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L. J. LOCKWOOD

2,329,063

POCKET FLASHLIGHT

Filed April 30, 1941

Fig. 1.

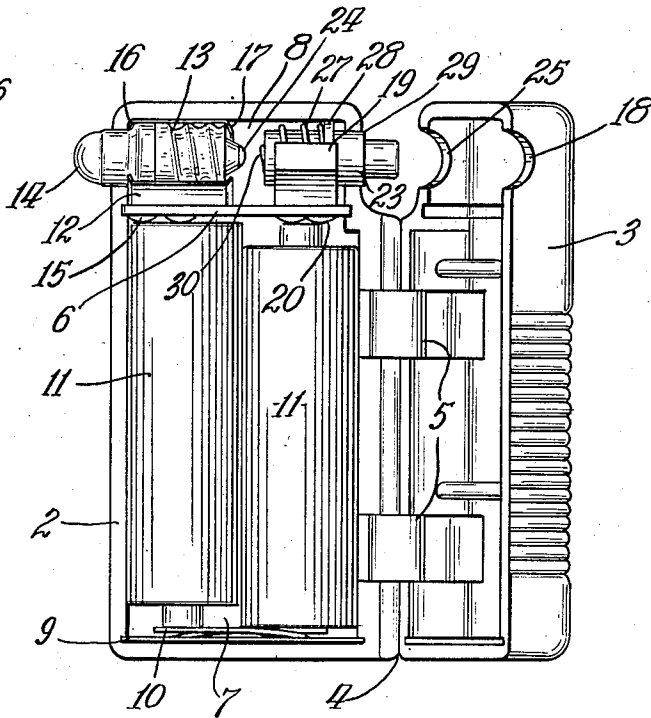
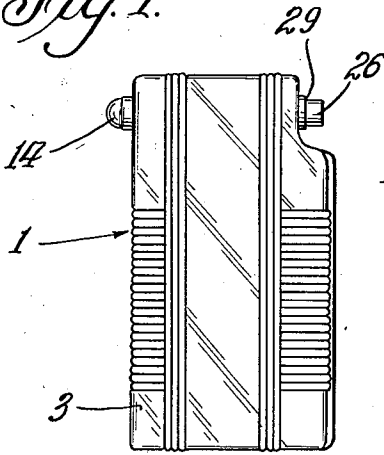


Fig. 3.

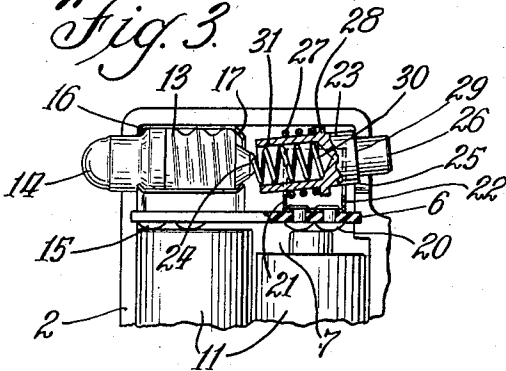


Fig. 2.

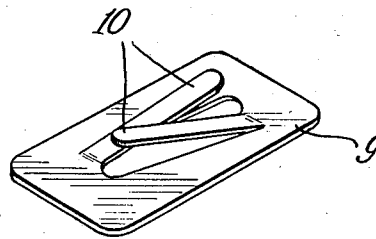
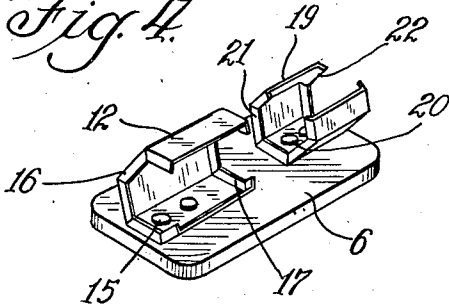


Fig. 5.

Fig. 4.



Inventor:
Lee J. Lockwood
By: Tesch and Darbo
Attys.

UNITED STATES PATENT OFFICE

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POCKET FLASHLIGHT

Lee J. Lockwood, Freeport, Ill., assignor to Burgess Battery Company, Chicago, Ill., a corporation of Delaware

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5 Claims. (Cl. 240—10.65)

This invention relates to electric hand lamps; more specifically, to a novel electric flashlight construction intended primarily for use in small, flat-type flashlights.

The object of the invention is to provide a compact, extremely simple flashlight which is inexpensive but nevertheless possessed of a desirable positive switch action and closed circuit locking feature.

A representative embodiment of the invention is illustrated in the accompanying drawing, in which

Fig. 1 is a side elevational view;

Fig. 2 is an elevational view of the flashlight with cover open to show the internal arrangement; and

Figs. 3, 4, and 5 are detail views of the head assembly, bumper plate assembly, and battery connector plate, respectively.

Although the invention is not necessarily limited to a flashlight of the flat case type, the arrangement was primarily designed and finds particular advantage in that type of flashlight and is accordingly so illustrated. The casing 1 is composed of two parts which may be referred to, for convenience, as tray 2 and cover 3. The internal parts of the flashlight are mounted in the tray portion of the casing while the cover serves to complete and close the case. Tray 2 and cover 3 are preferably hinged along one edge, as indicated at 4, preferably by means of spring hinge members 5 which serve to impart a snap action to the opening and closing of the case. The case may be composed of any suitable material, such as a plastic or metal. A molding plastic is preferred because of fabrication advantages and also freedom from the danger of short circuiting of the battery and corrosion which often occurs when metal is used. It will be appreciated that certain precautions must be taken to prevent short circuiting when a metal case is used.

The particular spring hinge illustrated is known and forms no part of the present invention.

A bumper plate 6 of stiff insulating material is mounted transversely within and near the top of the flashlight case. This plate partitions the interior of the case, forming a battery compartment 7 below it and a space intended to accommodate the operating mechanism of the flashlight which may be referred to as a head compartment 8. A battery connector plate 9 having spring strips 10 adapted to bear against the proper terminals of the dry cells 11 is arranged at the bottom of the casing.

A clip 12 which is sufficiently long to accom-

modate at least the base 13 of incandescent lamp 14 is mounted on bumper plate 6 by means of rivets 15. This clip is composed of a resilient metal and may be referred to as a C clip in view of its cross-sectional configuration which is approximately that of a C; that is, the clip section is a somewhat extended semicircle. The clip may have continuously curved, cylindrical walls or may be hexagonal in section as shown in Fig. 4. Its normal inside diameter is preferably slightly less than the diameter of lamp base 13 so that the latter is tightly clamped in the clip after insertion. The clip gap through which the lamp is passed when inserting it into the clip is considerably less than the diameter of the lamp base, the overhanging portions of the clip adjacent to the gap serving to retain the lamp in position. The metal of which the clip is composed is sufficiently resilient to permit spreading of the clip to admit the lamp.

Clip 12 is preferably provided with inwardly extending flanges 16 and 17 which serve to locate lamp 14 in the clip and prevent axial movement which might otherwise bring about accidental closing of the lamp circuit. These flanges are not indispensable because the frictional engagement of clip 12 with lamp base 13 will ordinarily be sufficient to hold the lamp in place and also because the forward thrust on the lamp exerted by the switch plunger may be borne at the periphery of the opening 18 which is engaged by the shoulder of the lamp.

A second metallic C clip 19 is fastened to bumper plate 6 by means of rivets 20 in axial alignment with clip 12. This clip is provided with a flange 21 at its inner end and also, preferably, a flange 22 at its outer end. The purpose of clip 19 is to support metallic switch plunger 23. This plunger is adapted to move axially in clip 19 to engage the lamp center terminal 24 and thereby close the electrical circuit and energize the lamp. An opening 25 is provided in alignment with opening 18, lamp 14, and plunger 23 through which the button 26 projects for external manipulation of the switch. A coil spring 27 operating between flange 21 and collar 28 urges the switch plunger to open circuit position.

Button portion 26 of the switch plunger is of reduced diameter, leaving an annular shoulder 29. When the plunger has been moved forward sufficiently to bring shoulder 29 within the plane of the inner surface of the flashlight case, the button may be shifted upwardly to bring the shoulder in engagement with the case at the periphery of opening 25 as shown in Fig. 3. The

pressure of spring 27 maintains this engagement so that the plunger does not return to open circuit position upon simple release of pressure on the button. The switch is thus locked in closed circuit position.

In order to permit some axial movement of the switch plunger while maintaining the closed circuit, a coil spring 30 is arranged within bore 31 in plunger 23. Electrical contact with the lamp terminal is actually made by the end of this spring.

Since rivets 15 and 20 are electrical conductors, clips 12 and 19 are connected to the respective terminals of the battery composed of the two dry cells 11 which, in turn, are electrically connected by plate 9. The base 13 of the lamp is connected with clip 12 upon insertion of the lamp in the latter and metallic plunger 23 is electrically connected with clip 19. Upon the application of pressure to button 26, the resilient terminal element of the switch is brought into contact with center terminal 24 of the lamp and the electrical circuit is completed. Upon release of the pressure on button 26, the electrical circuit is opened as spring 27 returns switch plunger 23 to its normal position. If the switch plunger has been locked in closed circuit position as in Fig. 3, the circuit may be opened by pushing the switch button downward to release the plunger.

The flashlight lamp is readily accessible for removal and replacement. This may be done by flipping open the split case and lifting the lamp from the clip. A small force is necessary to spread the jaws of the clip. The new lamp may then be pressed into place in the clip.

I claim:

1. In a pocket flashlight having a lamp arranged therein, a switching mechanism adjacent said lamp and comprising a C clip fixedly mounted within the flashlight and having inwardly extending end flanges, a plunger arranged within said clip and having a collar adapted to engage the end flange of said clip remote from said lamp to thereby limit axial movement of said plunger, and a compression spring around the plunger and between said collar and the end flange nearer said lamp, the construction and arrangement being such that upon manipulation said plunger engages a terminal of said lamp to close the electrical circuit thereof.

2. In a pocket flashlight, an elongated case having a top wall, a plate of insulating material mounted transversely within the case dividing said casing into a head chamber and a battery chamber, a lamp mounted within said head chamber, a C clip mounted on said plate with its axis parallel thereto and having its open side facing the top wall of said case, a plunger arranged in said clip, said plunger being adapted to control the lamp circuit by axial movement of said plunger, the spacing of said plate from the top wall of said case being such that lat-

eral displacement of said plunger is limited by said top wall.

3. In a pocket flashlight, a case having a pair of openings near one end thereof in transverse alignment with respect to the case, a resilient elongated metallic C clip mounted within the case adjacent one of the openings and in alignment with the openings, a lamp arranged in the clip, a second resilient elongated metallic C clip mounted within the case adjacent the other opening and in alignment with the openings, a switch plunger supported in the second clip and having a button extending through the adjacent opening for external manipulation of the switch plunger, and spring means for urging the plunger to open circuit position, the construction and arrangement being such that depression of the button results in engagement of the switch plunger with the lamp to close the energizing circuit.

4. In a pocket flashlight: a case; a lamp and a switch plunger mounted in axial alignment transversely of the case at the top thereof; said case having openings therein in alignment with the lamp and plunger; means for supporting the plunger comprising a resilient elongated metallic C clip mounted within the case; the inner end of the clip having an inwardly extending flange; the plunger having a collar intermediate its ends, a button projecting through an opening in the case and beyond the outer surface thereof, and a shoulder portion between the collar and button; a compression spring around the plunger and between the clip flange and the collar urging the plunger away from the lamp; and resilient contact means associated with the plunger; the construction and arrangement being such that the application of an axial force on the button followed by the application of a sidewise force thereon results in engagement of the plunger with the lamp and engagement of the plunger shoulder with an inside surface of the case whereby the plunger is locked in closed circuit position.

5. In a flat-type pocket flashlight, a case, a plate of insulating material mounted transversely within the case to form a head chamber and a battery chamber on the opposed sides of said plate, the opposed narrow sides of said case each having an aperture opening into said head chamber, two spaced-apart elongated metallic C clips mounted on said plate within said head chamber, the axes of said clips and said openings in said case all being in alignment, one of said clips being resilient and adapted to receive the base of a lamp, the arrangement being such that the bulb of the lamp projects through the adjacent one of said openings, the other of said clips being adapted to support a switch plunger having a button extending through the adjacent opening, said clips forming a part of the electrical circuit for energizing said lamp.

LEE J. LOCKWOOD.