June 29, 1926. 1,590,624

W. F. HENDRY ET AL

FLASH LIGHT

Filed April 14, 1925

Fig. 1.

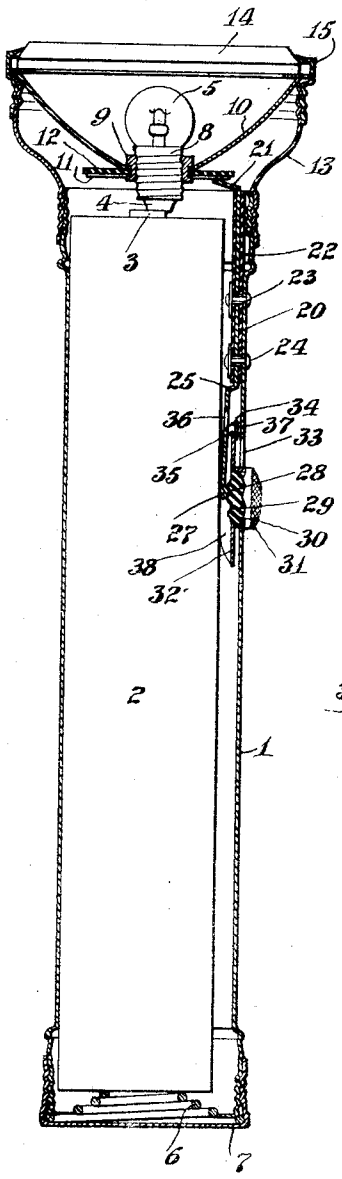


Fig. 2. Fig. 3. Fig. 4.

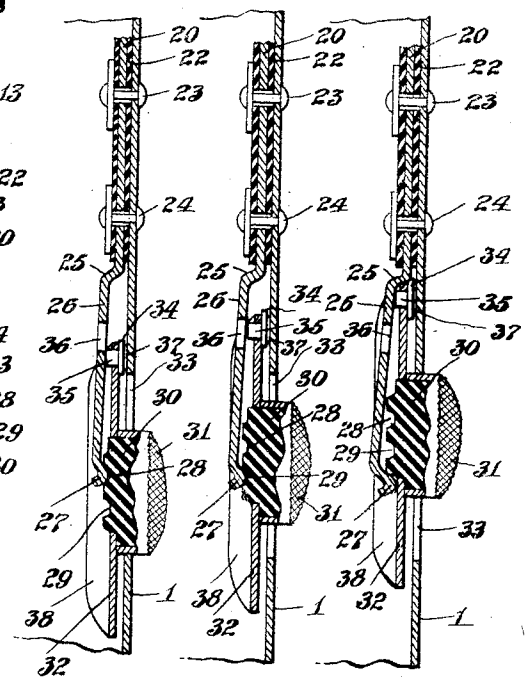
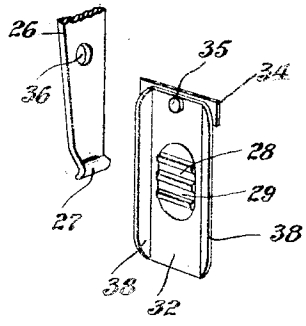


Fig. 5.



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UNITED STATES PATENT OFFICE.

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FLASH LIGHT.

Application filed April 14, 1925. Serial No. 22,961.

This invention relates to flashlights, and more particularly to a new and improved switch arrangement for flashlights.

The switch herein disclosed is of the same general type as the one described and claimed in our copending application filed April 14, 1925, Serial No. 22,960, in which the switch comprises a slide adapted for movement into three distinct positions; permanent open circuit, flashing, and permanent circuit closure. In accordance with the present invention, a single spring is provided for cooperating in the control of the lamp circuit and for controlling the positioning of the slide. For the purpose of insuring electrical contact between the slide and the casing in all positions of the former, a wiper is fastened to the slide in a manner to contact with the casing when the slide is actuated to flash the light.

These and other features of the invention will more readily appear from the following detailed description of an embodiment thereof and the appended claims.

In the drawings, Fig. 1 is a vertical cross-section of the whole flashlight assembly; Fig. 2 is an enlarged vertical cross-section of the switching mechanism in its locked normal position; Figs. 3 and 4 are similar views of the switching mechanism in the flashing and locked actuated positions, respectively; and Fig. 5 is a perspective view of parts of the switching mechanism in an unassembled condition.

The flashlight consists of a tubular metallic casing containing dry cells 2 surrounded by an insulating wrapper. The dry cells are held within the casing 1 with the carbon terminal 3 of the uppermost dry cell engaging one terminal 4 of an incandescent light bulb 5, and the bottom of the lowermost dry cell engaging a coiled spring 6 held under compression between the bottom of the lowermost dry cell and a cap 7 which screws on the open lower end of the casing 1. The other terminal of the bulb 5 is connected with a metallic screw-threaded sleeve or base 8 held in a socket 9 mounted in a metallic reflector 10. The socket 9 serves to insulate the base 8 from the reflector 10 and also to clamp against the reflector a metallic disc 11 mounted on an insulating disc 12. The base 8 is conductively connected with the metallic disc 11. The reflector 10 is surrounded by a bell-shaped casing 13 which is in screw-threaded engagement with the upper end of the tube 1. The reflector is held in position by means of a glass lens 14 clamped against the free end of the bell 13 by means of a ring 15. It will be understood, of course, that the switch herein disclosed is capable of use with reflector and lamp socket arrangements of widely varying types.

The circuit for the lamp 5 may be traced through its terminal 4, thence through the dry cells, the coiled spring 6, cap 7, to metallic casing 1. The other terminal of lamp 5 is connected through the base 8 and disc 11 to a flat spring 20, the free end 21 of which engages the under side of disc 11. The spring 20 is surrounded by an insulating wrapper 22 and is firmly held in position by means of rivets 23 and 24 which pass through the casing 1, the wrapper 22 and the spring 20. The holes in the spring through which the rivets 23 and 24 pass are large enough to prevent engagement between these elements, resulting, therefore, in proper insulation of the spring from the casing 1. The lower part of the spring 20 is bent at 25 so that the lower free end 26 thereof is in a slightly lower plane than the riveted body of the spring. The free end of the spring part 26 is bent into a nose 27 adapted to engage corrugations 28 and 29 of a molded piece of insulation 30 held within a button 31 protruding from a metallic slider 32. The button 31 projects through a longitudinal slot 33 provided in the tubular casing 1. The slider 32 is so proportioned that it covers the slot 33 in all positions of the button 31. A metallic wiper 34 is fastened by means of a rivet 35 to the upper edge of the slider 32. This wiper 34 is long enough continuously to contact at its edges with the metallic casing 1 in all positions of the slider. The wiper 34 is of resilient material and will, therefore, conform to the shape of the casing, the ends of the wiper remaining in contact with the casing. The rivet 35 is of insulating material and its lower end projects beyond the lower surface of the slider 32. The upper end of rivet 35 is held in a metallic ring 37. The free spring end 26 will press the slider 32 with its wiper 34 into engagement with the inside surface of the casing 1. In

the lowermost position of the slider 32 the bent end 27 of the spring rests in the corrugation 28 and the insulating lug 35 lies against the spring 26 below a perforation 36 provided therein. When the button 31 is depressed against the tension of spring 26, the circuit of the lamp will remain interrupted in the insulating lug 35.

When it is desired to flash the light, the slider 32 is moved upward by means of knob 31 into an intermediate position, illustrated in Fig. 3. In this position the nose 27 of the spring rests in the corrugation 29, holding the slider pressed against the casing 1. The insulating lug 35 is now opposite the perforation 36 in the spring. When, therefore, the button 31 is depressed against the tension of spring 26, the lug 35 will pass through the perforation 36 and the slider 32 is brought into engagement with the spring 26. The circuit of the lamp is thus completed through the spring 26, slider 32, wiper 34, and the casing 1, when the lamp may be flashed. By means of flanges 38 depending from the slider, the battery 2 is prevented from accidentally pressing spring 26 against the slider.

When it is desired permanently to light the lamp 5, then the slider 32 is pushed into its uppermost position. It is held there by the spring end 27, as shown in Fig. 4, a permanent connection being established between the spring 20 and the casing 1 through the slider 32 with which nose 27 is now contacting and also through the wiper 34.

What we claim is:—

1. In a flashlight, a casing, a battery and a lamp therein, a circuit for said lamp, a combined push button and slide for controlling said circuit, a single spring in said circuit resisting depression of said slide, holding it in one of three operating positions, and cooperating therewith to complete said circuit, means for mounting said spring on said casing, and insulation for electrically separating said spring from said slide in one of said positions thereof.

2. In a flashlight, a casing, a battery and a lamp enclosed therein, a circuit for said lamp including a slide and a contact spring with which it cooperates, means including an actuator for moving said slide into three distinct positions, and means including said contact spring for maintaining said slide in any one of its three positions, in the first one of said positions the slide being electrically in an inoperative relation to said spring, in the second position out of contact but in electrical operative relation to said slide, and in the third position in permanent electrical contact with said spring.

3. In a flashlight, a casing, a battery and a lamp therein, a circuit for said lamp, a slide for controlling said circuit, a single spring for holding the slide in a plurality of operating positions and for cooperating therewith to complete said circuit, means for mounting said spring on said casing, and insulation for electrically separating said spring from said slide in one of the positions thereof.

4. In a flashlight, a tubular metallic casing, a lamp and a battery in said casing, a metallic slide in the lamp circuit, a resilient means pressing said slide into contact with the inside surface of said casing, a resilient metallic wiper attached to said slide and contacting with said casing over a wider area than said slide, a knob projecting from said slide to the outside of said casing and by means of which the slide may be moved along said casing and pressed against said resilient means away from said casing, said wiper being so mounted that it maintains contact with the casing in all positions of said slide.

5. In a flashlight, a metallic casing, a lamp and a battery in said casing, a circuit for said lamp including a metallic slide, insulated corrugations in the lower face of said slide, a contact spring included in said circuit and having a resilient end lying in one corrugation in the lowermost, in another corrugation in the intermediate and against the slide in the top position of said slide, and an insulation interposed between said contact spring and an edge of said slide in the lowermost position thereof.

6. In a dry battery flashlight, a metallic casing, a lamp having one terminal connected with one electrode of the battery, a connection between the other electrode of said battery and the casing, a metallic slide within said casing, a metallic wiper between the upper edge of said slide and the inside surface of said casing, a rivet of insulating material fastening said wiper to said slide and projecting beyond the lower face of said slide, insulated corrugations in the lower face of said slide, a contact spring fastened to but insulated from said casing, one end of said spring being connected with the other terminal of said lamp and the other end of said spring lying in one corrugation in the lowermost, in another corrugation in the intermediate and against the slide in the top position of said slide, said spring being provided intermediate its ends with an opening through which the projecting end of said rivet may pass in the intermediate position of said slide.

In testimony whereof, we have signed our names to this specification.

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