

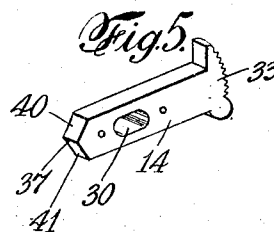
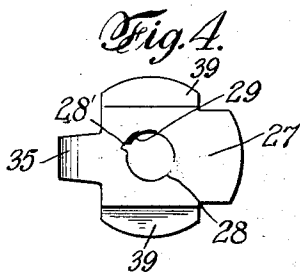
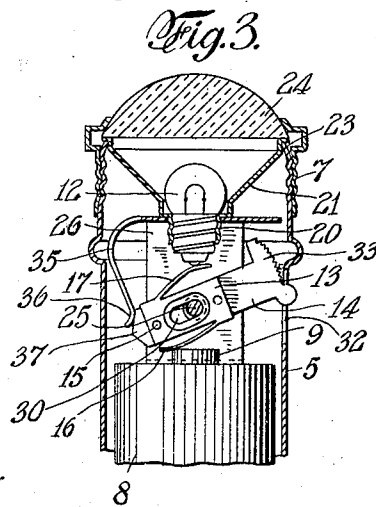
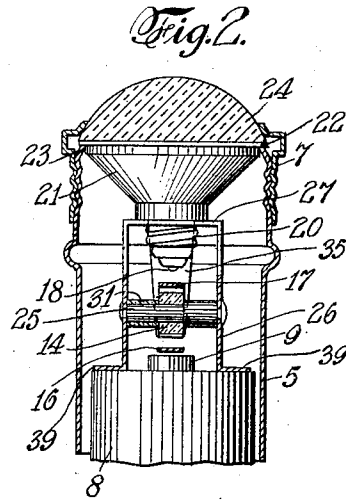
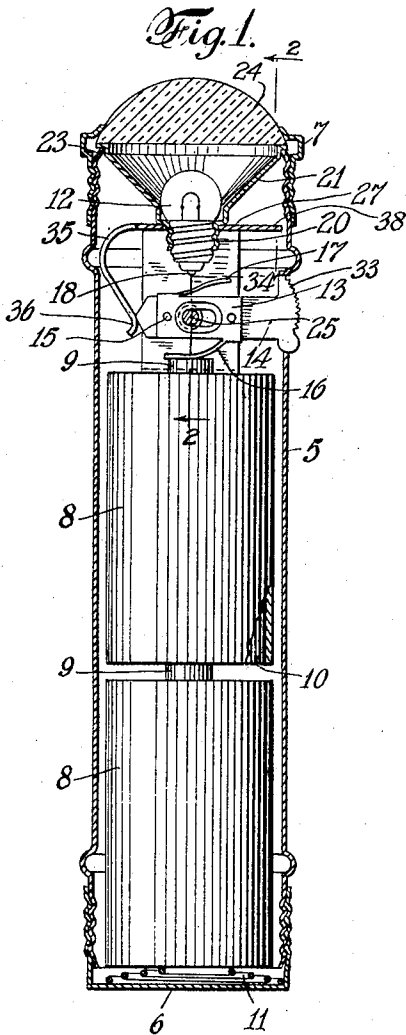
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E. R. BARANY

FLASHLIGHT

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FLASH LIGHT.

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This invention relates to flashlights of the portable, battery type.

A general object of the invention is to provide an improved, simplified switch structure by means of which the circuit through the flashlight lamp and battery may be opened and closed.

The invention and the advantages thereof will become apparent from the following description, taken in connection with the accompanying drawing in which—

Figure 1 is a longitudinal sectional view through a flashlight embodying the invention, the circuit closing member being shown in open-circuit position.

Figure 2 is a fragmental sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a view similar to that of Figure 1, and showing the circuit closing member in closed-circuit position.

Figure 4 is a plan view of the support or yoke of the switch structure.

Figure 5 is a perspective view of the operating member of the switch.

Referring to the drawings, the flashlight casing 5, carrying at one end a screw-threaded cap 6 and at the other end a lens ring 7, is adapted for the reception of the usual battery herein shown as comprising a pair of cells 8, the carbon electrode or battery terminal 9 of one being urged into intimate engagement with the zinc electrode 10 of the other by means of the usual thrust spring 11 carried by the screw-threaded cap 6.

The switch structure for closing the circuit through the battery and the usual flashlight lamp 12 comprises a switch member or conductor plate 13, secured to an operating member 14 by means of rivets or the like 15, the switch member 13 being provided with a pair of resilient contacts or contact fingers 16 and 17. The contact finger 16 is maintained in engagement with the carbon electrode 9 of the adjacent cell 8, and the other contact finger 17 is adapted to be moved into and out of engagement with the lamp terminal 18. The lamp 12 is carried by a lamp socket 20 preferably formed integral with a reflector 21, the outer margin of which is provided with a flange 22 adapted to seat upon an intumed ledge 23 formed at the forward end of the casing 5. The reflector 21 is retained properly located within the casing 5 by reason of the fact that the flash-

light lens 24 seats upon the flange 22 and is held thereon by means of the lens ring 7.

The operating member 14 is of insulating material and is connected, by means of a shouldered pin 25, to the depending legs 26 of a yoke or support 27 provided with an opening 28 at the edge of which is formed a notch 28' so that the metal surrounding the opening 28 may be so distorted as to form a spiral flange 29, the pitch of which is equal to the pitch of the screw-threads of the lamp socket 20 thus making it possible to detachably connect the support 27 to the reflector 21. The pin 25 passes through an elongated opening 30 formed in the operating member 14 so that the operating member may be slidably moved on the pin 25 at right angles to the axis thereof and also rotated about the axis of the pin as a center. The operating member 14 is maintained properly positioned intermediate the legs 26 of the support 27 by reason of the fact that the shouldered end of the pin 25 serves to space the operating member 14 a proper distance from the adjacent leg 26 of the support, and a tabular spacer 31 of insulating material carried on the smaller end of the pin 25 serves to maintain the operating member 14 a given distance from the opposite leg 26 of the support.

Access to the operating member 14 is had by reason of the fact that an elongated slot or opening 32 is formed in the casing 5 through which projects a thumb-piece 33, carried by and preferably formed integral with the operating member 14. This thumb-piece 33, when the operating member 14 is maintained in open-circuit position, as shown in Figure 1, is positioned adjacent to an intumed lug 34 formed integral with the casing 5, the function of which lug is to require a sliding movement of the operating member 14 upon the pin 25 at right angles to the axis thereof, before the operating member can be moved to closed-circuit position, as shown in Figure 3.

A spring 35 is carried by the support 27, and this spring at its free end is curved, as shown at 36. The curved end 36 of this spring is adapted to cooperate with a lug 37, formed on the forward end of the operating member 14, to retain the operating member in either its open or its closed circuit position. The support 27 also carries an extension 38, and this extension and the spring

35 function cooperatively with feet 39, carried by the legs 26, to facilitate centering the unit when introducing the same into the flashlight casing 5, since the spring 35, extension 38 and feet 39 project towards and approach the inner wall of the casing 5.

The switch-unit may be introduced through the front end of the casing and the extremity of the lever 14 may be caused to protrude through the slot 32. This may be done, if desired, before the lamp-socket of the reflector is screwed into the opening 28 of the combination switch-support and cell-stop, or bumper-yoke 27.

Not only do the feet 39 function to assist in centralizing the unit, as above described, but they also serve as abutments, limiting longitudinal movement of the batteries within the casing 5 under the influence of the thrust spring 11, and serving to prevent the transmittal of any detrimental shock to the lamp 12 and other comparatively delicate parts of the flashlight when introducing the cells 8 into the casing, as will be readily understood. The feet or abutments 39 also prevent excessive jars and other detrimental impacts from being transmitted to the lamp 12 and other delicate parts of the flashlight, when the flashlight is dropped or otherwise roughly handled.

In operation, when the operating member 14 is moved to closed-circuit position, as shown in Figure 3, the circuit is closed from the carbon electrode 9 of the upper cell 8, through contact finger 16, conductor plate 13, contact finger 17, lamp terminal 18, filament 38, lamp base 39, lamp socket 20, reflector 21, casing 5, cap 6, thrust spring 11, lower cell 8, to the upper cell 8 and the carbon electrode 9 thereof.

In closing this circuit, the operating member 14 is first slidably moved upon the pin 25 at right angles to the axis thereof, and is subsequently swung about the pin 25 as a pivot, thereby moving the contact finger 17 into engagement with the lamp terminal 18. Sliding movement of the operating member 14 is resisted by the spring 35, and as the curved end 36 of the spring rides over the lug or extension 37, the spring 35 coacts with the inclined face 40 of the lug 37 and facilitates pivotal movement of the operating member 14 to closed-circuit position. After the operating member 14 has been moved to closed-circuit position, the spring 35 continues to coact with the inclined face 40 and thereby tends to retain the operating member in closed-circuit position.

When opening the circuit through the lamp 12, the operating member 14 is first moved about the pin 25 as an axis. The spring 35, after the first part of such movement, rides over the lug 37 on to the inclined face 41 of this lug, thereby facilitating further pivotal movement of the operating

member 14 and bringing the thumb-piece 33 into alignment with the elongated opening 32, whereupon, when pressure is released from the thumb-piece 33 by the operator, the spring 35 slidably moves the operating member 14 upon the pin 25 at right angles to the axis thereof and projects the thumb-piece 33 through the elongated opening 32 to its position adjacent the lug 34.

It will be appreciated from the above that the operating member 14, although requiring movement in two directions to close the circuit, is not likely to be accidentally subjected to such movements, although the movements necessary to close the circuit are perfectly natural once in the hands of a person desiring to use the flashlight. The movements which the circuit closing member 14 necessarily undergoes to open the circuit, are also readily effected by the operator, since all the operator need do is to swing the operating member 14 about the pin 25 and the spring 35 will thereafter complete the movement, as above explained. In spite of the fact that the circuit through the lamp 12 may be readily opened, as above explained, it is extremely unlikely that the circuit will be accidentally opened, as for example when the flashlight is laid down carelessly, since the greater portion of the thumb piece 33 is housed within and shielded by the casing 5 against accidental movement when the operating member 14 is in closed-circuit position, as shown in Figure 3.

Having thus described the invention, what is claimed is:

1. In a flashlight having a lamp terminal and a battery terminal, a reflector, a support carried by said reflector, and a switch member pivotally and slidably connected to said support and requiring movement in two general directions to effect electrical connection of one of said terminals with the other of said terminals through said switch member.

2. In a flashlight having a lamp terminal and a battery terminal, a support, a switch member comprising a pair of contacts one of which electrically engages one of said terminals and the other of which is adapted to be moved into engagement with the other of said terminals, and means pivotally and slidably connecting said switch member to said support whereby movement in two general directions is required of said switch member in connecting said terminals through said contacts.

3. In a flashlight having a lamp terminal and a battery terminal, a reflector, a support carried by said reflector, a switch member comprising a pair of contacts one of which engages one of said terminals and the other of which is adapted to be moved into engagement with the other of said terminals, and means pivotally and slidably connect-

ing said switch member to said support whereby movement in two general directions is required of said switch member in connecting said terminals through said contacts.

4. In a flashlight having a lamp provided with a terminal and a battery provided with a terminal, a reflector having a lamp socket adapted for the reception of said lamp, a support detachably connected to said socket, and a switch member pivotally and slidably connected to said support and requiring movement in two general directions to effect electrical connection of one of said terminals with the other of said terminals through said switch member.

5. In a flashlight having a lamp provided with a terminal and a battery provided with a terminal, a reflector having a lamp socket adapted for the reception of said lamp, a support detachably connected to said socket, a switch member pivotally and slidably connected to said support and requiring movement in two general directions to effect electrical connection of one of said terminals with the other of said terminals through said switch member, and yieldable means for resisting one of said movements.

6. In a flashlight having a lamp provided with a terminal and a battery provided with a terminal, a reflector having a lamp socket adapted for the reception of said lamp, a support detachably connected to said socket, a switch member pivotally and slidably connected to said support and requiring movement in two general directions to effect electrical connection of one of said terminals with the other of said terminals through said switch member, and yieldable means for resisting one of said movements and tending to retain said switch member in closed-circuit and open-circuit positions respectively.

7. In a flashlight having a lamp provided with a terminal and a battery provided with a terminal, a reflector having a lamp socket adapted for the reception of said lamp, a support detachably connected to said socket, a switch member pivotally and slidably connected to said support and requiring movement in two general directions to effect electrical connection of one of said terminals with the other of said terminals through said switch member, and a spring carried by said support and cooperating with said switch member to retain the switch member in open-circuit and closed-circuit positions respectively.

8. In a flashlight having a lamp terminal and a battery terminal, a reflector having a screw-threaded lamp socket, a support detachably connected to said socket, a switch member, an operating member carrying said switch member, and means pivotally and slidably connecting said operating member to said support.

9. In a flashlight having a lamp terminal and a battery terminal, a reflector having a screw-threaded lamp socket, a support detachably connected to said socket, a switch member, an operating member carrying said switch member, means pivotally and slidably connecting said operating member to said support, and a spring carried by said support and cooperating with said operating member to retain said switch member in open-circuit position.

10. In a flashlight having a lamp provided with a terminal and a battery provided with a terminal, a reflector having a lamp socket adapted for the reception of said lamp, a yoke detachably connected to said socket and arranged intermediate said lamp and said battery, said yoke being adapted to engage said battery and function as an abutment to limit longitudinal movement of said battery with respect to said flashlight, a switch member, an operating member carrying said switch member and arranged intermediate the legs of said yoke, and means pivotally and slidably connecting said operating member to said yoke.

11. In a flashlight having a lamp terminal and a battery terminal, a support, a switch member comprising a pair of contacts one of which electrically engages one of said terminals and the other of which is adapted to be moved into engagement with the other of said terminals, means pivotally and slidably connecting said switch member to said support whereby movement in two general directions is required of said switch member in connecting said terminals through said contacts, and yieldable means for resisting one of said movements.

12. In a flashlight having a lamp terminal and a battery terminal, a support, a switch member comprising a pair of contacts one of which electrically engages one of said terminals and the other of which is adapted to be moved into engagement with the other of said terminals, means pivotally and slidably connecting said switch member to said support whereby movement in two general directions is required of said switch member in connecting said terminals through said contacts, and yieldable means for resisting one of said movements and tending to retain said switch member in closed-circuit and open-circuit positions respectively.

13. In a flashlight having a lamp terminal and a battery terminal, a support, a switch member comprising a pair of contacts one of which electrically engages one of said terminals and the other of which is adapted to be moved into engagement with the other of said terminals, means pivotally and slidably connecting said switch member to said support whereby movement in two general directions is required of said switch member in connecting said terminals through

said contacts, and a spring carried by said support and cooperating with said switch member to retain said switch member in open-circuit and closed-circuit positions respectively.

14. In a flashlight having a lamp provided with a terminal and a battery provided with a terminal, a yoke arranged intermediate said lamp and said battery and adapted to engage said battery and function as an abutment to limit movement of said battery with respect to said lamp, a switch member adapted to cooperate with said terminals in closing a circuit through said battery and lamp, an operating member carrying said switch member and arranged intermediate the legs of said yoke, and means pivotally and slidably connecting said operating member to said yoke.

15. A flashlight comprising a casing provided near its front end with a slot; a dry-cell in said casing; a reflector removably mounted in the front end of said casing in axial alignment with said dry-cell; a lamp in said reflector; and a switch-unit interposed between said lamp and cell comprising a support equipped with a transverse pivot, a switch-lever mounted on said pivot between said lamp and cell and swinging in the plane of the axis of the casing and having a thumb-piece disposed in said slot, and means operable by said switch-lever for opening and closing the circuit between the lamp-terminal and cell-terminal.

16. A flashlight comprising a casing provided near its front end with a slot; a dry-cell in said casing; a switch-unit in said casing disposed in front of said dry-cell, said switch-unit comprising a support and a switch-lever mounted on said support to swing in the plane of the axis of said casing and equipped with means for completing and breaking the circuit between the cell-terminal and lamp-terminal and said switch-unit being insertable through the open end of said casing and having its lever provided with a thumb-piece disposed at said slot; a reflector removably mounted in the front end of said casing; and a lamp within said reflector having a terminal extending therethrough.

17. A flashlight comprising a casing provided near its front end with a slot; a dry-cell in said casing; a reflector removably mounted in the front end of said casing; a switch-unit interposed between said reflector and dry-cell, said switch-unit comprising a support bearing on the end of the body of the dry-cell and serving as a spacing member between the reflector and dry-cell and a switch-lever pivotally mounted on said support and equipped with means for completing and breaking the circuit between the cell-terminal and lamp-terminal, said switch-lever having a thumb-piece projecting

through said slot; and a lamp in said reflector and having its shank portion extending therethrough.

18. A flashlight comprising a casing provided near its front end with a slot; a dry-cell in said casing; a reflector and lens removably connected with the front end of said casing; a lamp mounted in and having a terminal disposed behind the reflector; and a switch-unit insertable through the front end of the casing and disposed between said reflector and dry-cell, said switch-unit comprising a supporting member, a switch-lever mounted thereon and swinging in a plane parallel with the axis of said casing, and means actuated by said switch lever for completing and breaking the circuit between the lamp-terminal and cell-terminal, said switch-lever being provided with a thumb-piece located in said slot.

19. A flashlight comprising a casing provided near its front end with a slot; a dry-cell in said casing; a reflector and lens removably connected with the front end of said casing; a lamp mounted in and having a terminal disposed behind the reflector; and a switch-unit insertable through the front end of the casing and disposed between said reflector and dry-cell, said switch-unit comprising a support equipped with a spring, a switch-lever pivotally mounted on said support and adapted to swing in a plane parallel to the axis of the casing and provided with a thumb-piece projecting through said slot, said switch-lever being equipped with circuit making and breaking means and said spring co-acting with said switch-lever to hold it in open or closed position.

20. A flashlight comprising a casing equipped at its front end with a removable lens and reflector, said casing being provided near its front end with a slot; a dry-cell disposed back of said slot; a lamp mounted in said reflector; and a switch-unit comprising a support affording a spacing member between said reflector and said dry-cell, a switch-lever pivotally mounted on said support and having a thumb-piece exposed at said slot and having also means for making and breaking the circuit between the lamp-terminal and cell-terminal, and a spring carried by said support and co-acting with said switch-lever to hold it in open or closed position.

21. A flashlight comprising a casing equipped at its front end with a removably secured reflector and provided back of said reflector with a slot; a lamp mounted in said reflector; a dry-cell in said casing back of said slot; and a switch-unit insertable through the front end of the casing and comprising a support secured to said reflector and engaging and spacing the dry-cell with relation thereto, and a switch-lever pivotally mounted on said support to swing

in a plane parallel with the axis of said casing and provided with a thumb-piece exposed at said slot and provided also with means for making and breaking the circuit
5 between the lamp-terminal and cell-terminal.

22. A flashlight comprising a casing equipped at its front end with a removably secured reflector and provided back of said reflector with a slot; a lamp mounted in said
10 reflector; a dry-cell in said casing back of said slot; and a switch-unit insertable through the front end of the casing and comprising a yoke-form support secured to said

reflector and having spaced legs engaging and spacing the dry-cell with relation thereto, and a switch-lever pivotally mounted between the legs of said support and provided with a thumb-piece exposed through said slot and provided also with means for making and breaking the circuit between the
20 lamp-terminal and cell-terminal, and a spring carried by said support and co-acting with said switch-lever.

In testimony whereof, I have affixed my signature to this specification.

EDMUND R. BARANY.