May 7, 1929. G. H. BARBER ET AL 1,711,667

FLASH LIGHT

Filed March 15, 1926

Fig. 1.

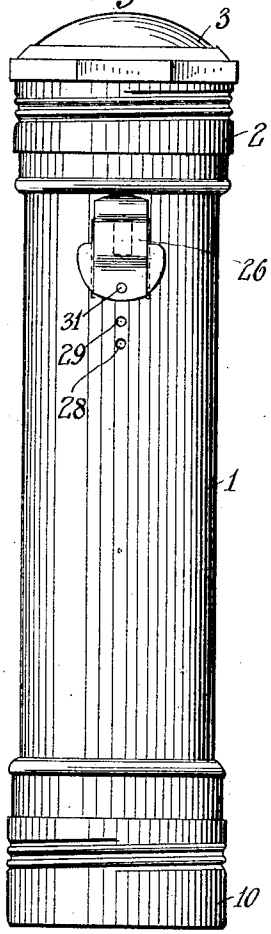


Fig. 2.

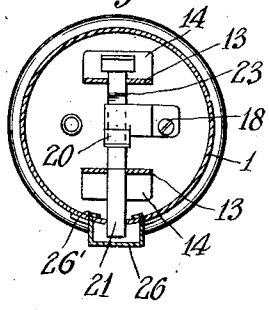


Fig. 3.

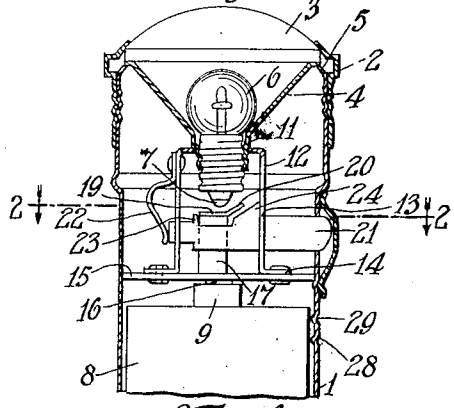


Fig. 4.

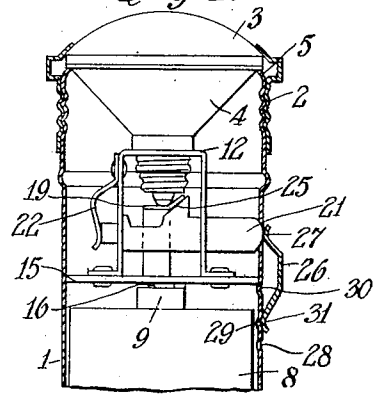
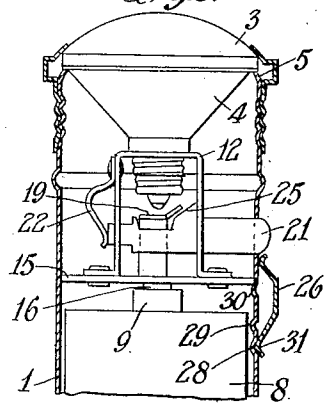


Fig. 5.



George H. Barber and Augusta Schinck INVENTOR

BY

Wm. S. Pritchard ATTORNEY

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UNITED STATES PATENT OFFICE.

GEORGE H. BARBER, OF NEW ROCHELLE, AND AUGUST SCHUCH, OF BROOKLYN, NEW YORK, ASSIGNORS, BY MESNE ASSIGNMENTS, TO BOND ELECTRIC CORPORATION, OF BROOKLYN, NEW YORK, A CORPORATION OF DELAWARE.

FLASH LIGHT.

Application filed March 15, 1926. Serial No. 94,640.

This invention relates to a novel and improved flashlight and more particularly to a flashlight of the type which comprises a tubular casing having at one end thereof a lamp which is illuminated by current supplied from a battery carried in the casing. However, the invention may be employed with other types of flashlights as may be found desirable. Flashlights have commonly been operated by switches disposed on the exterior of the casing and comprising a sliding thumb piece which by its sliding movement may open or close the switch. One of the principal objects of this invention is to provide a switch operated by an actuating member which projects through the wall of the casing in such a manner that it may be operated merely by pressure of the thumb, so as to be capable of momentary operation. This actuating member may also be operated by a sliding thumb piece which, when in one position, will hold the actuating member in such a position that the switch will be closed, while, when in still another position, the actuating member will be in such a position as to leave the switch open, and will be protected by the thumb piece from accidental operation.

Another object of the invention is to provide a flashlight having a switch which shall be normally opened and which, when closed, will provide a contact which shall insure the maintenance of the electrical circuit therethrough.

Still another object of the invention is to provide a construction of flashlight having a switch of a simple, easily made form but effective in operation, which shall be rugged in character and which shall adequately protect the lamp from damage from the weight of the batteries either when they are being inserted in the casing or when they are in place therein.

In the accompanying drawing in which is shown a selected embodiment of the invention:

Figure 1 is an elevation of one form of flashlight having the invention embodied therein.

Figure 2 is a section on the line 2—2 of Figure 3.

Figure 3 is a vertical section through the centre of the upper part of the casing as it appears in Figure 1, the section being taken in a plane at right angles to the plane of Figure 1.

Figure 4 is a view similar to Figure 3 but showing the switch in a different position, the lamp and reflector being shown in elevation.

Figure 5 is a view similar to Figure 4 but showing the switch in still another position.

In the embodiment of the invention selected for the purposes of illustration the flashlight comprises a tubular casing 1 of metal having threaded thereon at one end a cap 2, which cap is used to maintain in position the lens 3. The reflector 4 rests upon the upper edge 5 of the casing, thereby making electrical connection therewith, and is threaded at its centre to receive the base of the lamp 6. As plainly shown in Figure 3, the base extends through the reflector so that the centre terminal 7 of the lamp is exposed beneath the reflector.

Current for illuminating the lamp is provided by the usual battery received in the casing 1, and a portion of this battery is indicated at 8 in Figures 3, 4 and 5. This battery has a terminal 9 and another terminal disposed at the lower end of the casing and in electrical connection with the wall of the casing through means of the threaded metallic cap 10, as is well known in the art. The weight of the batteries is apt to cause damage to the lamp, and this is particularly true when the batteries are first inserted in the casing. If this is done carelessly, the shock of the batteries sliding against the lamp will ofttimes cause the filament or the base to break and thus render the light inoperative. Therefore, the switch is so constructed and so disposed as to protect the lamp from the weight of the batteries.

Threaded upon the socket 11 of the reflector, in which socket the lamp is received, there is a bracket 12 which is therefore rigidly secured to the reflector. The bracket is preferably in the form of a U-shaped member, as indicated in Figures 3, 4 and 5, and the lower ends of the legs 13 of the U are bent outwardly at 14 to provide fastening means whereby the insulating member 15 may be secured to the bracket. This in-

sulating member is shown in the form of a plate or disc, but, obviously, this form is not essential. It is preferable, however, to have the insulating member contact with the wall of the casing at a plurality of points, so as to properly space the bracket and keep it centered in the casing. This result is also achieved by the rigid engagement of the bracket with the socket of the reflector, but the insulating member furnishes another means to insure the proper centering.

Secured on the under side of the member 15 is a strip 16 of conducting material so situated as to normally be in contact with the terminal 9 of the battery. Disposed on the upper side of the member 15 is another strip 17 of conducting material in the form of a spring leaf contact. The two strips 16 and 17 form contact members respectively for the terminal 9 and for the terminal 7, and are electrically connected as by means of a screw 18 passing through the insulating member and securing the parts together.

The upper end of the contact member 17 is normally held out of engagement with the terminal 7 by the resiliency of the member itself, this position being shown in Figure 3. It will be seen that the upper end of the contact member is provided with a portion 19 substantially normal to the axis of the lamp and with another portion 20 inclined to the portion 19. The purpose of this arrangement will be stated presently. Slidably mounted in the bracket 12 is an actuating member 21. This member is normally urged to the position shown in Figure 3 by the spring 22, and movement to the left is limited by the stop 23 which is adapted to engage one of the legs of the bracket. Movement to the right is limited by a similar stop 24 adapted to engage the other leg of the bracket. The actuating member is provided with a cam surface 25, and it is apparent that this surface will engage the portion 20 of the contact member.

When the switch is closed by operation of the actuating member 21, the cam surface 25 will urge upwardly the top end of the contact member 17 until the portion 19 thereof engages the terminal 7 of the lamp. This engagement alone is sufficient to close the circuit and establish electrical connection between the two terminals 7 and 9. The circuit through the lamp is then closed because of the fact that the terminal formed by the outer surface of the lamp base is in electrical connection with the other terminal of the battery through the reflector 4, the casing 1 and the cap 10 in a manner well understood in the art. As the actuating member is moved further to the left as viewed in Figures 3, 4 and 5, the portion 20 of the contact member will also engage the terminal and will be held in this engagement by the cam surface 25, thus increasing the contact area between the contact member and the terminal and insuring adequate contact.

The actuating member 21 may be operated by pressure of the thumb or finger, and the circuit through the lamp will be closed as long as the pressure of the thumb is maintained. Thus, it will be seen that the lamp may be turned on and off at small intervals, if desired. When it is desired to turn the lamp on for a long period of time, the actuating member is held in its switch closing position as indicated in Figure 4 by means of a thumb piece 26 slidably secured on the wall of the casing by any suitable means, such as lugs 26′, which pass through slots in the wall and are turned down to engage the inner side of the wall. This thumb piece has its upper edge 27 so constructed as to engage the actuating member 21 and close the switch, when the thumb piece is moved to bring the edge 27 into contact with the actuating member. The thumb piece is recessed, as shown, so that, when the edge 27 is moved still further toward the upper end of the casing as viewed in the drawings, the actuating member is thus released and may then be forced outwardly by the spring 22 until it occupies the position shown in Figure 3 wherein the switch is opened. When in the position shown in Figure 3, it will be obvious that the actuating member is adequately protected against accidental operation. This feature is very important because of the fact that flashlights are subjected to rough usage and, when laid down, the actuating member might come in contact with some object which would cause it to close the switch. Such an accident is effectually prevented by this invention. Means is preferably provided for releasably holding the thumb piece in any one of the three positions shown. This means may comprise three indentations 28, 29 and 30. A boss 31 is provided on the thumb piece and adapted to snap into any one of the indentations so as to releasably hold the thumb piece in any one of the three positions shown in Figures 3, 4 and 5.

The operation of the invention has been fully described above and it is not deemed necessary to repeat it here. It will be apparent that the construction is one which may be cheaply and efficiently made and which is rugged in character so as to insure good service. Various modifications may be made in the structure as described without departing from the scope of the invention and therefore it is not intended to limit the invention except as by the appended claims.

We claim:

1. A flashlight comprising a casing having a lamp therein, a battery in said casing and having a terminal spaced from a ter-

minal of said lamp, a contact member in electrical connection with one of said terminals, said contact member having two portions arranged at an angle to each other and both adapted to contact with the other of said terminals, and means to bring said portions of said contact member into engagement with the other of said terminals to close a circuit therebetween, said means comprising an actuating member having a cam adapted to bring first one portion and then another portion of said contact member into engagement with said terminal.

2. In a flashlight, a shock absorber disposed between a lamp and a battery and comprising a plate of insulating material, contact members on opposite sides of said plate and electrically connected together, one of said members engaging a terminal on said battery and the other member normally out of engagement with a terminal on said lamp, and means slidably parallel of the plate to engage and bring said last named member into engagement with said lamp terminal.

3. A flashlight comprising a casing having a lamp therein, a battery in said casing, an insulating plate disposed between said lamp and said battery, a bracket rigidly supported between said lamp and said battery, contact members on opposite sides of said plate, one of said members contacting with a terminal on said battery and the other adapted to contact with a terminal on said lamp, and an actuating member slidably mounted on said bracket and adapted to bring said last mentioned contact member into engagement with said lamp terminal.

4. A flashlight comprising a casing having a lamp therein, a battery in said casing, an insulating plate disposed between said lamp and said battery, a bracket rigidly supported between said lamp and said battery, contact members on opposite sides of said plate, one of said members contacting with a terminal on said battery and the other adapted to contact with a terminal on said lamp, an actuating member slidably mounted on said bracket and adapted to bring said last mentioned contact member into engagement with said lamp terminal, and a spring urging said actuating member to a position which will permit said last mentioned contact member to move out of engagement with said lamp terminal.

5. A flashlight comprising a casing having a lamp therein, a reflector supporting said lamp, a bracket secured to said reflector, a plate of insulating material secured to said bracket and extending across said casing, contact members on opposite sides of said plate and connected together, a battery in said casing having a terminal contacting with one of said contacting members, and an actuating member slidably mounted in said bracket and adapted to force the other of said contact members into engagement with a lamp terminal.

6. A flashlight comprising a casing having a reflector, a lamp and a battery therein, a bracket rigidly supported from the reflector and extending between said lamp and said battery, a plate between said bracket and battery and supported by the former, contact members supported by said plate, one of said members contacting with a terminal on said battery and the other adapted to contact with a terminal on said lamp, and means to bring said last named member into engagement with said lamp terminal.

7. A flashlight comprising a casing having a reflector, a lamp and a battery therein, a bracket rigidly supported from the reflector and extending between said lamp and said battery, a plate between said bracket and battery and supported by the former, contact members supported by said plate, one of said members contacting with a terminal on said battery and the other adapted to contact with a terminal on said lamp, and means to bring said last named member into engagement with said lamp terminal, said means comprising an actuating member slidably mounted on said bracket to move transversely of the casing.

8. A flashlight comprising a casing having a lamp and a battery therein, a bracket rigidly supported between said lamp and said battery, contact members supported by said bracket, one of said members contacting with a terminal on said battery and the other adapted to contact with a terminal on said lamp, and means to bring said last named member into engagement with said lamp terminal, said means comprising an actuating member slidably mounted on said bracket, and having a cam adapted to contact with said member to bring it into engagement with said lamp terminal.

9. A flashlight comprising a casing having a lamp therein, a battery in said casing, an insulating plate transversely disposed within the casing and between said lamp and said battery, a bracket rigidly supported between said lamp and said battery and having arms supporting said plate, contact members on opposite sides of said plate, one of said members contacting with a terminal on said battery and the other adapted to contact with a terminal on said lamp, and means slidably mounted on the arms of the bracket to bring said last mentioned contact member into engagement with said lamp terminal.

10. A flashlight comprising a casing having a lamp and a battery therein, said lamp and battery having spaced terminals, a device disposed between said lamp and battery and maintaining said terminals in their

spaced relation, a U-shaped bracket having an opening in its closed end, a plate connected to the ends of the bracket, contacting members on said plate to engage said terminals, and a switch actuating mechanism carried by said device for making and breaking said contacts, said mechanism comprising a member slidably mounted in said bracket and extending through the walls of said casing.

In testimony whereof, we have affixed our signatures to this specification.

GEORGE H. BARBER.
AUGUST SCHUCH.