Oct. 3, 1967 SZE-YUEN CHUNG 3,345,508

FLASHLIGHT FORMED OF TWO MOLDED PARTS

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Fig. 2.

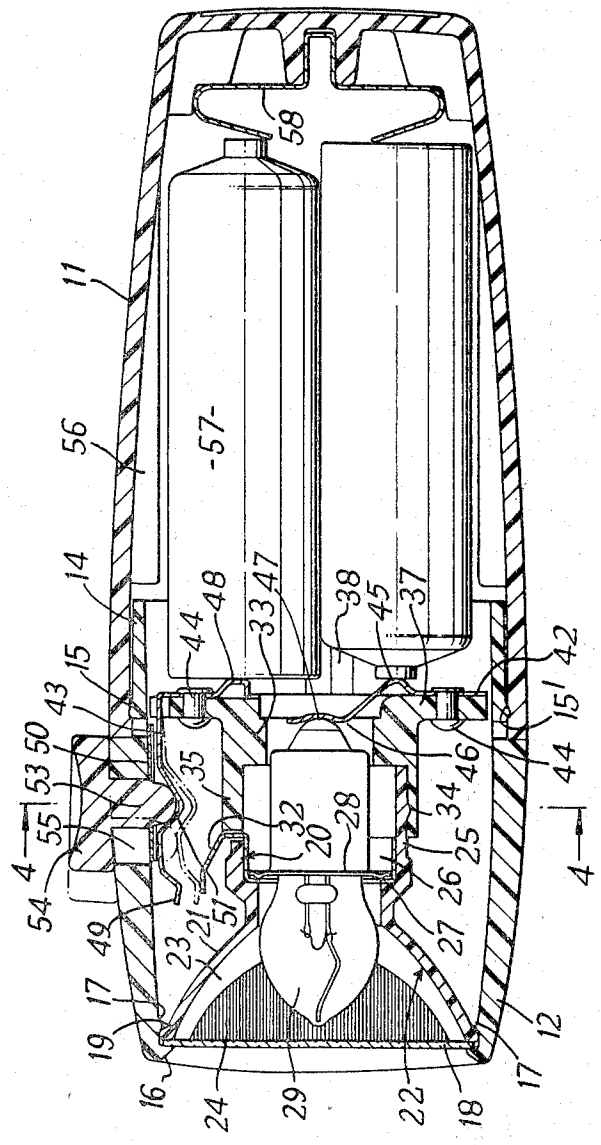

Fig. 1.

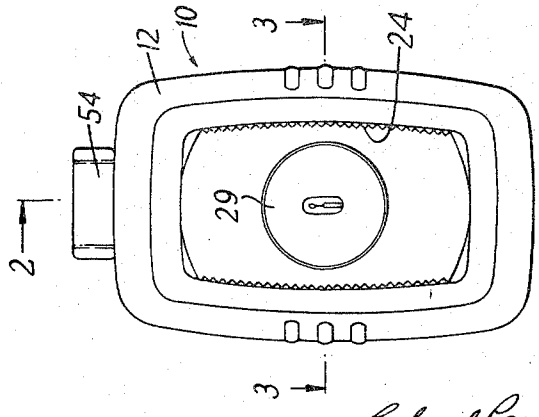

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Fig. 4.

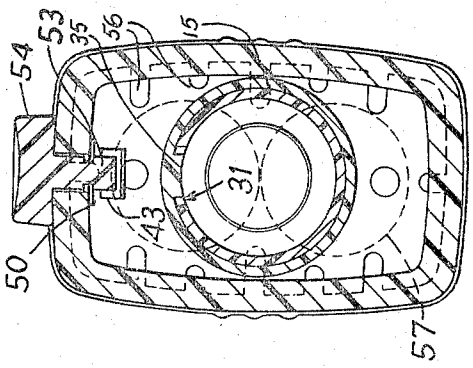
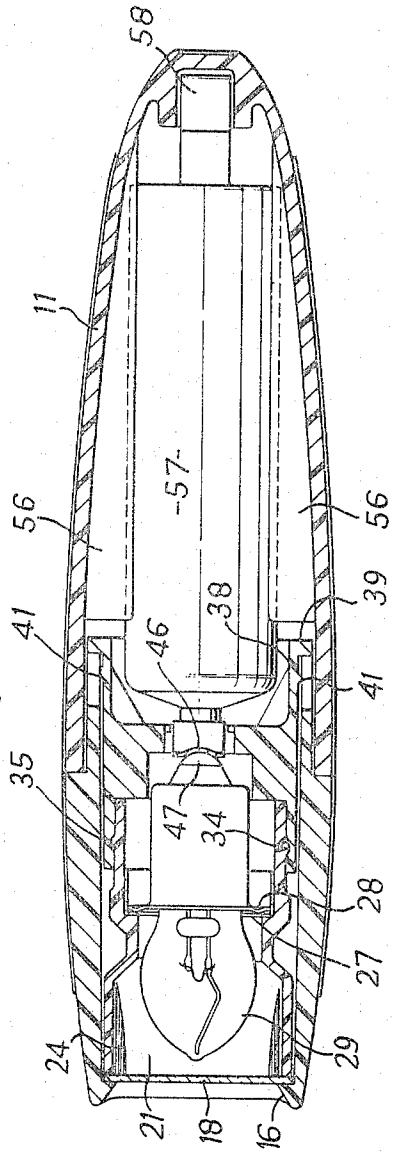


Fig. 3.



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3,345,508

FLASHLIGHT FORMED OF TWO MOLDED PARTS

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1 Claim. (Cl. 240—10.65)

ABSTRACT OF THE DISCLOSURE

This invention relates to battery operated hand flashlights wherein the body is formed from two moulded parts connected together by a snap fit. The flashlight has a moulded reflector which is integral with a socket receiving the flashlight bulb.

This invention relates to lamps and especially to hand lamps of the kind operated by dry cell batteries as known as flashlights.

According to one aspect of the invention there is provided a lamp comprising a bulb receiving socket and integrally therewith a reflector for a bulb when received in the socket. The socket and the reflector are made of a preferably moulded plastics material which is preferably polystyrene.

The bulb receiving socket preferably receives a terminal for the bulb, which terminal extends through the socket to the exterior thereof. The terminal preferably extends through a slot extending longitudinally from the free end of the socket.

Preferably there is further provided means for retaining the bulb in the bulb receiving socket. Such retaining means may carry a contact spring for engaging the end pole of bulb to retain the latter in the socket and to supply current to the said end pole. The retaining means is preferably a snap fit on the socket and preferably the retaining means has a tongue part which engages in the longitudinally extending slot to prevent relative rotation between the retaining means and the socket. The retaining means may preferably carry a second terminal which is connected to the extension of the first terminal through a make and break switch.

Preferably the lamp further comprises a dry cell container having an open end closed by the bulb retaining means and preferably the terminals carried by the retaining means are located to engage the terminals of batteries received within the container. Preferably the battery engaging portions of the terminals on the retaining means are identical.

The lamp preferably further comprises a lens for the bulb and means for holding the lens in position, which latter preferably forms with the battery receiving container an outer cover for the lamp.

One embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

FIGURE 1 is an end view of a flashlight of the invention,

FIGURE 2 is a section on line 2—2 of FIGURE 1,

FIGURE 3 is a section on line 3—3 of FIGURE 1, and

FIGURE 4 is a section on line 4—4 of FIGURE 2.

Referring now to the drawings a lamp of the invention is in the form of a shaped flat hand torch **10** of generally rectangular section. The flashlight **10** has a casing having a casing body **11** which also forms a dry cell container and a casing cover **12**, both the casing body **11** and casing cover **12** being moulded from high

density polyethylene or polypropylene. The casing cover **12** has a portion **14** fitting into the body **11** and this portion **14** has a raised bead **15** that is received in a recess **15'** in the casing body **11**. At its other end, the casing cover **12** has an inwardly directed bead **16** and slightly inwardly spaced therefrom a second bead **17** running along the shorter of the inner surfaces of the cover **12**. A lens **18** is received between the two beads **16** and **17** as is a flange **19** on each of the two ends of a reflector member **21**.

The reflector member **21**, which is a polystyrene mould ing, comprises a pair of arcuate reflecting surfaces **22** which are joined by flat side pieces **23** on which are formed a semi-circular series of stirations **24** arranged parallel to the axis of the curved reflecting portions **22**. At its inner end the member **21** is provided integrally with a cylindrical socket part **20** which increases in diameter and is then provided with an extending skirt member **25**. Within the increased diameter portion, the socket part **20** receives a cylindrical contact terminal member **26** having an inwardly directed flange **27** that forms a contact plate for the contact flange **28** of a light bulb **29** which is contained within the bulb receiving socket **20** formed by the cylindrical extension of the member **21**. The skirt **25** has a longitudinal slot **31** extending from one end and a contact strip **32** integral with the contact cylinder **26** is bent radially of the cylinder **26** to pass through the slot **31** and again backwardly to form a contact tag as will be hereinafter described.

A hollow boss member **33** receives the skirt and is provided with a recess **34** to receive a peripheral bead on the exterior of the skirt **25** so that the member **33** may be a snap fit on the skirt **25**. This member **33** also has an inwardly directed tongue **35** (see in particular FIGURE 4) which is received within the slot **31** so as to prevent relative rotation between the member **33** and the skirt **25**. The member **33** has flanges **37** and longitudinally depending members **38** which have feet **39** that engage against the underside of the portion **14** of the cover **12** to hold the member **33** in position. A small projection **41** is provided on each part **38** to engage in recesses in the portion **14** of cover **12** so as accurately to guide the part **38** in them.

The flanges **37** carry two tags or strips **42** and **43** respectively by means of a rivet **44**. The tag **42** which forms a connector strip has a downwardly bent portion **45** and is then bent upwardly to provide a portion **46** which resiliently acts against the end pole **47** of the bulb **29**. The tag **43** which forms a terminal strip has, on one side of the rivet **44**, a portion **48** which is almost exactly the same configuration as the portion **45** of tag **42**. On the other side of the rivet **44**, the tag **43** has an upwardly extending portion having a contact edge **49** for engaging the part **32** of the extension of member **25** to form therewith a make and break switch.

The forwardly extending portion of tag **43** has a V-shaped portion **51** bent into it. This V-shaped portion **51** is engaged by a pin member **53** carried by a slider **54** that is recessed to receive an operator's thumb. The cover **12** has a short slot **55** in which the pin member **53** is slidable from the position shown in full lines, in which the end of the pin **53** engages at the bottom of the V-shaped portion **51** of tag **43**, to the position at the other end of the slot **55**, which position is indicated in broken lines and in which the end of the pin **53** abuts against the terminal so as to force the portions **49**, **32** into engagement to close the switch. A metal plate **50** is connected to the pin member **53** inside the cover **12** to hold the slider **54** in position.

The battery container **11** has a number of internal longitudinally extending projections **56** which serve to locate the batteries **57**. At its closed end the container

11 has a battery spring 58 which can engage against either terminal of the batteries 57. Similarly the portions 45 and 48 of the tags 42 and 43 respectively can engage against either terminal of the batteries 57 to make contact therewith.

The flashlight which is a convenient size to hold is switched on and off by the slider 54 in a manner which is apparent. All the parts are connected together by snap connections due to the resilience of the various parts. It will also be seen that there is easy access for the bulb by virtue of the snap-on feature of the retaining member 33 so as to facilitate the replacement of the bulb during usage. It will also be seen that as the contact strips have identical battery terminal engaging portions, it will allow for reversibility of the batteries so as to simplify loading of the flashlight.

The invention is not limited to the precise constructional details hereinbefore described and illustrated in the accompanying drawings. Thus, for example, the parts may be made from different materials, thus the casing may be made from any suitable plastics material.

What we claim is:

A lamp comprising:

(a) a dry cell container having an open end;

(b) a pair of batteries within the said container, each battery having a pair of terminals;

(c) a cover carried by the container at its open end;

(d) an integral reflector and socket member carried by the cover;

(e) a bulb received in the socket, which bulb has two poles;

(f) first terminal means carried by the said socket and engaging one of the bulb poles;

(g) bulb retaining means closing off the open end of the said container;

(h) a contact strip carried by the bulb retaining means engaging the other of the bulb poles to retain the latter in the socket, the said contact strip having a portion engaging one terminal of one of the said batteries;

(i) a second terminal strip having a portion which is substantially identical to the terminal engaging portion of the contact strip, engaging a terminal of the other of the said batteries, the said second terminal strip also having a part in the proximity of but resiliently spaced from a part of the said first terminal means; and

(j) manually operable switch means movable to engage one of the two terminal strips to bias the two said parts into electrical contact.

References Cited

UNITED STATES PATENTS

2,579,762	12/1951	Schofield	240—10.65
2,817,754	12/1957	Moore	240—10.66
3,076,891	2/1963	Moore	240—10.66
3,128,050	4/1964	Parker	240—10.66
3,175,080	3/1965	Moore	240—10.65
3,226,502	12/1965	Schotz	240—10.65

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