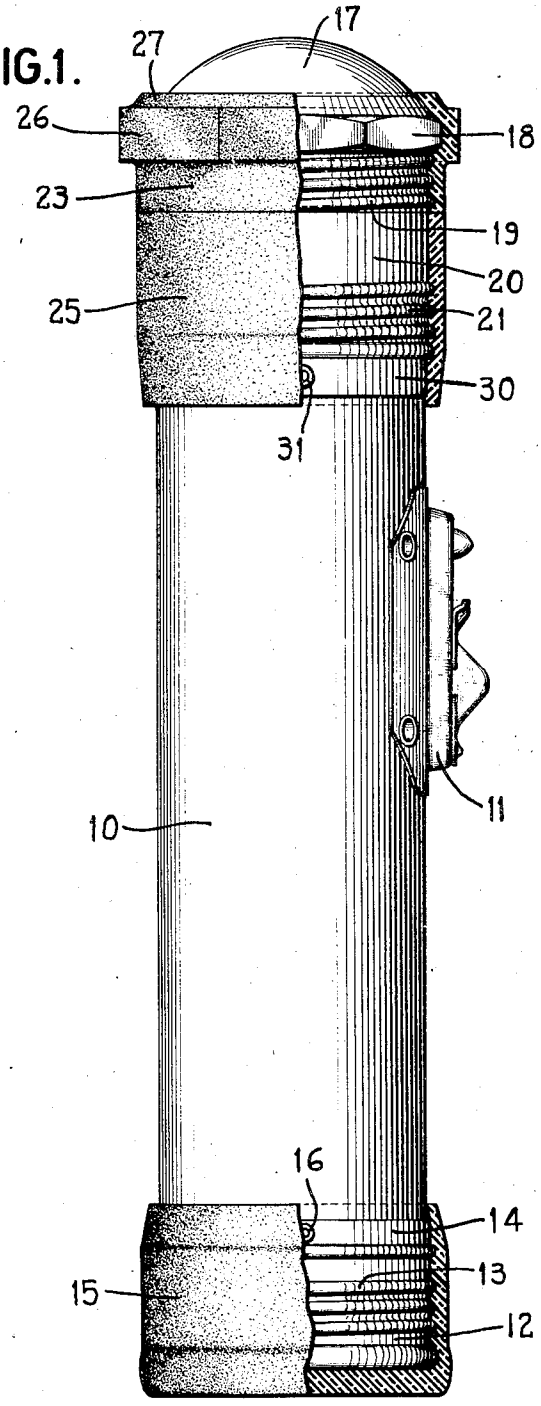
Nov. 7, 1933. F. G. STIMSON 1,934,214

INSULATED FLASH LIGHT

Filed Nov. 24, 1931 2 Sheets-Sheet 1

FIG.1.



INVENTOR
FRANK G. STIMSON

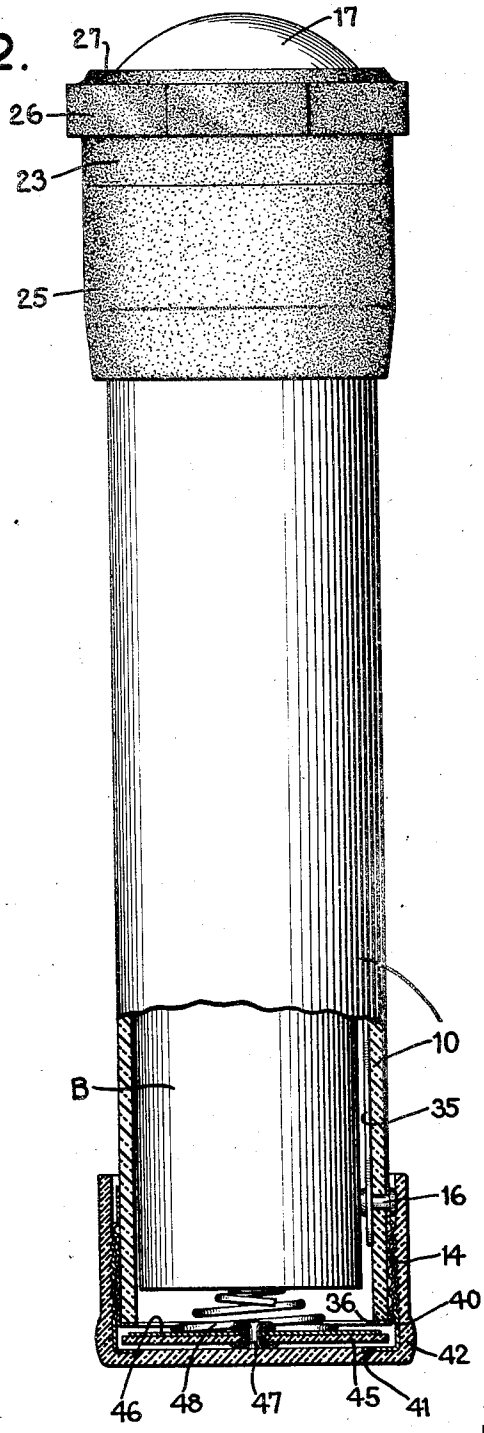
BY HIS ATTORNEYS
Bohlebor & Ledbetter

Nov. 7, 1933. F. G. STIMSON 1,934,214

INSULATED FLASH LIGHT

Filed Nov. 24, 1931 2 Sheets-Sheet 2

FIG.2.



INVENTOR-
FRANK G. STIMSON
BY
Bohleber & Ledbetter
ATTORNEYS

Patented Nov. 7, 1933 1,934,214

UNITED STATES PATENT OFFICE

1,934,214

INSULATED FLASH LIGHT

Frank G. Stimson, Belleville, N. J., assignor to Bond Electric Corporation, Jersey City, N. J., a corporation of Delaware

Application November 24, 1931
Serial No. 576,960

3 Claims. (Cl. 240—10.66)

The invention relates to flashlights in which a casing carries lighting means at one end with dry cells carried within the casing for illuminating the lighting means. The casing which carries the dry cells is often of metal and when the casing is made of an insulating material, the casing is provided with metal fittings at one or both ends thereof. Also a metal switch housing is carried by the insulated casing and the switch housing is electrically connected with the metal fittings at one end thereof by a metallic strip. Such metallic casings and metallic fittings for flashlights are hazardous particularly for operators and workers in electrical utility plants and linemen. Such men are liable to drop or accidentally place the flashlight upon adjacent exposed electrical equipment or wires or accidentally touch such electrical apparatus with the flashlight so that a short circuit is made which may well result in injury to the workmen as well as temporary interruption of the electrical service.

The principal object of the invention is to construct a flashlight which is completely insulated.

Another object of the invention is to cover the metallic members which carry or secure the lighting means to the casing with insulation.

A further object is to construct the flashlight casing of an insulating material and cover the metallic parts at the ends of the casing with an insulating covering.

Still another object is to construct a switch which is actuated through a flexible covering such as rubber irrespective of its association with an insulated flashlight.

Another object is to construct a flashlight casing of insulating material and cover the metallic end members or fittings secured thereto with an insulating and preferably resilient material so that the flashlight is completely insulated electrically and so that the flashlight is also protected against shock and abuse by the resilient covering.

Other objects of the invention will be more apparent from the following description, taken in connection with the accompanying drawings, showing a preferred embodiment of the invention, in which:

Figure 1 shows a flashlight constructed in accordance with the invention with a partial section through the insulating covering which completely surrounds the metallic end members.

Figure 2 shows a flashlight which is completely insulated by covering all metallic parts with insulating material such as rubber.

Usually flashlights are constructed with the casing of a metallic material because of the ease with which it may be shaped and decorated to make an attractively appearing flashlight and also because of its strength and cheapness. Flashlight casings of fiber and other moldable materials are known, but even in the flashlights having casings constructed of this material, the removable bottom cap at one end thereof through which the batteries are inserted into the casing is invariably of metal. Similarly, the means or members by which the lighting means at the other end of the flashlight casing are secured thereto are also of metal. Such lighting means usually consists of an electric lamp or bulb with its socket connections and a glass or lens over the light bulb. The invention completely insulates the flashlight by devices which will be described.

The flashlight may be constructed in two ways as will be described hereinafter. In one form of construction the operating switch is provided in the wall of the casing forward of the midpoint thereof as is known to the art. In this construction the switch may be of any form or type and customarily has an exposed metallic housing. This exposed metallic housing leaves a metallic part which may cause a short circuit. This part is so small however and is so positioned that danger of a short circuit at this part is more or less remote. The preferred construction, however, completely insulates the switch as well so that there is no exposed metallic part whatever and a short through the flashlight is impossible. The former construction will be first described.

The insulated flashlight consists of a casing 10 of insulating material to which a switch mechanism 11 of any desired type is secured. At the bottom end of the flashlight casing 10 is a sleeve or bottom cap collar 14 permanently secured to the casing such as by the rivets 16. A metallic bottom member or cap 12 is removably secured to the end of the sleeve 14 or casing 10 such as by the screw threads 13. Since the ends of the rivets would ordinarily interfere with the bottom cap 12 when threading it thereupon, the sleeve 14 extends beyond the end of the bottom cap when screwed into position. The rivets are located in this extended portion of the sleeve. Obviously, a bottom cap removably secured directly to the end of the casing is contemplated. The metallic bottom cap 12

is covered by an insulating covering 15 which preferably is also of a resilient material, such as resilient rubber. The insulating cover 15 completely encloses or surrounds the metallic bottom cap 12 so that no metallic portion is exposed. The insulating cover also extends beyond the end of the bottom cap to also cover the metallic sleeve 14 and in the better construction extends beyond the end of the sleeve 14.

At the other end of the flashlight casing 10 are the lighting means which usually consist of a light bulb with its support and connections (not shown) and a lens or glass 17. The lens or glass 17 is secured to the end of the casing by means of a metallic lens ring 18. The lens ring is secured to the casing in any known manner, such as by the screw threads 19 which secure the lens ring to a metallic hood collar or member 20 and the hood collar 20 is in turn secured to the casing by means of the screw threads 21. The hood collar then, in a broad sense, secures the lens ring to the casing. Any known form of securing means may be utilized and preferably the means removably secures the ring and collar to the casing. Both the lens ring 18 and the hood collar 20 are preferably metal, although some other suitable material may be used at least for one of these parts.

Since the lens ring 18 and the hood collar 20 are separable respectively to each other, each has a separate insulating covering 23 and 25. The insulating cover 23 for the lens ring may carry flat sides 26 in order to provide flat surfaces to prevent the flashlight from rolling when placed upon a table top or other flat surfaces. The insulating cover 23 for the lens ring carries a lip 27 which covers the metallic lip on the lens ring 18, this metallic lip securing the lens in position. It will be observed therefore that every metallic part of the flashlight exclusive of the switch member 11 in the construction of Figure 1, is completely covered and insulated.

In order to assure that the insulating covers will remain upon their respective metallic parts, these insulating covers are vulcanized thereupon. This vulcanizing not only assures a snug fit upon the metallic parts, but also renders it practically impossible, or at best extremely difficult to remove the insulating cover. The vulcanizing also carries the insulating material into the ridges and recesses formed by the screw threads on the respective parts which also assists in positively retaining the rubber covering upon the metallic part.

When the casing 10 of the flashlight is constructed of an insulating material, a metallic sleeve 30 is preferably permanently secured to the end of the flashlight such as by rivets 31. The metallic sleeve 14 for receiving the bottom cap 12 is similarly provided as described above. In such constructions the rubber covering upon the hood collar 20 may extend far enough beyond the end of the metallic collar as shown in the drawings, to cover also the metallic sleeve 30 secured to the end of the casing. The metallic sleeves 14 and 30 both have a metallic member removably secured thereto in which the member at one end is a bottom cap and the member at the other end is a hood collar.

In the construction shown in Figure 2 the flashlight is completely insulated in that there is no exposed metallic switch housing upon the casing. The insulated casing 10 carries the metallic sleeve 14 which is secured to the casing by means of rivets 16 one of which is shown, as described with respect to the construction of Figure 1. One of the rivets 16 also secures a conducting strip 35 to the casing and establishes electrical connection between the strip and the metallic shell 14. The strip 35 is connected with the lamp at the other end of the casing in any desired manner. The metallic sleeve 14 carries an inwardly turned flange 36, the purpose of which will be described hereinafter. The metallic sleeve 14 carries the screw threads 13, as shown in Figure 1, to receive a metallic end cap 40. This end cap has a central aperture 41 and the entire cap is covered by an insulating covering 42. This covering also seals up the aperture 41 in the end of the bottom cap 40. It will be observed, therefore, that the bottom cap has a flexible bottom of insulating and resilient material such as rubber.

The switch for operating the light is provided in the bottom of the flashlight and is within the end cap as will now be described. A washer 45 of fiber or other insulating material has a metallic plate 46 secured thereto by means such as the rivet 47. The rivet 47 also secures a spring 48 to the metallic plate 46 and establishes electrical contact therebetween. The spring 48 contacts with the bottom of the battery B. The coiled spring 48 not only keeps the batteries B within the casing in contact with each other and in contact with the spring, but also keeps the metallic plate 46 away from the flange 36 upon the metallic sleeve 14.

The electrical circuit to the lamp of the flashlight is broken by the lack of contact between the metallic plate 46 and the flange 36 of the sleeve 14. Upon pressing the bottom of the insulated and resilient covering 42, the plate 46 is brought into contact with the sleeve 14 or the flange 36 of this sleeve which circuit is broken immediately upon releasing pressure from the bottom of the flexible covering 42. In order to keep the lamp illuminated without requiring pressure upon the end of the resilient covering 42, the casing 40 may be screwed down into the metallic end cap 40 until the sleeve 14 or the flange 36 thereof is brought into fixed engagement or contact with the metallic plate 46. Electric circuit is thereby established between these two parts so long as they remain in fixed engagement or contact. The flange 36 or the sleeve 14 is therefore one of the contacts of the switch and the plate 46 is a movable contact.

In the construction of flashlight shown in Figure 2 and described above, all the metallic parts are completely covered with an insulated material. The switch is operated by bringing together the switch contacts, one of which is movable, and the movement being accomplished through pressure applied through the resilient insulating cover. It is clear that such a switch may be provided anywhere upon the flashlight and that shown herein enclosed within the end cap of the flashlight provides a construction which is effective and utilizes very few parts. Again the switch construction in which the contacts are brought together by actuation through a flexible covering such as rubber irrespective of its association with an insulated flashlight, is a novel construction having the advantage of sealing the switch either positively or at least more effectively against dirt and moisture.

It will be observed therefore that in the construction of flashlight described herein, the flashlight is completely insulated against pos-

sible short circuits through the metallic casing but also is completely insulated against short circuiting the flashlight itself which may be injurious certainly to the light and probably to the dry cells as well.

Various modifications will occur to those skilled in the art in the configuration, composition and disposition of the component elements going to make up the invention as a whole, as well as in the selective combination or application of the respective elements, and no limitation is intended by the phraseology of the foregoing description or illustrations in the accompanying drawings, except as indicated in the appended claims.

What is claimed is:

1. An insulated flashlight comprising a cylindrical casing of insulating material, a metallic collar threaded at its outer end to receive a fitting and secured to one end of the casing at its inner end, a metallic fitting threaded on to the collar to expose the inner end of the collar, a cover of insulating material completely covering the fitting, said cover extending beyond the inner end of the fitting and flexible to completely and removably cover the exposed portion of the collar.

2. An insulated flashlight comprising a cylindrical casing of insulating material, a metallic collar threaded at its outer end to receive a bottom cap and secured to one end of the casing at its inner end, a metallic bottom cap threaded on to the bottom cap collar to expose the inner end of the bottom cap collar, said bottom cap having an opening in the bottom, a disc mounted within the opening in the bottom and depressible to close the electrical circuit of the flashlight and a cup-like cap of insulating material nesting over and adhered to the bottom cap and having a flexible sleeve like portion extending beyond the inner end of the bottom cap to completely and removably cover the exposed portion of the bottom cap collar, the bottom of said cap being flexible whereby pressure thereon will depress the circuit closing disc.

3. An insulated flashlight comprising a cylindrical casing of insulating material, a metallic collar threaded at its outer end to receive a bottom cap and secured to one end of the casing, a metallic bottom cap threaded on to the bottom cap collar and having an opening in the bottom, a disc mounted within the opening in the bottom and depressible to close the electrical circuit of the flashlight and a cup-like cap of insulating material nesting over and adhered to the bottom cap, the bottom of said cap being flexible whereby pressure thereon will depress the circuit closing disc.

FRANK G. STIMSON.