

Oct. 4, 1949.

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2,483,819

ELECTRIC FLASHLIGHT

Filed April 9, 1946

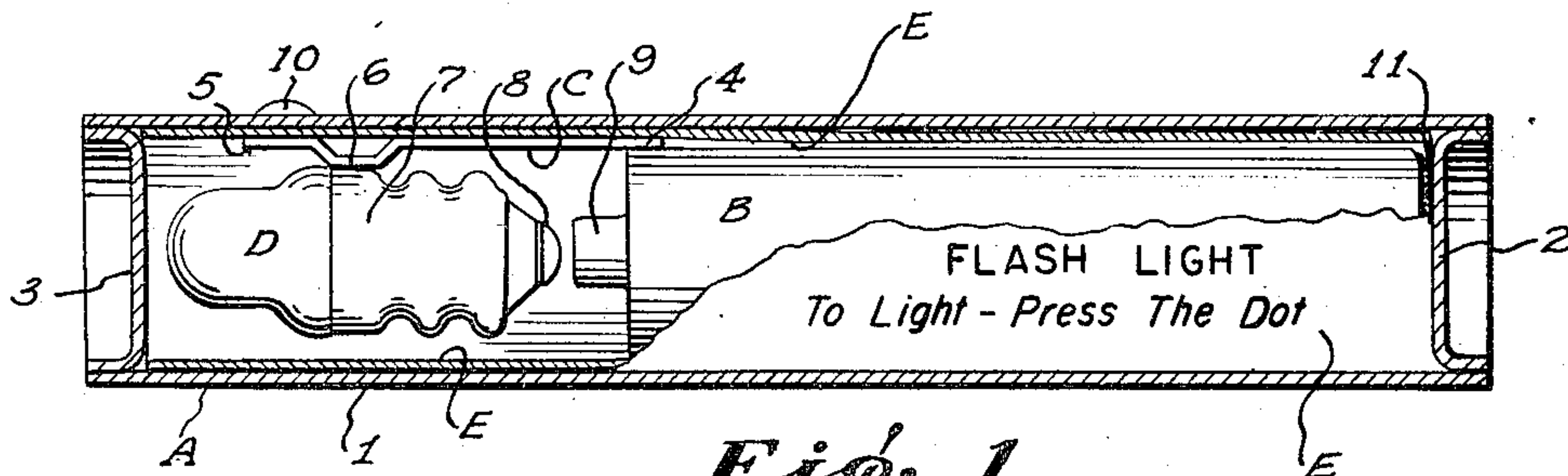


Fig. 1

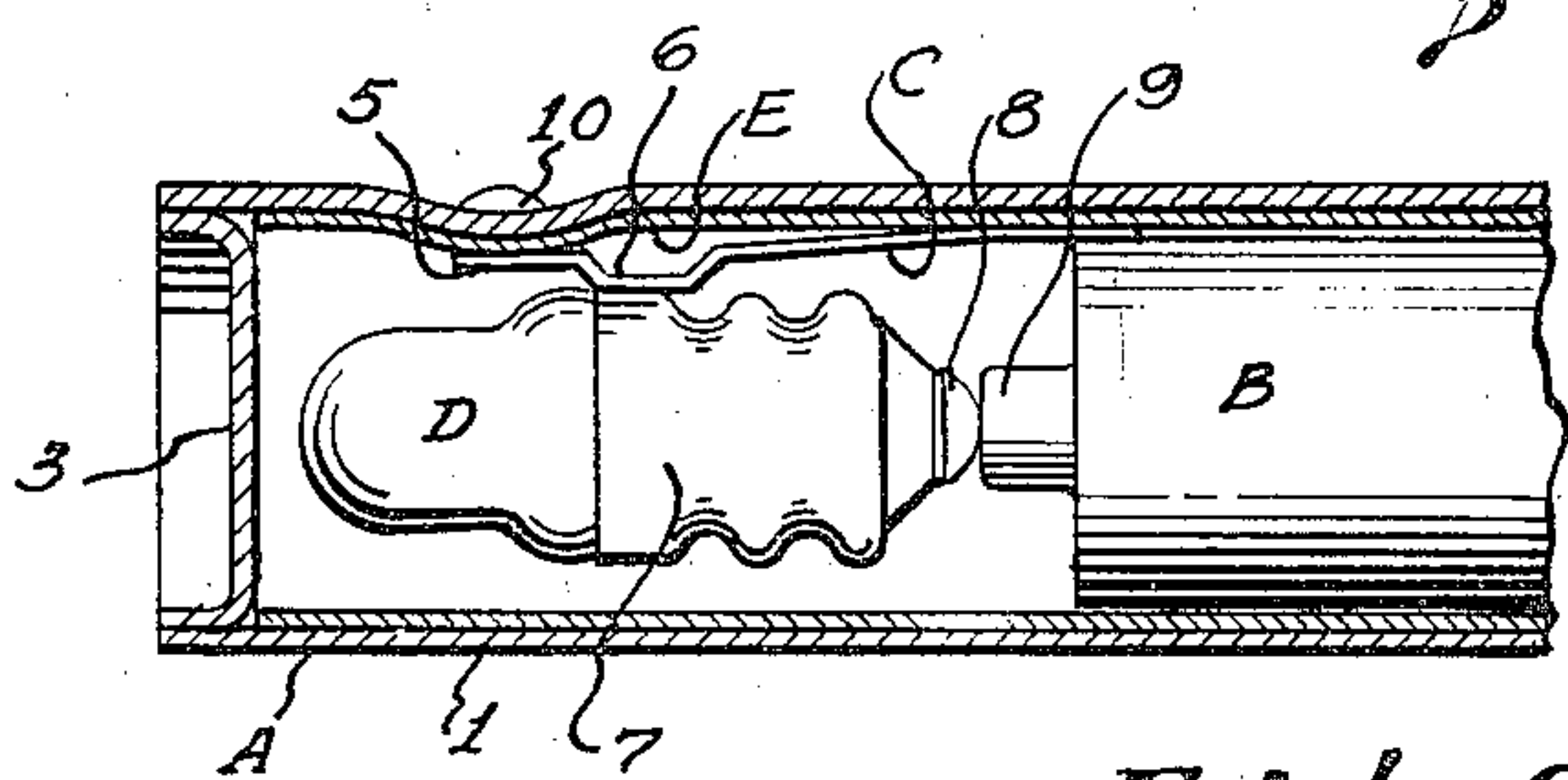


Fig. 2

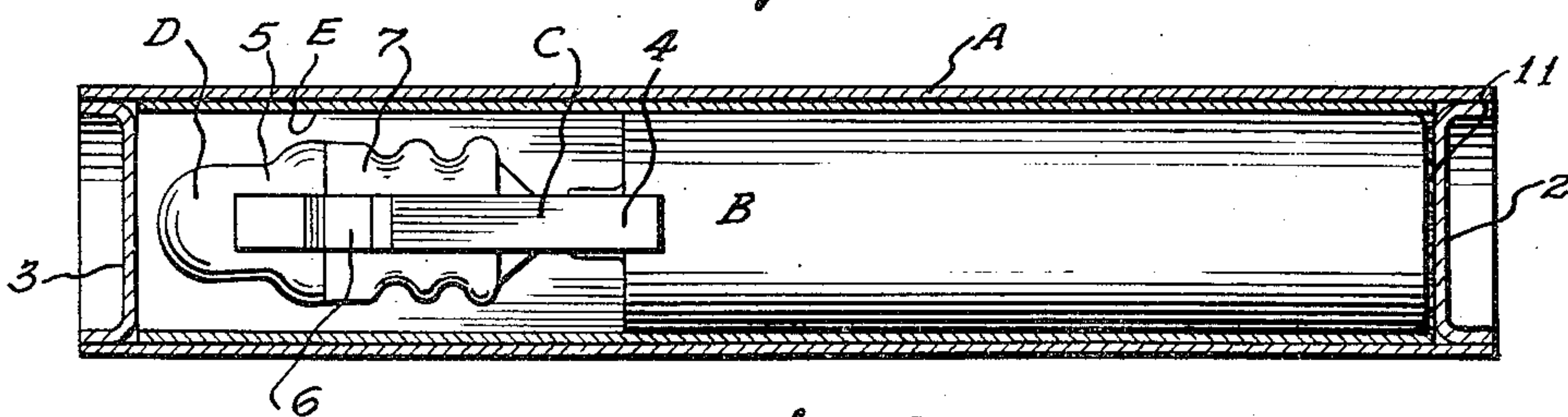


Fig. 3

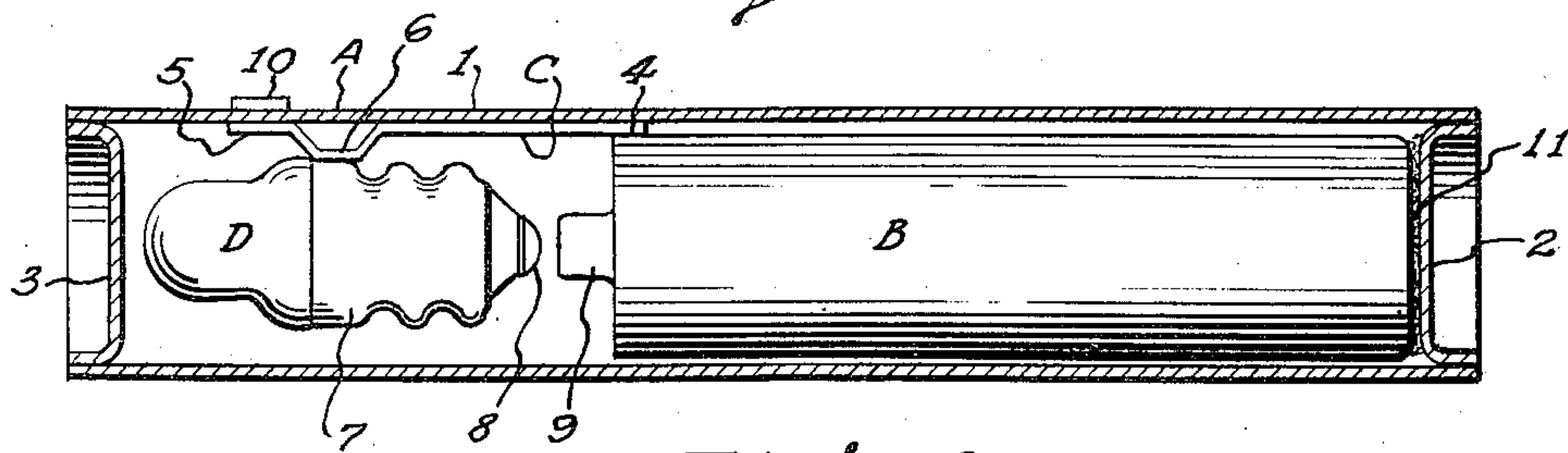


Fig. 4

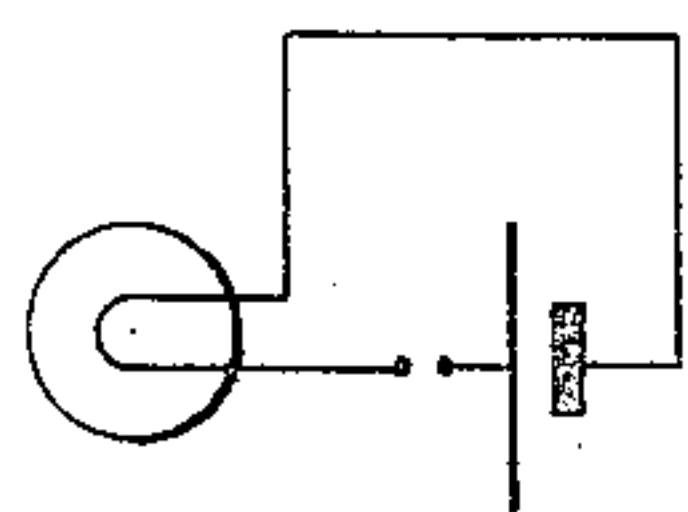


Fig. 5

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2,483,819

ELECTRIC FLASHLIGHT

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Application April 9, 1946, Serial No. 660,631

3 Claims. (Cl. 240—10.68)

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This invention relates to flashlights and more particularly and specifically to an electric portable flashlight which is so constructed that it can be produced sufficiently cheap that the entire light can be thrown away when the electric dry cell battery is exhausted.

The primary object of the invention is to provide a "throw-away" portable electric flashlight of the type wherein all the parts making up the light are contained within a liquid-proof housing.

Another object of the invention is the provision of a flashlight of extremely simple and cheap construction and made up of a minimum number of parts whereby the light can be thrown away when the electric battery thereof is exhausted.

Another and further object of the invention is the provision of a portable electric flashlight wherein the support of the electric light bulb and the manner of opening the closing the electric circuit thereto is novel and extremely simple of construction.

A still further object of the invention is the provision of a portable electric light which is highly suitable for advertising purposes or as a novelty gift and which is sufficiently cheap of construction as to permit its wide distribution at a comparatively small cost.

Numerous other objects, advantages and novel features of construction of the invention appear from the following description when read in the light of the accompanying drawings.

In the drawings:

Fig. 1 is a longitudinal sectional view through the light.

Fig. 2 is a fragmentary longitudinal vertical sectional view through the light, the electric circuit to the light bulb being closed.

Fig. 3 is a longitudinal vertical sectional view taken at right angles to Fig. 1 of the drawings.

Fig. 4 is a longitudinal vertical sectional view through a modified form of the light.

Fig. 5 is a diagram of the electric circuit of the light.

Ordinary and conventional portable battery operated and self-contained electric flashlights embody a socket for the light bulb, a reflector, a switch made up of numerous parts and a housing or carrier from which exhausted electric batteries are removed and replaced by new batteries. The present invention differentiates therefrom by the elimination of the light socket, the reflector, the multi-part switch and in the fact that when the battery is exhausted it is not

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replaced but the entire flashlight is thrown away.

The present flashlight differentiates from ordinary lights in that all of the parts making up the light are hermetically sealed within a carrying container and in the further respect that this container is transparent either in its entirety or in part so that advertising or other indicia within the container is visible through the container wall. Another feature of differentiation is that the carrying container is composed, at least in part in a localized area, of a flexible resilient material. Other more detailed features of differentiation of the light over conventional flashlights will appear from the following description.

Referring first to Figs. 1 to 3 inclusive of the drawings, A is a container or carrier composed of an open ended hollow tubular member 1 the open ends of which are closed by a pair of caps 2 and 3 which are telescopically received in the ends of the tube and have a liquid and air-tight sealing connection therewith so that the interior of the container is hermetically sealed.

The carrier or tube is of the proper diameter to snugly receive a conventional dry cell electric battery B which in conformity with usual practice is round in cross sectional configuration. Like all such batteries the shell or casing of the present battery constitutes one pole of the battery. An elongated metallic finger C has one of its ends 4 welded or otherwise suitably secured to the battery shell to form electrical contact therewith. This finger extends a considerable distance forward beyond the top end of the battery and adjacent but short of its free end 5 the finger is provided with a downwardly crimped portion 6 to which is suitably secured, in a manner to provide electrical contact, the metallic ferrule 7 of an electric light bulb D. As is well known, this ferrule is in electrical connection with one end of the filament of the light bulb. The other end of the light bulb filament is in electrical connection with the contact 8 carried on the lower end of the bulb.

The light bulb is connected to the finger C so as to dispose the contact 8 of the bulb in spaced aligned relationship to the central terminal or pole 9 of the battery. This finger is composed of some suitable flexible resilient metallic material which is a good current conductor and which will normally hold the light bulb in the position illustrated in Fig. 1 of the drawings with the result that the electric circuit to the light bulb is normally open.

In this form of the invention a tubular wrapper E composed of a non-current conducting material

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surrounds the battery B and extends beyond the top end of the battery to also surround the finger C and the light bulb D. The finger C parallels the under side of the wrapper. The wrapper is shown as extending throughout the length of the container but it need not of necessity do so. Longitudinal movement of the battery and the attached light bulb is prevented by the use of an adhesive 11 or the like between the lower end of the battery and the container cap 2 but can be prevented in other manners as will later appear.

As will hereinafter appear from the description of operation of the flashlight it is necessary to depress the resilient switch finger or bulb support C and to this end the carrier A is made of a flexible material so that pressure upon it above the free end of the finger will depress the finger inwardly. Optionally however only that area of the carrier immediately adjacent the free end of the finger C can be made of a flexible material rather than making the entire carrier flexible. The wrapper E, which will hereinafter be more specifically described, is also composed of a material which is flexible so that it will bend inwardly along with the carrier when inward pressure is exerted upon the exterior face of the carrier.

In this form of the invention the carrier tube 1 is composed of a transparent material and the flashlight can be used as an advertising medium by printing or otherwise affixing the desired reading matter to the outer face of the wrapper E. It is to be understood that the reading matter upon the wrapper need not be limited to advertising matter but could be educational in nature or could comprise anything it is desired to convey to the public.

The cap 3 immediately adjacent the light bulb is composed of a transparent material or a material which will permit the passage of light.

In operation, to light the light it is necessary only to exert a pressure with the thumb or a finger upon the carrier 1 at a point above the end 5 of the switch finger C. To facilitate this the carrier at the proper point for the application of pressure is provided with a button-like protrusion 10. Upon the application of pressure upon the button 10 the switch finger C is moved down against its resilient tension until the contact 8 of the bulb is moved into electrical contact with the terminal 9 of the battery, as illustrated in Fig. 2, whereupon the electric circuit is closed and the bulb is illuminated. The circuit will be closed only so long as the pressure is maintained because immediately pressure is released the bulb will move back into the position illustrated in Fig. 1 in response to the resilient tension of the switch finger C. The electric circuit of the flashlight is diagrammatically illustrated in Fig. 5 of the drawings.

It is anticipated that the carrier 1 will be composed of a shatter-proof material to prevent breakage and this refers equally to the end closures 2 and 3. The light bulb is of the type now commonly known and in use wherein a reflector is unnecessary due to the light bulb construction which is such that adequate and efficient light is obtained without a reflector.

It will be understood that desirable features and variations can be obtained by making the carrier of different colors or by making the wrapper or the printing carried thereby of different colors. If a colored light is desired this can be obtained by the use of colored bulbs or by the use of end caps 3 of different colors.

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Detailed description of the slightly modified form of the invention appearing in Fig. 4 is unnecessary. The flashlight here illustrated is substantially identical to that previously described with the exception that the wrapper E has been eliminated. Longitudinal movement of the battery can be prevented by the use of a suitable adhesive between the battery casing and/or the interior of the carrier tube and between the bottom end of the battery and the closure cap 2. However the fit between the battery and the tubular carrier could be sufficiently snug to prevent longitudinal movement of the battery especially in view of the friction exerted between the switch finger C and the carrier. Obviously the inventive concept is not limited to a transparent carrier and in this modified form of the invention the carrier is not transparent and accordingly no reading or advertising matter is shown on the battery. However in this instance the carrier could be made transparent and the reading or advertising matter could be carried on the battery itself instead of a wrapper or could be affixed directly to the inner face of the carrier tube 1.

For brevity in this description and in the following claims the device constituting the invention is referred to as a "flashlight" but this term is not to be interpreted as a limitation but is to include all forms of electrical illuminating devices such as those often referred to as "torches" and "signal lights". Ordinarily a flashlight is a portable device and the description and drawings describe and illustrate such a device but the inventive concept is not to be limited to only those devices which are portable as the principle of the invention can be incorporated into illuminating devices which could be considered as being too heavy or large to be portable.

The carrier or enclosing housing for the parts making up the flashlight is preferably both air and liquid-proof and being so has many advantages which will be obvious to those skilled and familiar in this art and therefore need not be enumerated in detail. Among those advantages can be mentioned the fact that as long as the electric battery has sufficient current to illuminate the light bulb definite and positive operation of the light is assured under any and all conditions which is of course highly desirable. Further, an air and liquid-proof carrier multiplies many times the life of the battery over devices which are not similarly housed. Incidentally breakage of the light bulb is guarded against and the character of the device is such that an illuminating medium is provided which can be actually used in water, which not only widens the field of use but also assures that positive operation of the device will be neither impaired nor destroyed through accidental immersion of the flashlight in water or some other liquid.

The material of which the carrier is made can vary but as a suggestion acetate in sheet or tubular form would be highly satisfactory. The desired flexible resiliency in the carrier and the transparency thereof can be obtained by the use of the suggested material and the use of such material simplifies the fusion or connection of the end caps of the carrier in a manner to provide air and liquid-tight sealing of the carrier ends. Acetate permits a fusion of the caps to the carrier by use of a suitable solvent. It is to be understood however that other materials could be successfully used and the development

of plastics has reached a point that the carrier could be made in different ways and of many different materials and still have the desired and necessary attributes.

From the foregoing description it will be understood that the necessary flexibility of the carrier can be localized in the critical area but that should it be desirable for any reason the entire carrier could be flexible.

The flashlight is illustrated and described as embodying only a single battery but a plurality of batteries arranged in end to end relationship, as is common in flashlights, could be provided without departing from the spirit of the invention and would require such small modification of the construction illustrated in the drawings as not to require inventive concept.

I claim:

1. In a portable throw away flashlight, an electric battery having a metallic jacket constituting one of its poles and having its other pole at one of its ends, an electric light bulb having a current conducting base and a terminal insulated therefrom, a flexible elongated resilient current conducting element having one end directly attached and permanently secured to the jacket of the battery and adjacent its other end being directly and permanently secured to the base of said light bulb, said element normally supporting said bulb with its terminal in spaced relationship to the pole at the end of the battery, a permanently sealed and air and water tight carrier enclosing said named parts and having an end through which the light generated by said bulb may pass, and said carrier having a flexible area adjacent said flexible resilient element which upon the application of an inward pressure will move the light bulb and cause the

spaced terminal thereof and the pole at the end of the battery to electrically engage and illuminate the light bulb.

2. A construction as defined in claim 1 wherein, the flexible elongated resilient current conducting element is directly attached and permanently secured to the jacket of the battery and the base of the light bulb by being welded thereto.

3. A construction as defined in claim 1 wherein, the carrier throughout its length is of the same cross sectional configuration as the battery and has sides which parallel the sides of the battery, said flexible elongated resilient current conducting element throughout substantially its entire length normally paralleling and abutting the inner face of the carrier, said element at a point adjacent its free end being off set, and the off-set portion of said element being the portion thereof which is directly attached and permanently secured to the base of the light bulb.

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