumb-piece conveniently positioned on said casing and operatively connected to move said blade.

4. In a battery hand lamp, the combination of a tubular casing, a metal cap secured to one end of said casing and carrying a contact spring, a collar secured to the other end of said casing, a lens and a reflector held in position by said collar, a lamp within said reflector, means for maintaining electrical connection between said contact spring and one terminal of said lamp, a battery within said casing with its bottom contacting with said contact spring, a switch mechanism for connecting the inner terminal of said lamp with the upper battery terminal, said mechanism comprising an insulating base, a pair of contact members spaced apart and mounted on said base, and a contact blade movable longitudinally of said casing into the gap between said contact members to bridge the gap and permit current to flow from said battery through said lamp.

5. In a battery hand lamp, the combination of a tubular casing, a battery and a lamp therein, means connecting one pole of the battery with the outer terminal of the lamp, and circuit controlling-means for connecting the other pole of the battery with the inner terminal of said lamp, said circuit-controlling means comprising contact members connected respectively with the inner lamp terminal and the adjacent battery pole and spaced apart, a conductor movable to bridge said space when the lamp is to be lighted, and a thumb-piece mounted to slide longitudinally of said casing and operatively connected to actuate said conductor.

Signed at New York city, in the county of New York and State of New York, this 27th day of May, A. D. 1916.

HARRY ROTHENBERG.

Witnesses:
ARTHUR MARION,
CHAS. C. GILL.