

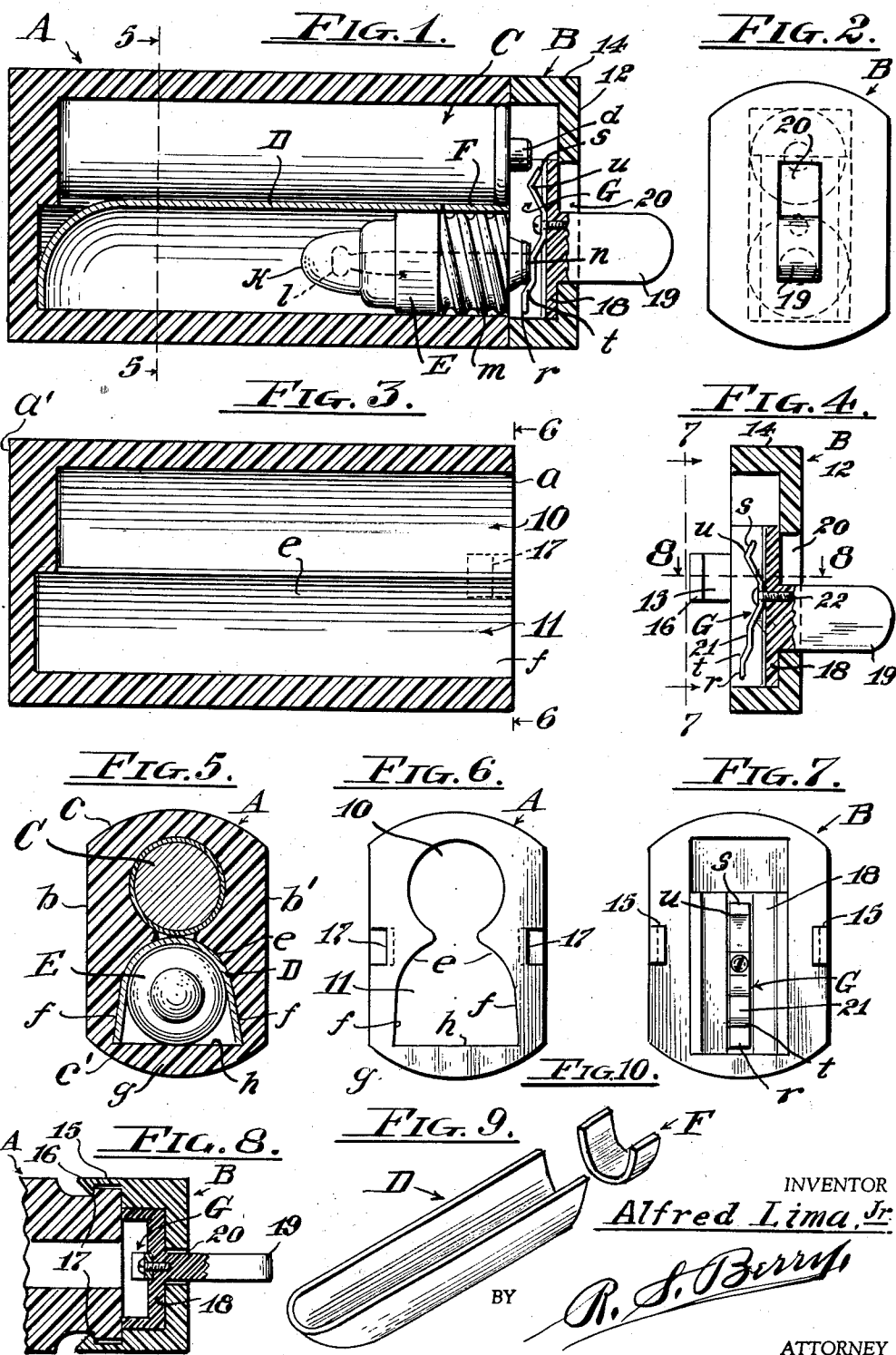
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ELECTRIC LAMP

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ELECTRIC LAMP

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This invention relates to a portable electric lamp of the type operated by a dry-cell battery and controlled by an associated manually actuated switch. Lamps of this character are commonly referred to as "flash-lights" and as now generally on the market are designed to cast a concentrated beam of light for spot illumination.

The primary object of the present invention is to provide a portable battery operated lamp which is capable of dispersing rays of light emitted from a light bulb so as to produce a flood light, and thereby effect illumination of a wide area contiguous the lamp as distinguished from spot illumination and whereby the lamp may be utilized in lighting small compartments throughout such as the interiors of purses, hand-bags, boxes, drawers and similar receptacles, as well as in affording a spread of light adjacent the lamp wherever such spread is desirable.

A particular object is to provide a flash light which is capable of being carried in a purse or pocket-book, hand-bag or the like, and manipulated to effect illumination of the interior thereof in a manner such as to facilitate the location by sight of a particular one of many objects ordinarily jumbled therein, such illumination being especially advantageous at night or in deep shadow.

Another object is to provide a lamp of the above character embodying but few parts of simple construction adapted to be readily assembled so as to be economical in its production.

Another object is to provide a construction in the control switch of the lamp whereby its movement to and from its "on" and "off" position will be yieldably resisted so that accidental throwing of the switch by contact therewith of adjacent objects is not liable to occur.

With the foregoing objects in view together with such other objects and advantages as may subsequently appear, the invention resides in the parts and in the combination, construction and arrangements of parts hereinafter described and claimed, and as illustrated by way of example in the accompanying drawing in which:

Fig. 1 is a view of the lamp as seen in longitudinal section with parts shown in elevation;

Fig. 2 is an end view;

Fig. 3 is a view of the lamp housing as seen in longitudinal section with parts removed;

Fig. 4 is a view in vertical section of the closure cap and switch structure as separated from the housing shown in Fig. 3;

Fig. 5 is a cross section taken on the line 5—5 of Fig. 1;

Fig. 6 is an elevational view as seen on the line 6—6 of Fig. 3;

Fig. 7 is an elevational view as seen on the line 7—7 of Fig. 4 showing the inner face of the closure cap and switch structure;

Fig. 8 is a detail in cross section taken on the line 8—8 of Fig. 4;

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Fig. 9 is an isometric view of a reflector employed in the lamp showing it as detached and in an inverted position; and

Fig. 10 is an isometric view of a contact element for effecting permanent electrical connection between one terminal of a battery and one terminal of an electric lamp.

Referring to the drawings more specifically A indicates generally the lamp housing, and B designates generally a combined closure cap and switch housing detachably engageable with one end of the housing A and normally carried thereon. The housing A and cap B are formed of a suitable transparent light conductive plastic such as "Lucite."

An elongated rectangular block of such material is provided for the housing A having parallel flat end faces $a-a'$ and parallel flat side faces $b-b'$ between which latter extend relatively concentric transversely arcuate convex side faces $c-c'$.

The housing A has a laterally offset longitudinally extending cylindrical bore 10 leading from and opening at the end face a and closed at its inner end in which bore is mounted a conventional cylindrical dry-cell battery C the side surface of which slidably conforms to the cylindrical surface of the bore 10. When positioned in the bore 10, one end of the battery seats on the inner end of the bore while the outer end of the battery lies substantially flush with the adjacent end face a of the housing with the contact point d of the battery projecting from said end face. The housing A also has a second offset longitudinally extending bore 11 paralleling the bore 10 and opening thereto along the length thereof. The inner longitudinal half e of the bore 11 is substantially semi-cylindrical along the length thereof while the sides $f-f$ of the outer half of the bore diverge relative to each other and terminate in a wall g constituting one side of the housing A flanked by the side face c' . The inner face h of the wall g is flat and such face and the adjacent face c' is polished so that the wall g constitutes a lens.

The outer end of the bore 11 opens at the end a of the housing alongside the open end of the bore 10. The inner end of the bore 11 preferably extends parallel to the end face a' adjacent thereto.

Mounted in the bore 11 is a reflector D of substantially U-shaped cross section to conform to the arcuate surface of the wall e and the surfaces of the diverging sides $f-f$; the reflector D extending throughout the major portion of the length of the bore 11 and having a rounded inner end seating on the inner end of the bore 11. The reflector D may be formed of sheet metal in which event its inner face is polished or silvered to render it reflective, or it may be formed of transparent material in which event either its inner or outer surface may be treated so that its inner surface will be highly reflective.

Arranged in the outer end of the bore 11 is a conventional electric lamp E fitted on its inner end with a bulb k equipped with a filament l having an end connected to an electrically conductive shell m constituting the base portion of the lamp, and having another end connecting with a protruding contact n on the outer end of the lamp and insulated from the shell m in the usual manner.

Partially encompassing the shell m in close contact therewith is an electrically conductive clip F, particularly shown in Fig. 10, which clip seats in the outer end portion of the bore 11 at the outer end of the reflector D and intimately bears against the side wall of the battery C in electrical contact therewith to afford electrical connection between one pole of the battery and

the terminal of the lamp comprising the shell *m*. Where the reflector *D* is formed of metal the clip *F* may be formed in continuation of the outer end of the reflector in an obvious fashion. The lamp *E* is snugly fitted in wedge engagement with the reflector *D* and clip *F* which in turn tightly abuts the walls of the bore **11** so that the lamp is securely but removably held in place in the outer end portion of the bore **11**.

The cap *B* embodies an end wall **12** and a continuous side wall **14** which latter has a flat face designed to abut the end face *a* of the housing *A* and is contoured on its outer margin to conform with the margin of the end face *a*. As a means for detachably connecting the cover *B* to the housing *A*, the cover has a pair of parallel tongues **15—15** projecting from opposed portions of the outer margin of the side wall **14**, the outer end of each of which tongues has a latch **16** thereon adapted to snap-engage a countersunk keeper **17** on the housing *A* as particularly shown in Fig. 8.

Mounted interiorly of the cover *B* is a switch *G* embodying a slide block **18** of U-cross section the connecting wall of which slidably abuts the inner face of the end wall **12** of the cover *B* and the margins of its leg members slidably abut the end face *a* of the housing *A*. The block **18** has a stem **19** which projects through a slot **20** in the cover end wall **12** whereby the block **18** may be manually reciprocated. Mounted on the inner face of the slide block **18** is a switch contact element comprising an electrically conductive plate spring **21** fixed intermediate its ends to the block **18** as by a screw **22** and having free end portions *r* and *s* arranged with the end portion *r* constantly seated on the contact member *n* of the lamp *E* and with the end portion *s* arranged to be moved in and out of engagement with the battery terminal *d* by reciprocation of the slide block **18**.

As a means for yieldably resisting sliding movement of the block **18** from either its retracted or advanced positions the spring **21** has its end portion *r* formed with an inclined shoulder *t* engageable with the margin of the contact *n* when the slide block **18** is in its retracted position, and has its end portion *s* formed with an inclined protrusion *u* arranged to ride over and engage the margin of the contact point *d* when the slide block is in its advanced position.

In assembling the lamp the battery *C* and reflector *D* are inserted longitudinally into the parallel bores **10** and **11** respectively to their seated positions therein with the clip *F* abutting the side wall of the outer end portion of the battery *C* in electrical contact therewith. The lamp *E* is then pressed into the reflector *D* with the shell *m* thereof abutting the inner face of the clip *F* and pressing the latter snugly against the battery *C*. When the parts are thus assembled the reflective surface of the reflector *D* is presented to the lens formed by the wall *g* of the housing *A* and the battery *C* and lamp *E* extend in parallel relation with each other as do the contacts *d* and *e* and the end faces of the contacts *d* and *n* are aligned on a common plane. The cover *B* is then applied to the housing *A* with the ends **16** of the tongues **15** snapped into engagement with the keepers **17**. The end portion *r* of the spring contact member **21** will then seat on the contact *n* and on retraction of the slide block **18** the inclined shoulder *t* will engage the margin of the contact *n* while the end portion *s* of the switch contact **21** will be spaced from the contact *d* as particularly shown in Fig. 1. The inclined shoulder *t* will then hold the slide block **18** against free movement.

When it is desired to illuminate the lamp the slide block **18** is advanced so that the end portion *s* of the switch contact **21** will ride over the contact *d* and seat thereon so as to complete electrical circuit from the battery *C* through the filament *l* of the lamp *E*. The inclined projection *u* engaging the margin of the con-

tact *d* will act as a spring detent to hold the switch *G* in its closed position against free movement.

The light rays emanating from the lamp *E* will be directed in part through the elongated lens *g* while other portions of the rays will be directed from the lamp onto the reflector *D* and deflected by the latter through the lens *g*. In this fashion a wide spread illumination or flood light will be generated. Obviously when it is desired to terminate illumination of the lamp the switch *G* is opened by retracting the slide block **18** to the position wherein the switch element *s* is positioned out of contact with the battery terminal *d*.

While a specific embodiment of the invention has been shown and described, the invention is not limited to the exact details of construction set forth, and the invention embraces such changes, modifications and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

I claim:

1. In an electric lamp, a housing comprising a block of plastic material having a pair of parallel bores therein, said bores having closed inner ends adjacent one end of the housing and having open ends at the other end of the housing; a dry-cell electric battery in one of said bores only having a side wall terminal and a central contact point on the outer end thereof adjacent the open outer end of said bore, an electric lamp disposed in the second of said bores having a filament carrying bulb at one end thereof and an electrically conductive shell at its other end with a central contact point on said other end; said lamp being arranged with the bulb thereof extending into said second bore and with the contact point of said lamp adjacent the open end of said second bore in parallel relation to the central contact on said battery and in end alignment therewith, means extending between said bores permanently electrically connecting said shell to said battery side wall terminal, an end cap on said housing, means detachably connecting said cap to said housing, and a switch carried by said cap for making and breaking electrical connection between the contact points of said battery and lamp; said housing having an elongated light conductive wall forming a side of said second bore, said wall being contoured to form a lens.

2. The structure called for in claim 1 in which said last named means comprises an electrically conductive clip partly encompassing said shell and intimately contacting said battery side wall terminal.

3. A portable electric lamp comprising a housing having a pair of parallel bores one of which has a light conductive wall extending throughout the length thereof the inner face of which is substantially flat and the outer face of which is transversely arcuate to form an elongated lens; a reflector in said last named bore having an arcuate face extending along the side thereof opposite said light conductive wall; an electric lamp extending into the open end of said last named bore and demountably seated therein having a bulb on its inner end extending into the space encompassed by said reflector and disposed in spaced relation to the inner end of said bore, a dry-cell battery in the other of said bores having a terminal electrically connected to one terminal of said lamp; a demountable cap on said housing, said battery and lamp each having a central contact point presented to said cap, said contact points extending in parallel relation and terminating in alignment with each other, and a switch carried by said cap operable to make and break electrical connection between the contact points on said battery and lamp thereby controlling illumination of said lamp.

4. The structure called for in claim 3 in which said switch embodies a slide block, means for reciprocating said block, and a spring contact member on said block

arranged to make or break electrical connection between said contact points.

5. The structure called for in claim 3 in which said switch embodies a slide block, means for reciprocating said block, and a spring contact member on said block arranged to make or break electrical connection between said contact points, and means embodied in said spring contact member for resisting initial movement of said block in either direction.

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