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Singapore

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in or relating to Lamps

We, SONCA INDUSTRIES LIMITED, a Company incorporated in Hong Kong under the companies' ordinance, of 34 Tai Yan Street, San Po Kong, Kowloon, Hong Kong, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

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

According to one aspect of the invention there is provided a lamp comprising a bulb receiving socket, a reflector for a bulb when received in the socket, which reflector is integral with the bulb receiving socket, and retaining means attached to the socket, preferably by being a snap fit thereon, for retaining the bulb in the bulb receiving socket, which retaining means carries a contact spring for engaging the end terminal of a bulb in the socket to retain the latter in the socket. The integral socket and reflector are preferably made of, and preferably moulded from, a plastics material which is preferably polystyrene.

The bulb receiving socket preferably receives a contact member for a side terminal of the bulb, which contact member extends through the socket to the exterior thereof. The contact member preferably extends through a slot extending longitudinally from the free end of 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 contact member which is connected to the extension of the first-mentioned contact member, preferably 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 torch 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 torch 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

[*Price 4s. 6d.*]

each of the two ends of a reflector member 21.

The reflector member 21, which is a polystyrene moulding, 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 striations 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 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 relative to the cover 12.

The flanges 37 carry two connector tags 42 and 43 respectively each by means of a rivit 44. The tag 42 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 has, on one side of the rivet 44, a portion 48 which is of 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-shape 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 part of the tag 43 adjacent the portion 51 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 torch 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 been 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 torch.

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:—

1. A lamp comprising a bulb receiving socket, a reflector for a bulb when received in the socket, which reflector is integral with the bulb receiving socket, and retaining means attached to the socket for retaining the bulb in the bulb receiving socket, which retaining means carries a contact spring for engaging the end terminal of a bulb in the socket to retain the latter in the socket.

2. A lamp as claimed in Claim 1 wherein the retaining means are a snap fit on the socket.

3. A lamp as claimed in Claim 1 or Claim 2 wherein the retaining means engages the socket in such a way as to prevent relative rotation between the retaining means and the socket.

4. A lamp as claimed in Claim 1, Claim 2 or Claim 3 further comprising a contact member for the side terminal of a bulb, which contact member extends through the socket to the exterior thereof.

5. A lamp as claimed in Claim 4 wherein

each of the two ends of a reflector member 21.

The reflector member 21, which is a polystyrene moulding, 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 striations 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 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 relative to the cover 12.

The flanges 37 carry two connector tags 42 and 43 respectively each by means of a rivit 44. The tag 42 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 has, on one side of the rivet 44, a portion 48 which is of 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-shape 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 part of the tag 43 adjacent the portion 51 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 torch 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 been 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 torch.

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:—

1. A lamp comprising a bulb receiving socket, a reflector for a bulb when received in the socket, which reflector is integral with the bulb receiving socket, and retaining means attached to the socket for retaining the bulb in the bulb receiving socket, which retaining means carries a contact spring for engaging the end terminal of a bulb in the socket to retain the latter in the socket.

2. A lamp as claimed in Claim 1 wherein the retaining means are a snap fit on the socket.

3. A lamp as claimed in Claim 1 or Claim 2 wherein the retaining means engages the socket in such a way as to prevent relative rotation between the retaining means and the socket.

4. A lamp as claimed in Claim 1, Claim 2 or Claim 3 further comprising a contact member for the side terminal of a bulb, which contact member extends through the socket to the exterior thereof.

5. A lamp as claimed in Claim 4 wherein



a longitudinal slot extending from the free end of the socket is provided through which slot the contact member passes.

6. A lamp as claimed in Claim 3 and Claim 4 or Claim 5 wherein the retaining means has a tongue part engaging in the said longitudinal slot.

7. A lamp as claimed in Claim 4, Claim 5 or Claim 6 wherein the retaining means carries a second contact member connected to the extension of the first-mentioned contact member.

8. A lamp as claimed in Claim 7 wherein the two said contact members are connected through a make and break switch.

9. A lamp as claimed in any one of the preceding claims wherein the socket and reflector are made of a plastics material.

10. A lamp as claimed in Claim 9 wherein the socket and reflector are moulded from a plastics material.

11. A lamp as claimed in Claim 9 or Claim 10 wherein the plastics material is polystyrene.

12. A lamp as claimed in any one of the preceding claims further comprising a dry cell container having an open end closed by the bulb retaining means.

13. A lamp as claimed in Claim 12 wherein the terminals carried by the bulb retaining means have portions located to engage the terminals of batteries received within the container.

14. A lamp as claimed in Claim 13 wherein the battery terminal engaging portions of the terminals carried by the bulb retaining means are identical to facilitate reversibility of the batteries during loading.

15. A torch substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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