G. V. C. VREELAND.

FLASHLIGHT.

APPLICATION FILED DEC. 9, 1919.

1,372,851. **Patented Mar. 29, 1921.**

Fig. 1.

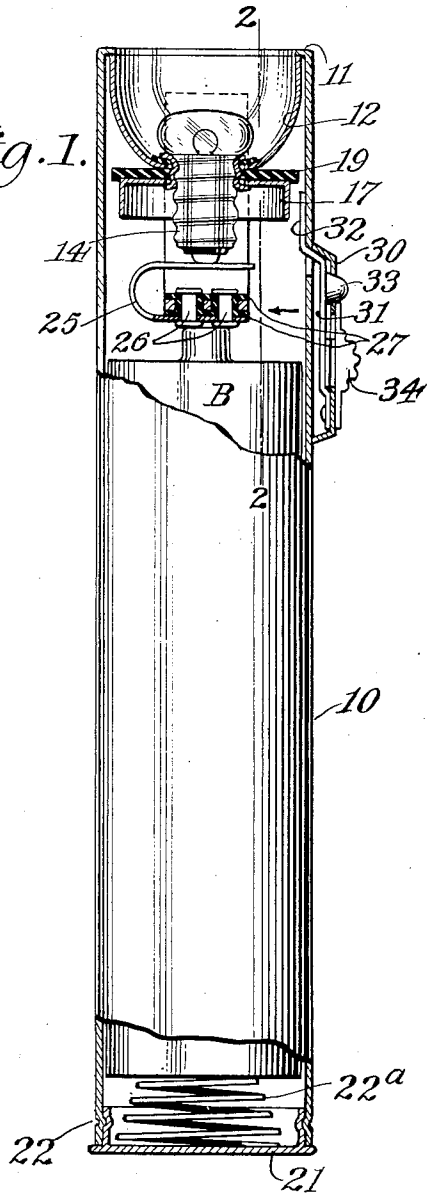


Fig. 3.

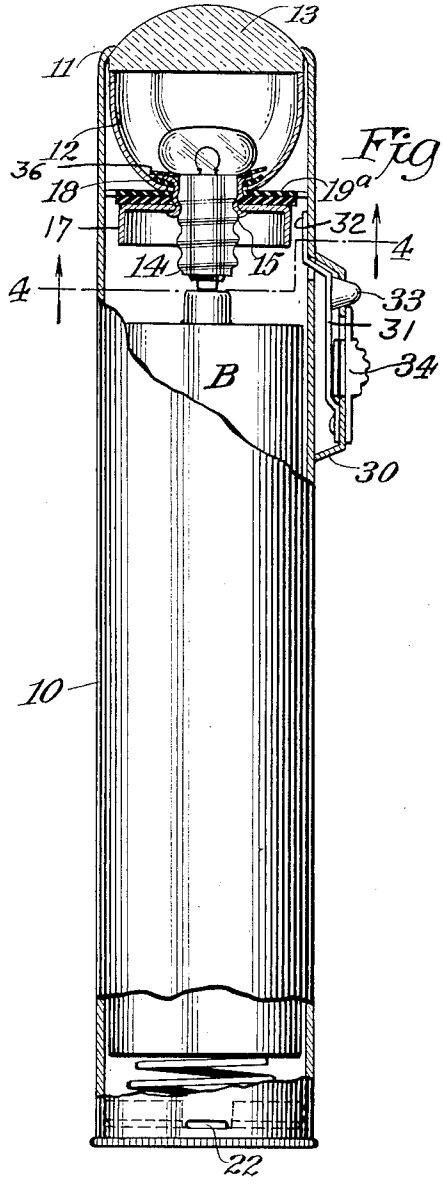


Fig. 2.

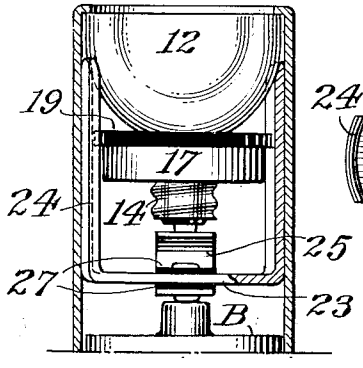


Fig. 5

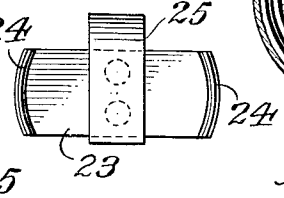
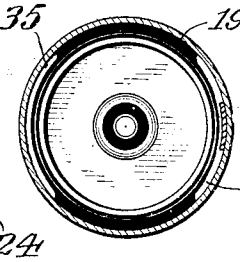


Fig. 4.



Inventor,
George V. C. Vreeland
By Kerr Page Cooper & Hayward
Attorneys

UNITED STATES PATENT OFFICE.

GEORGE V. C. VREELAND, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO NATIONAL CARBON COMPANY, INC., A CORPORATION OF NEW YORK.

FLASHLIGHT.

1,372,851. Specification of Letters Patent. Patented Mar. 29, 1921.

Application filed December 9, 1919. Serial No. 343,624.

To all whom it may concern:

Be it known that I, GEORGE V. C. VREELAND, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Flashlights, of which the following is a full, clear, and exact description.

The present invention has for its object the provision of a flashlight the parts of which are so arranged that the cost of manufacture and assembly can be considerably reduced over that of lamps now in commercial use.

Other objects reside in the provision of a flashlight in which certain parts to perform certain functions may be omitted or included as desired without serious changes in construction. With such a flashlight manufacturing problems are simplified inasmuch as by a mere change in the assembly steps, different types and grades of flashlights may be turned out to meet the demands of the trade.

The present invention contemplates as an advantageous combination a flashlight of the tubular type with or without front lens and with or without a shock-absorbing element.

Other objects reside in the provision of a novel form of contact device.

Figure 1 is a longitudinal partly sectional view of a flashlight with my detachable shock-absorber in place.

Fig. 2 shows a detail view taken on line 2—2 of Fig. 1.

Fig. 3 shows a similar view of a flashlight in which the shock-absorber is omitted.

Fig. 4 shows a sectional view taken on line 4—4 of Fig. 3 on looking in the direction of the arrows.

Fig. 5 is a top view of the detachable shock-absorber.

The flashlight comprises a tubular casing 10 here shown of metal or conducting material. The forward end of the tube is provided with inwardly turned edges 11 to form an abutment for a reflector 12 or for a lens 13 as shown in Fig. 3. This edge also serves to retain all of the interior parts within the casing. It will be understood that the usual lens ring may be employed with a fiber casing but with a metal casing I prefer to turn the edge inwardly thereby cheapening the construction. It will be understood that the lens may be used or not as desired.

A lamp having a threaded socket 14, is threaded in conductive lamp socket 15 which crimps over contact part or cup 17 and at the upper end over an insulating washer 18. Intermediate the reflector and the lamp socket is a large insulating disk 19 which extends out beyond the periphery of cup 17 but not to the inner edge of the casing 10. The parts just enumerated serve to support the lamp and to conduct current to the outer lamp terminal from cup 17 without energizing the reflector 11. These parts I will hereafter term a lamp support and reflector assembly. It will be understood that the arrangement of these parts may be modified in various ways and that I have shown merely an advantageous arrangement. The term reflector and lamp support assembly is intended to express broadly a structure having these functions.

The casing is provided at lower end with a closure 21 which has parts fitting within the casing and is detachably secured thereto by a bayonet joint 22. The closure 21 is provided with a spring 22^a which conducts current from battery B to the casing and also retains the batteries and the other parts in proper position in the casing.

In flashlights there has been some demand for a means to prevent the impact of the batteries from damaging the central lamp terminal. In the present embodiment I provide such an impact preventer and this device is of such character that it may be inserted or omitted as desired.

The impact preventer comprises a U-shaped metallic member having a cross piece 23 and upwardly extending legs 24. These legs are curved to conform to the curvature of the inside of casing 10 and are of such dimensions as to closely fit within the casing. The upper ends of the legs 24 are beveled off so as to conform to the curvature of the outside of the reflector 12. The inside curvature of legs 24 is such that these legs closely fit the periphery of insulating disk 19 and centralize the reflector and lamp support assembly in the casing when the impact preventer is in the position shown in Figs. 1 and 2. From Fig. 2 is will be clear that any upward impact of battery B will react against cross member 23 and transmit the

upward thrust to legs 24. Here the thrust is absorbed partly directly by the reflector and partly by the side walls of casing 10. Under a thrust the impact preventer wedges tightly into the space between the reflector walls and casing and distributes the thrust and aids in centralizing the reflector assembly in the casing.

In order to conduct the current from the central pole of the battery to the central terminal of the lamp I employ a U-shaped spring connector 25 which is fastened to the cross member 23 by the rivets 26 and insulated from the member by upper and lower insulating strips 27. The spring connector 25 is adapted to permit a relative movement of the impact preventer and casing without transmitting undue shock to the central terminal of the lamp. This connector provides a resilient seat for the lamp and prevents the base from being damaged when the lamp is inserted in the lamp socket.

To establish the circuit to the lamp I provide a contact device which will now be described. Attached to the outside of the casing adjacent the upper end is a metallic contact box casing 30. This casing has riveted thereto an automatically returning circuit-closing member in the form of a spring blade 31 which has an end 32 projecting within the casing normally substantially flush with the walls thereof. The end 32 is in proximity to the periphery of contact part or cup 17. A push button 33 is riveted or otherwise secured to the contact spring 31 and projects through an opening in casing 30. By pressing down on this button, the automatically retaining circuit-closing member will be displaced laterally, bringing end 32 into contact with contact part or cup 17 and thereby closing the circuit to the lamp. Upon releasing the pressure upon the push button the resiliency of member 31 will cause it to return to circuit opening position. To maintain the circuit permanently in closed condition I provide a finger slide 34 which is slidable in a slot in casing 30 and retained therein by flanges on the slide. This finger slide is adapted to slide upwardly and cam the push button inwardly and hold it there until such time as it is desired to break the circuit. Then the finger slide is retracted and the member 31 and push button 33 return laterally to normal position.

The embodiment shown in Fig. 3 is similar in practically all respects except that the shock absorber is omitted. In order to centralize the reflector I provide a supplementary fiber washer or disk 19ª which extends to and coöperates with the walls of casing 10. This disk is cut away on the side as shown at 35, to permit same to pass the inturned end 32 of the contact member 31. In assembling the parts, I have also shown in Fig. 3 a supplementary celluloid washer 36 under the lamp. This washer is adapted to form a part of the reflecting surface and prevent the formation of reflected shadows due to the fiber washer 18 and lamp socket 15.

The assembly of the parts will be readily understood. All the parts, lens, reflector and lamp support assembly, etc., are of such outside diameter that they can be placed in the rear or lower end of casing 10 and be advanced to their proper positions past the tip 32 of the contact spring.

The impact preventer is inserted preferably at right angles to the contact box to avoid interference. Finally, the batteries and rear closure are inserted and the flashlight is ready for use.

With smaller sized lights I have found that the same length tube 10 will suffice irrespective of whether the impact preventer is omitted or not. With the larger lights different length tubes will be necessary. With the smaller lights the spring 22ª expands further and forces the battery into contact with the central lamp terminal.

I claim:

1. In a flashlight in combination, a tubular casing, having retaining means at the front thereof for the parts inserted therein, a reflector and lamp support assembly and impact preventer, a battery, said assembly, impact preventer, and battery being adapted to be inserted within the casing at the open rear end thereof, and a removable closure for the rear end of the casing adapted to retain all the parts within the casing.

2. In a flashlight in combination, a tubular casing having retaining means at the front thereof for the parts within the casing, a reflector and lamp support assembly, an impact preventer, a battery, said impact preventer having provision for receiving the impact thrust of the battery and for transmitting the same in part directly to the reflector and thence to the tubular casing and in part directly by a wedging action against the walls of the tubular casing to said walls and a closure for the rear end of said casing.

3. In a flashlight in combination, a tubular casing having retaining means at the front thereof for the parts within the casing, a reflector and lamp support assembly, an impact preventer and a battery all within the casing, said impact preventer having provisions for centralizing the reflector and lamp support assembly within the casing, said parts all being adapted to be inserted at the open rear end of the casing, and a removable closure for said end.

4. The invention set forth in claim 3 in which the impact preventer is adapted upon receiving a battery thrust to tightly wedge between the reflector and the casing and thereby transmit a part of the thrust directly to the reflector and another part of the thrust directly to the casing walls.

5. An impact preventer for a flashlight having a reflector and a tubular walled casing therein, said preventer comprising a U-shaped member, the legs of which coöperate with both reflector and casing walls to take up the battery thrust and the cross member of which is adapted to directly receive the battery thrust.

6. In a flashlight having a tubular casing with a reflector and lamp therein, an impact preventer comprising a U-shaped member having legs adapted to impart the battery thrust to the thrust-resisting parts, and a cross-member adapted to receive the battery thrust and a resilient connector carried thereby and in continuous resilient contact with the central lamp terminal to transmit the current from the battery to the central lamp terminal without imparting severe shocks thereto, said resilient connector maintaining contact with the lamp terminal when the lamp circuit is broken.

7. In a flashlight a tubular casing having retaining means thereon for the parts within the casing, a reflector and lamp support assembly, said assembly having an insulating disk of a diameter slightly less than the interior of the casing, a battery, an impact preventer between the battery and the before mentioned assembly, said impact preventer comprising a U-shaped member having legs curved to correspond to the interior of the casing, said legs having an interior curvature to correspond with the curvature of the insulating disk whereby the reflector and lamp assembly is centralized by the impact preventer.

8. The invention set forth in claim 7 in which the legs are beveled at their upper ends to correspond to the slope of the reflector.

9. In a flashlight, a tubular casing, a reflector and lamp support assembly therein, said assembly including a contact part, a contact device carried by the casing, said device including an automatically returning circuit-closing member, said member having a portion therein within the casing adjacent to, but normally displaced from, the contact part, said member being movable laterally into contact with the contact part to close the circuit and being thereafter movable to return to normal open circuit position, a push button carried by said member for temporarily closing the circuit, and a sliding member adapted to permanently maintain the automatically returning circuit-closing member in its laterally displaced circuit-closing position.

10. The invention set forth in claim 9 in which the sliding member coacts with the push button and by a camming action thereon moves the automatically returning circuit closing member.

In testimony whereof I hereunto affix my signature.

GEORGE V. C. VREELAND.