Dec. 20, 1949 J. NATHAN ET AL 2,491,686

PEN SHAPED POCKET FLASHLIGHT

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Fig. 1.

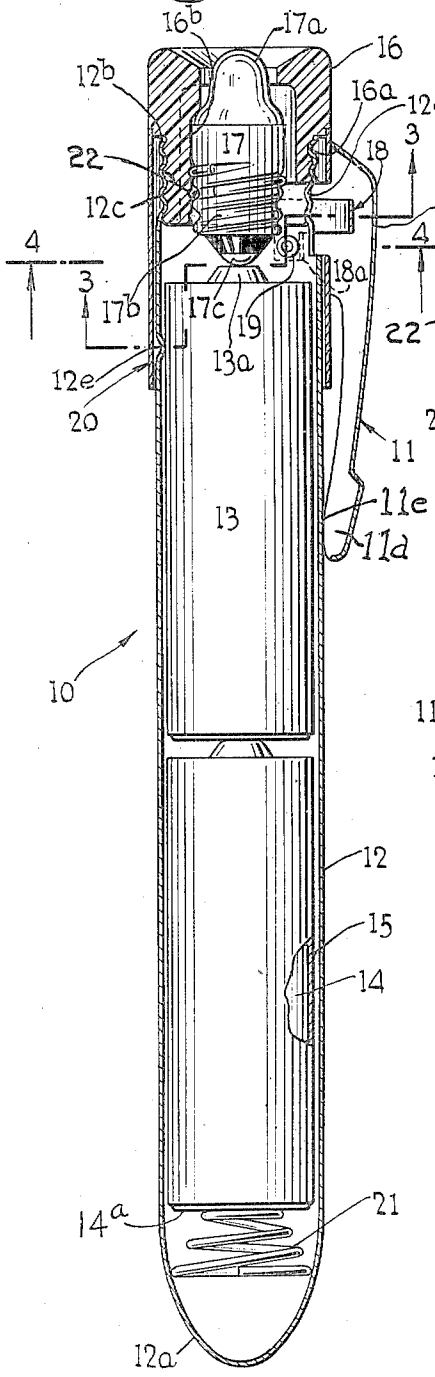


Fig. 7.

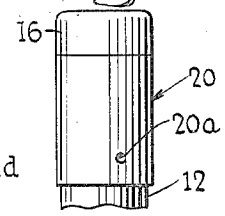


Fig. 2.

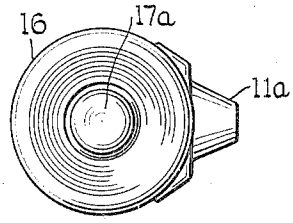


Fig. 4.

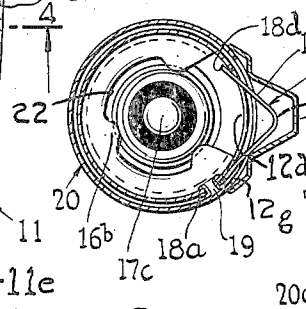


Fig. 3.

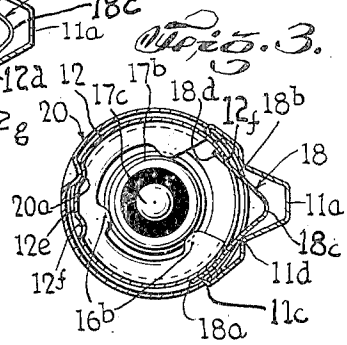


Fig. 6.

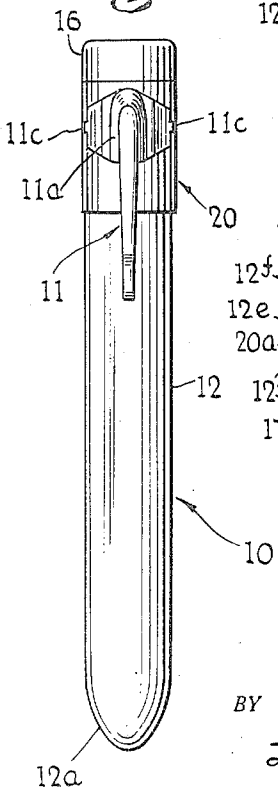
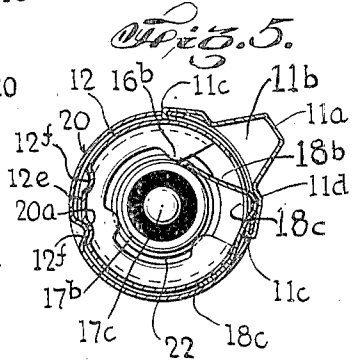


Fig. 5.



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PEN-SHAPED POCKET FLASHLIGHT

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8 Claims. (Cl. 240—10.68)

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This invention relates to portable lighting device and more particularly is directed to pen-shaped pocket battery flashlights.

Among the objects of use of the invention is the provision of an improved article of the character described comprising few and simple parts which shall be easily assembled to form a reliable and dependable portable lighting means capable of withstanding rough and hard usage yet which shall be small and compact so that it can be readily carried in the pocket or in handbags, which shall be neat in appearance, convenient to handle and operate, cheap to manufacture, and practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out. The invention accordingly consists in the features of construction, combinations of elements and arrangements of parts which will be exemplified in the construction hereinafter described and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown one of the various possible illustrative embodiments of this invention:

Fig. 1 is an enlarged cross-sectional view taken through a pen shape pocket flashlight constructed to embody the invention, showing the switch retained in an off-circuit position.

Fig. 2 is a top plain view of the improved flashlight showing Figure 1.

Figs. 3 and 4 are cross-sectional views taken on lines 3—3 and 4—4, respectively, in Figure 1, showing details of the switch construction and assembly.

Fig. 5 is a cross-sectional view similar to Figure 3, showing the switch in closed circuit position.

Fig. 6 is a side elevation aproximately full size showing the exterior of the improved flashlight, and

Fig. 7 is a fragmentary view of the head end of the improved flashlight showing a side of the rotary switch band opposite the clip.

Referring to the drawing 10 denotes a pen-shaped pocket flashlight constructed to embody the invention of a type that can conveniently be carried in a pocket or other receptacle and mounted like conventional pens and pencils by means of a clip 11 in a pocket or in a woman's handbag, in the well understood manner.

Said flashlight 10 may comprise a suitable outer casing 12, and as here shown, being formed of a one-piece tubular sheet metal having a suitable closed end 12*a* for housing a standard electric

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battery of two series arranged dry cells 13 and 14, each cell being insulated from the casing 12 by a paper a fibre wrapper 15.

Open end 12*b* of casing 12 opposite said closed end 12*a*, through which said dry cells 13 and 14 are inserted, extends beyond the carbon terminal or center contact 13*a* of cell 13, and may be provided with a suitable coupling means, such as spun or drawn screw-threads 12*c* extending inwardly from said open end 12*b* forming a seat and anchorage for a cap or head member 16. The latter carries a standard miniature incandescent lamp 17 extending therethrough with bulb 17*a* thereof exposed and screw base 17*b* of the lamp 17 extended beyond said member 16 so that center contact 17*c* of lamp 17 is positioned to connect in circuit with said battery terminal 13*a*.

Said flashlight head member 16 preferably is made of a suitable plastic molded material formed with a cut back screw-thread portion 16*a* which forms said seat and anchorage with casing screw threads 12*c*, as is shown in Fig. 1, where head member thread portion 16*a* is screwed into casing threads 12*c* firmly coupling the head member 16 in position.

Portion of casing threads 12*c* inwardly of the rim edge of open end 12*b* has a section cut away to provide an elongated clearance slot 12*d* extending part way peripherally thereof through which a V-shaped spring current conducting jumper 18 extends in position for cooperating with screw base 17*b* to provide circuit making and breaking switch means as is clear from Figs. 1, 4 and 5. One end 18*a* of jumper 18, which is preferably made of spring material, such as tempered steel, alloys or bronze, may be secured to one end 12*g* of slot 12*d* by suitable means, for example, rivet 19, the outer or free end 18*b* of said spring jumper 18 being of such a length, shape and size to normally take a position to abut the rim end 12*f* of said slot 12*d* with midportion bight 18*c* of jumper 18 extending beyond the exterior surface of casing 11.

Encircling casing end over threads 12*c*, and rotatably mounted thereon for limited movement, there is provided a band 20 on which clip 11 is carried to turn therewith. Said clip 11 may be formed of a metallic stamping having bulged end 11*a* providing a hollow 11*b*, said end 11*a* being firmly secured to band 20 in any suitable manner as by integral clinched lugs 11*c* as shown in Figs. 3 and 5. Interior side wall 11*d* of said hollow 11*b* may be constructed to serve as a cam which permits spring jumper 18 to remain in

off-circuit position, as shown in Figs. 1, 3 and 4, and on rotating the band 20 counter-clockwise said cam wall 11d causes jumper 18, by pressure applied on bight 18c, to flex the free end 18b thereof for contacting lamp screw base 17b to close the switch circuit, as is clear from Fig. 5.

To limit the rotation of band 20 with clip 11, and also to retain band 20 in its effective operating position for controlling the switching, a groove 12e extending into the casing 12 inwardly of slot 12d is provided to cooperate with a suitable protuberance 20a formed in said band 20, as shown in Figs. 5 and 7. If desired, opposite ends of groove 12e may be spotted or indented, as at 12f, so as to provide dwells for the protuberance 20a to more positively retain the switch in off and on circuit positions, as is clear from Figs. 3 and 5.

The practical operation of the invention will now be apparent, with the head member 16 positioned in the complete assembly as described above and shown in the drawing, and with a suitable helical pressure spring 21 mounted in casing closed end 12a bearing on the zinc terminal 14a of dry cell 14, as shown in Fig. 1, the lamp 17 being preferably retained in assembled position in the head member 16 by suitable means, such as, wire 22 wound on lamp screw-base 17b interposed to frictional by engaged with spaced ribs 16b extending in the lamp passage in head member 16, as shown in Fig. 1. By turning band 20 with clip 11 clockwise as far as they can be readily moved to a position corresponding to that shown in Figs. 1, 3 and 4 with the protuberance 20a entered into groove end 12f, the jumper 18 will be in "off" circuit position and the bight 18c extended into hollow 11b of the clip bulge 11a. The jumper free end 18b is then normally spaced from the lamp base 17b and in abutment with the interior surface of the slot end 12f. To switch the jumper 18 in "on" circuit position band 20 with clip 11 are rotated as far as they can readily be moved counterclockwise to a position corresponding to that shown in Fig. 5 until the protuberance 20a enters the groove end 12f at the other end of the groove 12e.

During these rotations jumper bight 18c is subjected to the camming action against the interior surface 11d of the wall of said hollow 11b for flexing the free jumper end 18d to and away from making a wiping contact on lamp base 17b as is clear from Figs. 3 and 5. It should be noted that the jumper bight 18c co-acts with said hollow wall of hollow 11b so that the "on" circuit position is retained or stabilized because the camming action extends slightly beyond the bights so called dead point, that is onto the jumper free end 18b, as shown in Fig. 5. Should the band 20 and clip 11 be turned less than to said stabilized position there would be a tendency for the switch to be released to the "open" circuit position at the switch. To "open" circuit the switch after the latter has been "closed," band 20 and clip 11 are merely rotated clockwise to the position first above described.

Clip 11 may be of U-shape cross-section formed with a clamping end 11d having surface portion 11e resiliently supported at the end of clip 11 opposite said bulged end 11a. When the clip 11 is effective to retain the flashlight 10 in a pocket or the like it also serves to hold the band 20 against accidental movement in addition to the friction provided by the protuberance 20a in groove 12e.

It should be noted that the flashlight construction 10 is not only of improved simple construction but also lends itself to form a neat and attractively designed article for the purposes described.

It will thus be seen that there is provided a flashlight construction in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. In a flashlight construction, a metallic tubular battery casing having an elongated peripheral extending slot adjacent an open end thereof and terminated by a head member wherethrough an incandescent lamp extends with a base of said lamp aligning with said slot, a V-shaped spring current conducting member having one end secured to a one end rim of said slot with a mid-portion bight of the member normally projecting through said slot beyond the exterior surface of said casing, a free end of said member opposite said secured end abutting an interior side of other end rim of said slot and at a spaced distance from said lamp base, a band encircling said casing mounted for limited rotation over said slot and free from said projecting bight, a clip having a bulge end formed with a hollow side thereof aligning with said slot carried by said band, said projecting bight extending into said hollow side, the interior wall surface of said hollow side being shaped and positioned to serve as a cam cooperating with said bight to flex the free end of the member for electrical contacting with the lamp base on rotating said band with the clip from "off" to "on" circuit switching positions.

2. In a flashlight construction as defined in claim 1, in which said cam serving interior wall surface of the hollow side includes engagement means for releasably retaining the bight when in effective circuit closing position on rotating said band.

3. In a flashlight construction as defined in claim 1, in which integrally formed cooperative means are provided in said band and casing for limiting relative rotation therebetween and for retaining the band with the clip against movement along the casing.

4. In a flashlight construction as defined in claim 1, in which cooperative sliding means are integrally formed in peripheral portions of said band and casing at a space distance from the slot for limiting relative rotation between said band and casing to correspond to the length of the slot, said sliding means retaining the band with the clip against movement along the casing, said cam serving interior wall surface of the hollow side being shaped to releasably retain the bight in effective circuit closing position on rotating the band in said limited relation.

5. In the flashlight construction as defined in claim 1, in which said clip is resilient structure having a gripping end for releasable clamping to a support interposed between said gripping end and the battery casing and for retaining the band and clip against accidental relative rotation with respect to said casing.

6. A flashlight comprising a metallic tubular casing having a top open end and a closed bottom end, a battery housed within the casing down from said casing top open end, a head member wherethrough an incandescent lamp having base contacts extends mounted in said casing open end to connect in circuit one base contact with a terminal of said battery, the other terminal of said battery being connected in circuit with said casing through said bottom end thereof, said casing having an elongated peripheral extending slot at a spaced distance down from said top open end in alignment with another of said base contacts, a V-shaped spring current carrying jumper having one end thereof anchored to one end rim of said slot with a midportion bight of said jumper normally projecting through the slot beyond the exterior of the casing, the extreme edge of the free end of said jumper opposite said anchored end abutting the other end rim of said slot on the interior of said casing, a clip terminated at one end by a band encircling said casing positioned to cover said slot, said clip and band having a bulge formed with hollow side facing said slot into which said projecting bight extends, the interior wall surface of said hollow side having a camming portion for engaging said bight to flex the jumper free end toward the last mentioned base contact for closing the electrical circuit through the lamp on rotating said clip with the band from an "off" to an "on" switching position.

7. A flashlight as defined in claim 6, having

means for limiting the rotation of said clip and band with respect to the casing for positioning said camming portion along the jumper free end to releasably retain the "on" switching position.

8. A flashlight as defined in claim 6, having means for limiting the rotation of said clip and band with respect to the casing for positioning said camming portion along the jumper free end to releasably retain the "on" switching position, said clip being of resilient construction and having a gripper surface on an end thereof opposite to said band for releasably clamping to a support interposed between said clip gripper surface and the battery casing so that the clip with band is retained against accidental relative rotation with respect to said casing whereby the switching position is releasably secured.

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