Nov. 23, 1954 J. E. STOKER ET AL 2,695,403

FLASHING FLASHLIGHT

Filed Oct. 30, 1953

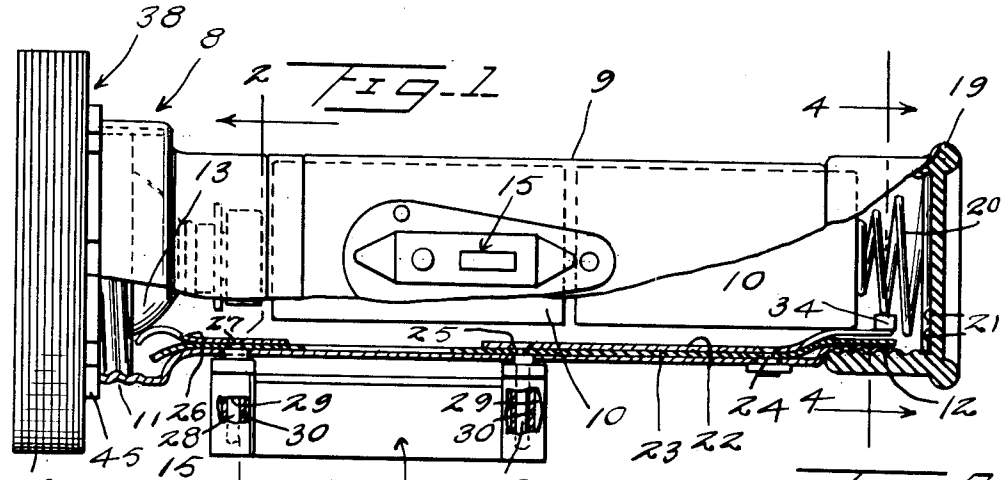


FIG. 1

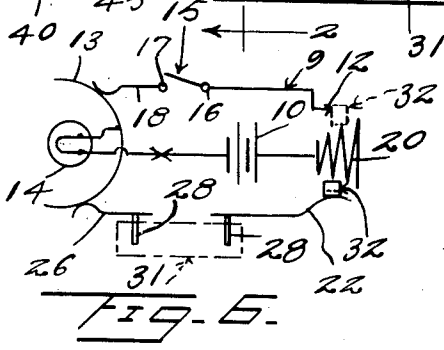


FIG. 6

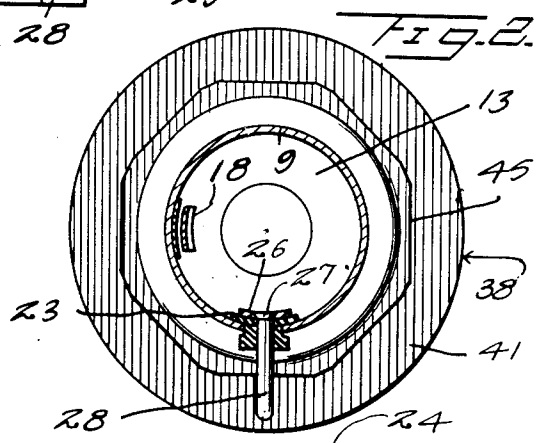


FIG. 2

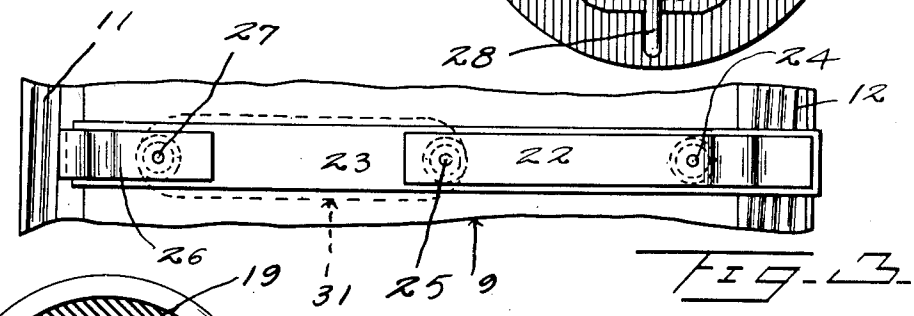


FIG. 3

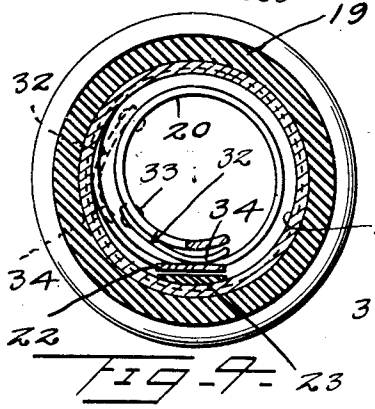


FIG. 4

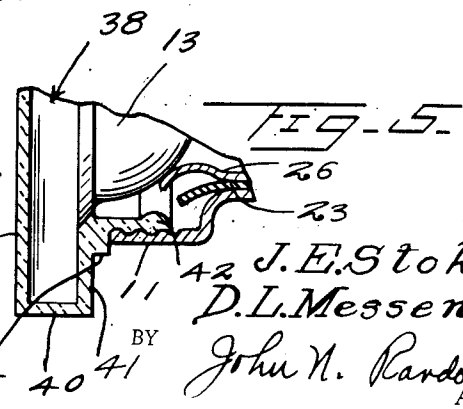


FIG. 5

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FLASHING FLASHLIGHT

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7 Claims. (Cl. 340—321)

This invention relates to a novel flashing flashlight and more particularly to a flashing attachment for use with substantially conventional flashlight parts to provide an improved flashlight capable of functioning either in a conventional manner for supplying a steady light beam or an intermittent flashing light.

A primary object of the present invention is to provide a flashlight having a novel flashing unit for producing an intermittent flashing light especially adapted for use in conjunction with the flashlight holder as disclosed in our copending application Serial No. 389,409, filed October 30, 1953.

Still a further object of the invention is to provide a flashlight having a flashing unit of extremely simple construction associated therewith and including a separate switch means for energizing the flashlight to produce a flashing light and which may be moved to a secondary position enabling the flashlight to be utilized in a conventional manner by the closing of a conventional flashlight switch for providing a steady beam of light.

Still another object of the invention is to provide a novel flashlight the movement of which is substantially foolproof in positioning the parts for closing an electric circuit through the flashing unit thereof.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawing, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a longitudinal side elevational view, partly in section, of the improved flashlight;

Figure 2 is a cross sectional view thereof taken substantially along a plane as indicated by the line 2—2 of Figure 1 and with the detachable flashing unit removed;

Figure 3 is a fragmentary longitudinal sectional view looking toward the inner side of the lower portion of the flashlight casing as seen in Figures 1 and 2;

Figure 4 is a cross sectional view through the rear portion of the flashlight taken substantially along a plane as indicated by the line 4—4 of Figure 1, and on an enlarged scale;

Figure 5 is a fragmentary longitudinal sectional view, partly in elevation taken through a portion of the forward end of the flashlight, and

Figure 6 is a diagramamtic view illustrating the electric circuit of the flashlight.

Referring more specifically to the drawing, the novel combination flashlight in its entirety and comprising the invention is designated generally 8 and includes a flashlight barrel or casing, designated generally 9, adapted to house any desired number of conventional dry cell batteries 10, mounted therein in a conventional manner, two of which have been illustrated. The barrel 9 has an enlarged threaded forward end 11 constituting a part of the head thereof and an opposite threaded end 12 which may be of slightly reduced diameter. A conventional reflector 13 is disposed in the head portion 11 electrically insulated from the barrel 9, as illustrated in Figure 5, and contains a conventional light bulb 14, of the type employed in flashlights, one contact of which is electrically connected in a conventional manner to the forward positive contact of the forwardmost battery 10, and the other contact of which is in electrical contact with the reflector 13, as illustrated in Figure 6. Said reflector 13 is formed of an electrical conducting material and constitutes a part of each electric circuit of the flashlight, as will hereinafter be described. A conventional flashlight switch 15 is mounted on the barrel 9 and has one

contact 16 thereof electrically connected to the barrel 9, which is formed of electrical conducting material, and its other contact 17 electrically insulated from the barrel 9 and connected to the reflector 13 by a conductor strip 18, which is likewise insulated from the barrel 9.

In lieu of the conventional cap of electrical conducting material, the rear end of the flashlight barrel is closed by a cap 19 which is threaded thereon and which is formed of an electrical insulating material, such as plastic. A coil spring 20 has its larger end convolution suitably secured in any manner as indicated at 21 to the inner side of the closed end of the cap 19 and the smaller end convolution of the spring 20 bears against the rear, negative end of the rear dry cell battery 10 and makes electrical contact therewith. A strip of electrical conducting material 22 extends longitudinally along a part of the rear portion of the barrel 9 and is disposed on the inner side thereof and electrically insulated therefrom by a strip of electrical insulating material 23 which is disposed between the conductor strip 22 and the barrel 9. The strips 22 and 23 are secured to the barrel 9 by fastenings 24 and 25 which are insulated from said barrel. One end of the conductor strip 22 is disposed in the open rear end 12 and is spaced from an intermediate, adjacent convolution of the conductor spring 20. The insulating strip 23 extends forwardly beyond the forward end of the conductor strip 22 and has a forward portion disposed beneath a conductor strip 26, a rear portion of which is anchored in the barrel 9 by a fastening 27, corresponding to the fastening 25. The other end of the conductor strip 26 yieldably bears against and makes contact with the reflector 13, similarly to the forward end of the conductor strip 18. The fastenings 25 and 27 have studs 28 which project from the outer ends thereof and outwardly with respect to the barrel 9 and which form mounting posts and electrical conductors which engage in bores or recesses 29 in the end portions of a conventional flasher unit 31 of the type as disclosed in U. S. Patent No. 2,388,712. The posts 28 make electrical contact with electrical conductor portions 30 which line the bores or recesses 29.

As best illustrated in Figure 4, a leaf spring 32 formed of electrical conducting material has one end secured by a fastening 33 to the outer side of an intermediate convolution of the spring 20, which is located adjacent the conductor strip 22. The strip 32 extends circumferentially of said convolution and has an opposite outwardly bowed free end 34.

The forward end 11 of the barrel 9 preferably is closed by and supports a lens 38, corresponding to the lens 38 as described in detail in our copending application, previously refered to, and which lens includes a front wall 39 formed of a clear transparent material, an outer side wall 40 and a rear wall 41, which walls 40 and 41 are preferably formed of a colored transparent or translucent material. The lens 38 which is preferably formed of a plastic also includes a threaded inwardly extending annular flange 42 which threadedly engages in the head portion 11 and the wrench land portion 45. However, it is to be understood that a conventional flashlight lens and retaining ring could be substituted for the lens 38.

The flasher unit 31 constitutes a female unit or socket which is removably applied to the two posts or prongs 28 similar to the attachment of a conventional electric socket to an electric plug, and said flasher unit 31 is supported by engagement with the prongs or posts 28. The cap 19 of insulating material and the coil spring 20 and leaf spring 32, carried thereby, constitute a switch of the auxiliary flasher circuit. When the cap 19 is tightened to its full extent on the threaded rear end 12 of the barrel 9, as illustrated in Figure 1, the outwardly bowed free end 34 of the contact leaf spring 32 will be disposed in engagement with the conductor strip 22, as illustrated in Figures 1 and 6 and in full lines of Figure 4, so that an electric circuit will be completed from the coil spring 20 through the battery or batteries 10, bulb 14, reflector 13, strip 26, flasher unit 31, strip 22 and the spring 34 back to the spring 20 for energizing the bulb 14. However, the unit 31 will cause an intermittent energizing of the bulb 14 to produce a flashing light which will be emitted through the lens walls 39, 40 and 41. This circuit is clearly illustrated in Figure 6, diagrammatically.

By backing off the cap **19** from its fully tightened position of Figure 1, a portion of a complete turn, the leaf spring **34** is moved out of contact with the conductor strip **22** interrupting the aforedescribed flasher circuit. When the spring portion **34** moves out of contact with the conductor strip **22**, the resiliency of the spring **32** causes said portion **34** to spring outwardly and into engagement with the inner surface of the barrel portion **12**, as illustrated in dotted lines in Figures 4 and 6. When thus disposed, the switch **15** can be operated in a conventional manner for energizing the light bulb **14**, when said switch is closed, to provide a steady beam as is conventional in flashlights. When the flashing circuit previously described is again desired, it is only necessary to fully tighten the cap **19** whereby the flashing circuit will be completed and maintained until the cap is again backed off as previously described. Thus, as the flashing light is usually employed in an emergency and where haste is required, the user is not required to adjust the cap **19** until the flashing circuit is established and can insure immediate establishment of the flasher circuit by merely turning the cap to a fully tightened position. Obviously, when the spring **32** is in its dotted line position of Figure 4 and the conventional switch **15** is in an open position, the flashlight is completely deenergized.

Obviously, the flashlight **8** may be of various sizes and may be supplied with current by one or any desired number of dry cell batteries **10**.

Various other modifications and changes are likewise contemplated and obviously may be resorted to, without departing from the spirit or scope of the invention as hereinafter defined by the appended claims.

We claim as our invention:

1. In a flashlight of the character described, a cap of electrical insulating material threadedly connected to the rear end of a flashlight barrel of electrical conducting material and supporting a coil spring in electrical contact with a dry cell battery of the flashlight and electrically insulated from the flashlight barrel, an auxiliary flashing circuit including a flasher unit, said auxiliary circuit having electrical contact with the flashlight bulb, and an electrical conductor element forming a part of said auxiliary flasher circuit electrically connected to and carried by said coil spring and movable into and out of engagement with another conductor element of the auxiliary circuit by rotation of the cap for energizing said auxiliary circuit to intermittently energize the flashlight bulb when the cap is rotated to a position to cause said conductor element to engage said other conductor element of the auxiliary circuit.

2. In a flashlight as in claim 1, said first mentioned conductor element comprising a leaf spring having one end secured to a convolution of the coil spring and disposed on the outer side and circumferentially thereof, said leaf spring having a free end spring biased into engagement with said last mentioned conductor element and being spring biased outwardly into engagement with the flashlight barrel when the cap is turned to move the leaf spring to a position circumferentially spaced from said last mentioned conductor element to form an electrical connection between the coil spring and the flashlight barrel.

3. A flashlight as in claim 1, said first mentioned conductor element being disposed relatively to the coil spring to engage said last mentioned conductor element when the cap is moved to a fully tightened position on the rear end of the flashlight barrel.

4. In a flashlight as in claim 1, said auxiliary flashing circuit including spaced conductor posts electrically insulated from one another and from the flashlight barrel and projecting outwardly from the flashlight barrel, and said flasher unit having socket portions engaging said posts and electrically connected thereto for forming an electrical circuit through the flasher unit between said posts, said posts demountably supporting the flasher unit on the flashlight and externally of the flashlight barrel.

5. In a flashlight as in claim 4, said last mentioned conductor element being electrically connected to one of said posts, and a third conductor element of the auxiliary flashing circuit electrically connected to the other post and to the flashlight bulb.

6. In a flashlight of the character described, an auxiliary flasher circuit electrically connected to a flashlight bulb and electrically insulated from a flashlight barrel of electrical conducting material, said auxiliary circuit including a flasher unit demountably supported externally of the flashlight barrel, a cap of electrical insulating material threadedly connected to the rear end of the flashlight barrel and supporting a coil spring of electrical conducting material in contact with a battery of the flashlight and electrically insulated from the flashlight barrel, and an electrical conductor element connected to said coil spring forming a part of said auxiliary flashing circuit and movable with the coil spring by rotation of the cap into or out of electrical contact with another part of said auxiliary flashing circuit for completing an electric circuit to the flashlight bulb when said conductor element is in engagement with said last mentioned part of the flasher circuit.

7. In a flashlight as in claim 6, said conductor element being spring biased into engagement with the flashlight barrrel when moved to a position circumferentially spaced from said last mentioned part of the auxiliary flashing circuit for interrupting said auxiliary flashing circuit and for completing an electrical connection between said coil spring and the flashlight barrel.

No references cited.