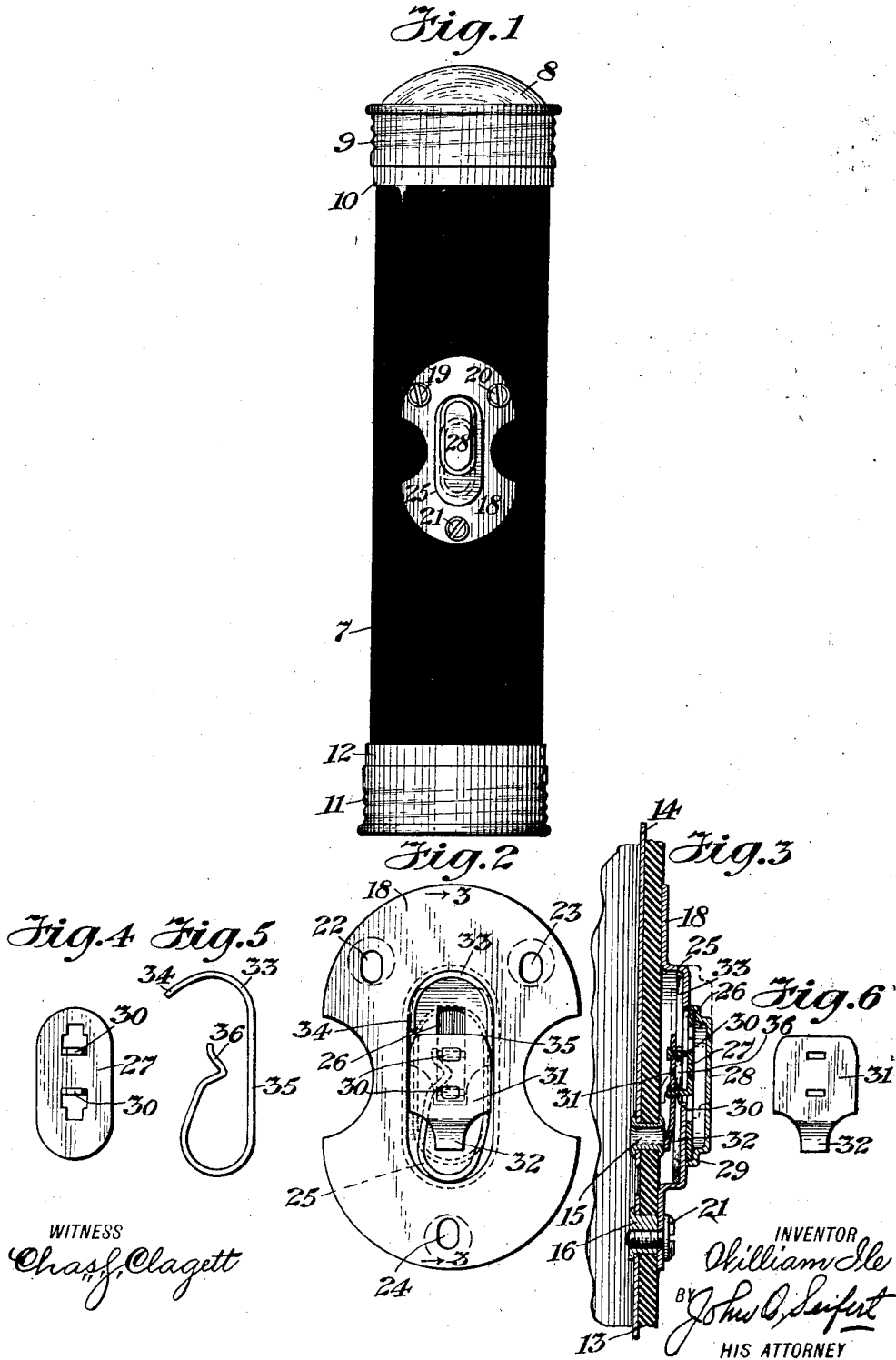


W. ILE.
ELECTRIC FLASH LIGHT.
APPLICATION FILED OCT. 11, 1918.

1,333,919.

Patented Mar. 16, 1920.



UNITED STATES PATENT OFFICE.

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Specification of Letters Patent.

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Application filed October 11, 1918. Serial No. 257,683.

To all whom it may concern:

Be it known that I, WILLIAM ILE, a subject of the King of Great Britain, and a resident of the borough of Manhattan, in the city, county, and State of New York, have invented new and useful Improvements in Electric Flash-Lights, of which the following is a specification.

This invention relates to what are commonly termed as "electric flash lights," and relates particularly to a switch therefor to place the terminals of a galvanic battery carried by the casing of the device into and out of electrical communication and cause a lamp in circuit with one of the battery terminals to be turned on or off.

In flash lights of this character, and adapted to be carried in the pocket of the apparel of the user, a switch in the form of a contact carried by a finger piece or button slidably mounted to be exterior of the casing is operable to place the terminals of the battery into electrical communication and thereby cause a lamp to be turned on by moving the switch in one direction a predetermined distance, and the battery terminals are placed out of electrical communication and thereby the light turned off by moving the switch in the opposite direction. However, as there are no means to retain the switch in its adjusted position as the light is placed in the pocket, for instance, the switch is liable to be moved with the result that the terminals of the battery are placed into electrical communication with the consequent deterioration of the battery.

It is the object of the present invention to overcome the above disadvantage and to provide means to lock or retain the switch in either of its adjusted positions, and which means are releasable by a predetermined force applied to the switch manipulating finger piece or button.

In the drawing accompanying and forming a part of this specification, Figure 1 is an elevational view of an electric flash light with an embodiment of my invention applied thereto.

Fig. 2 is an enlarged view of the switch looking at the bottom.

Fig. 3 is a sectional view taken substantially on the line 3-3 of Fig. 2 looking in the direction of the arrows.

Figs. 4 and 6 are detail views of parts of the switch; and

Fig. 5 is a detail view of the locking means for the switch.

Similar characters of reference designate like parts throughout the different views of the drawing.

In the drawing I have shown an embodiment of the invention in connection with a cylindrical battery carrying casing 7 of insulating material and removably carrying at one end a lens 8, the support 9 of which is removably mounted, as by screw threading onto a metallic carrier 10 secured to the end of the casing, said lens support carrier also operating in the usual manner to clamp a reflector in position to said end of the casing, and said reflector carrying a lamp arranged to contact with one pole of a battery carried by the casing, but as this does not constitute an essential feature of the invention and is well understood in the art it is not deemed necessary to illustrate the same. The opposite end of the casing has a metallic closure 11 removably mounted on a metallic support 12 secured to the end of the casing and arranged to be placed in electrical communication with the other pole or terminal of the battery. Leading from the supports 10, 12 in a direction toward the central portion of the casing and lying contiguous to the inner wall thereof are electric circuit terminals in the form of metallic strips 13, 14, the inner end of the terminal 14 having a contact 15 in the form of an eyelet secured in the casing, and the other terminal 13 having a contact in the form of a bushing 16 secured in the casing.

To place the terminal contacts 15, 16 in electrical communication to complete the circuit a switch is provided, comprising a plate 18 secured to the casing as by screws 19, 20 and 21 passing through perforations 22, 23 and 24 in the plate. The screws 19, 20 are threaded into clamping members (not shown) on the inner side of the casing, and the screw 21 being threaded into the bushing 16 and thereby placing the plate in electrical communication with the battery terminal 13. The plate is formed with an elongated recess 25 to form a bridge piece and has a slot 26 extending longitudinally thereof.

The switch proper consists of a plate 27 secured in and carried by a dished member or shell 28 to constitute a finger piece or button, the lateral portion of said member 5 being flanged to form a shoulder in which the edges of the plate are seated, as shown at 29, and the plate secured therein by contracting said flange portion. The plate 27 and shell 28 constitute a slide adapted to 10 have sliding movement upon the outer surface of the bridge piece 25.

To slidably secure the slide to the bridge piece projections 30 stamped from the plate 27 pass through the slot in the bridge piece 15 and have secured thereon below the bridge piece to be confined between the bridge piece and wall of the casing and a plate 31 fixed to the plate projections 30 with said plate spaced from the inner wall of the 20 bridge piece as shown in Fig. 3. This plate 31 has a nib 32 bent laterally therefrom at one end to constitute a contact adapted to be placed into and out of contact with the eyelet contact 15 and thereby with the battery terminal 14. It will be obvious that when 25 the slide is moved to position shown in full lines in Fig. 3 the contact 32 will engage with the eyelet contact 15 thereby placing the battery terminals 14, 13 into electrical communication, and as the slide or button 30 is moved to the dotted line position shown in Fig. 3 and in full lines in Fig. 1 that the contact 32 will be moved out of engagement with the eyelet contact 15 and 35 with the battery terminals out of electrical communication.

To lock or retain the slide in position with the contact 32 in or out of contact with the eyelet contact 15 there is provided a member 40 33 of resilient material, such as spring wire, bent to substantially the form shown in Fig. 5. This member 33 is adapted to engage in the bridge piece or recess in the plate 18 and retained therein by the lateral edges of the 45 contact plate 31, as clearly shown in Fig. 2. As this locking member is placed in the plate recess the end 34 engaging with one longitudinal wall of the recess will tend to yieldingly urge the elongated portion 35 toward 50 the opposite longitudinal wall of the recess. The opposite end portion of the locking member is bent inwardly and formed near the extremity with a jog 36. This jog is so arranged that when the contact plate 31 is 55 in position with the contact nib in contact with the eyelet contact 15 of the battery terminal 14 it will extend between the plate projections 30, thereby operating in the manner of a detent to hold said contact plate 31 60 against movement. The tension of the locking member is predetermined whereby as a predetermined force is applied to the finger piece 28 to move it, as for instance upward as viewed from Figs. 2 and 3, the lower pro- 65 jection 30 will ride up one portion of the

jog and move it out from between the projections and permitting the slide to move longitudinally. As soon as the slide is moved so that said lower projection 30 will ride over the jog the latter will engage at the opposite 70 side or above the jog and will operate to hold the contact plate in position with the contact nib 32 out of contact with the eyelet contact 15. To again place the contact nib 32 in contact a predetermined force is ap- 75 plied to the finger piece of the slide in the opposite direction to that above described, or downward as viewed from Figs. 2 and 3.

Having thus described my invention, I claim:

1. In electric flash lights, the combination 80 with a battery carrying casing having contacts of the battery terminals secured therein, of a bridge piece mounted on the casing in electrical communication with one battery 85 terminal contact; a slide having a finger piece mounted on said bridge piece with a part to project through a slot in the bridge; a contact supported below the bridge by the 90 part of the slide projecting through the bridge slot and adapted to be placed into and out of electrical communication with the other battery terminal contact by the movement of the slide; and a yielding locking 95 member carried by the bridge to engage between the slide and contact carried thereby and adapted to cooperate with the contact slide to maintain the slide with the contact in or out of contact with the latter battery terminal contact, and releasable by a prede- 100 termined force applied to the finger piece of the slide.

2. In electric flash lights, the combination 105 with a battery carrying casing having contacts of the battery terminals secured therein, of a bridge piece mounted on the casing in electrical communication with one battery terminal contact; a shell to constitute a finger 110 piece to engage the outer side of the bridge piece; a plate carried inside the shell and in connection therewith constituting a slide, said plate having projections to engage 115 in a slot in the bridge piece to slidably mount the slide upon the outer surface of the bridge piece; a contact supported by the plate projections below the bridge piece and arranged 120 to engage with the other battery terminal contact and adapted to be moved into and out of contact therewith by the movement of the slide; and a member carried by the 125 bridge piece having a yielding detent to cooperate with the slide to releasably retain it in position with the slide contact in or out of contact with the one battery terminal contact and releasable by a predetermined force applied to the slide.

3. A switch to place the terminals of an electric circuit into and out of circuit, comprising a bridge in circuit with a terminal of 130 the circuit; a contact slidably mounted upon

and in circuit with the bridge and adapted to be moved into and out of contact with the other terminal of the circuit; and a yielding detent carried by the support to cooperate with the slidable contact to maintain said contact in or out of contact with the terminal of the circuit, and said locking member being releasable by a predetermined force applied to the slidable contact.

10 4. A switch to place the terminals of an electric circuit into and out of circuit, comprising a bridge in circuit with a terminal of the circuit; a shell carrying a plate having projections to engage a slot in the bridge to slidably mount the shell upon the bridge; 15 a contact plate secured upon the projections of the shell plate below the bridge piece and adapted to be moved into and out of contact with the other terminal contact of the circuit by the movement of the shell; and a spring 20 detent carried by the bridge piece between the shell plate and contact plate and having a part arranged to cooperate with the shell plate projections to releasably lock said shell in position with the contact plate either in or 25 out of contact with the one terminal contact of the circuit.

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