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ELECTRIC LAMPS

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ABSTRACT OF THE DISCLOSURE

A decorative electric lamp is provided which provides an integrated clamping arrangement for attachment to Christmas trees and the like and which includes socket and base portions formed of only two readily and inexpensively molded interfitting pieces which have formed in them interlocking elements for holding the various individual pieces together so that only a single rivet or screw and bolt is necessary for holding the entire lamp assembly together, and means for holding the electric lead in a gripping stress-relieving fashion.

This invention relates to electric lamps or fixtures for receiving electric light bulbs, and, more particularly, to small lamps especially adapted to such uses as being affixed to the branches of Christmas trees and the like in the decoration thereof.

Conventionally, even very simple such Christmas tree lights are made up of a number of separate pieces formed of different materials, each of which must be assembled in more or less intricate fashion and in a manner resulting in a cost greater than desired. Obviously, this situation is aggravated if the design of the lamp is to be more than a simple socket (e.g., an imitation candle or other decorative design) and if it is desired to add a clamping member for holding the lamp on a tree branch.

If, as conventionally, the electric contact with the base of the light bulb is to be maintained through the threaded socket in which the bulb is received, the formation of the socket itself requires some sort of core forming member (as opposed to simple molding) for forming the metal threaded portion, and some sort of insulation at the bottom thereof for accommodating the bottom contact. Thus, not only the formation of the separate parts, but also the assembly and interconnection thereof can be more intricate or time-consuming than desired, especially with regard to the small size of Christmas tree lights. Also, the necessity for inserting a number of different rivets or other fastening means for integrating the several parts may shorten the life of the finished device as being points of weakness which may give way as the lamps are handled or strung on the tree or collected for storage from one season to the next.

According to this invention, however, there are provided small lamps for use, singly or in strings, for decorating Christmas trees and the like and which may be made in a variety of decorative configurations or appearances, while yet comprising a desirably small number of individual parts, each of which is readily made and assembled with simple tools or by actual molding without expensive cores, etc., to provide a device of increased mechanical and electrical strength and stability, while increasing the ease and economy of fabrication and assembly into the finished articles. Being generally, but not necessarily, circular in cross section, the base parts of lamps in accordance herewith are formed as pairs of interfitting semi-cylindrical pieces for simple interlocking connection to hold therebetween and in rigid disposition the various contacts and clamps and other members with but, preferably, a single rivet or bolt for the entire device. A further fea-

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ture of these articles is provision for electrical contact with the bulb base other than through the threaded sides of the bulb-received socket, thus eliminating the need for forming the entire socket of copper or other metal with thread corrugation therein.

With the above and additional objects in view, this invention will now be described in more detail, and other objects and advantages thereof will be apparent from the following description, the accompanying drawing, and the appended claims.

In the drawing:

FIG. 1 is an exploded perspective view of one illustrative embodiment of a lamp embodying this invention and with the assembled disposition of the exploded parts being indicated by the various broken-line arrows;

FIG. 2 is a perspective view on a smaller scale showing the embodiment of FIG. 1 (illustratively designed to simulate a candle and holder therefor) in finally assembled condition to receive a light bulb threaded into the top end thereof; and

FIG. 3 is a fragmentary view on a larger scale indicating part of the interlocking mechanism between two of the members of FIG. 1.

Referring to the drawing, in which like reference characters refer to like parts throughout the several views thereof, one illustrative embodiment of a lamp or fixture embodying this invention is shown as simulating the appearance of a candle in a candle holder having a drip pan around the lower portion thereof—although, as will be understood, the particular decorative appearance or configuration of lamps embodying this invention may be provided in a wide variety of different forms, while still utilizing the mechanical expedients herein described as providing the desired simplification of manufacture and assembly of this invention. As indicated, the assembled arrangement comprises generally an upstanding tube 10 simulating a candle and for receiving at the upper end thereof a conventional Christmas tree light bulb having the conventional threaded base thereon, a base portion 11 simulating a candle holder with a drip pan 12 therearound, and a clamping device 13 for clamping the lamp onto a Christmas tree branch or any other desired support.

Referring more particularly to the exploded view of FIG. 1 and the various parts indicated therein, the bulb-receiving socket to be inserted within tube 10 is formed of two semi-cylindrical socket members 15, 15', which may be conveniently molded of plastic such as a polycarbonate plastic. Each of the socket members is provided with an internal threaded portion 16 to form, when the two socket members are assembled together in face-to-face relation, a threaded socket for receiving the threaded base of the light bulb. Because the electrical contacts for the light bulb are arranged herewith, as will be described below, other than in the conventional way utilizing a threaded metal sleeve within the socket as one contact element, the socket members 15, 15' can be entirely molded of plastic material, and the threaded portions 16 thereof are used merely to hold the light bulb in place and may be formed without the necessary precision to maintain electrical contact with the bulb. Indeed, the threaded portions can even be discontinuous if desired. Because the socket is formed by two-semi-cylindrical members 15, 15', each can be very simply molded in one step without the necessity of providing or removing cores as would be the case with a conventional cylindrical one-piece socket member.

In addition to threaded portions 16, the two socket members 15, 15' also are provided with slots 17 and 18 for accommodating and retaining, respectively, spring metal electrical contacts 19 and 20 disposed within the threaded socket formed when socket members 15, 15'

are assembled in face-to-face arrangement, with contact 19 being disposed across the bottom of the socket for electrical contact with the bottom contact on the light bulb and with contact 20 being disposed along threaded portion 16 for providing electrical contact with the threaded side of the base of the light bulb. Preferably, one or more teats 21 are provided on socket member 15 with corresponding indentations (not shown) on socket portion 15' for the positioning and alignment of socket members 15, 15' in assembled face-to-face relation. Also as indicated, electrical wires 25 and 26 are connected in known manner to the lower ends of spring contacts 19 and 20 protruding downwardly from the bottom of the socket portion when socket members 15, 15' are assembled together with contacts 19 and 20 therebetween.

As will be understood from the foregoing, socket members 15, 15' are assembled together with contacts 19, 20 therebetween, and the entire assembly slid upwardly within candle tube 10 to a position adjacent the upper open end thereof. In the illustrated embodiment, as means for positioning and retaining the socket assembly adjacent the upper end of the tube 10, internal projections 27 (only one of which is shown) are formed in tube 10 for interlocking engagement with corresponding recesses or indentations 28 (only one of which is shown) in the outer surfaces of socket members 15, 15' to maintain the desired axial positioning of the socket in tube 10. As means for preventing rotation of the socket assembly tube 10, axial splines or ridges 29 are provided on the inner surface of tube 10 for engagement with axial grooves or shoulders 30, 30' on the outer surfaces of socket members 15, 15'. Such projections and splines are readily molded directly with tube 10 if it is formed of plastic material and preferably a material such as a polypropylene plastic possessing some resiliency for assembling socket members 15, 15' with tube 10 as noted.

The base of the entire structure is formed of two generally semi-cylindrical elements 11, 11', being, in the illustrative embodiment, made to simulate a candle holder. As with socket members 15, 15', base members 11, 11' are quite simply molded for easy assembly, preferably being formed from a chip-proof impact-resistant material such as a styrene plastic, and are held together in assembled face-to-face relation by a single rivet or other fastening means indicated at 35, 35' inserted through holes 36, 36'.

Formed in each of base elements 11, 11' are two pairs of semi-circular notches 37 (corresponding notches in element 11' not being shown in the drawing) for engaging, preferably in a tightly gripping manner, electrical wires 25 and 26 to provide a clamping or gripping force sufficient to relieve inevitable pulling stresses from the soldered connection of wires 25 and 26 with electrical contacts 19 and 20. Also provided in each of base elements 11, 11' is a pair of diametrically opposed slots or recesses indicated at 38 (and not shown in element 11') for engaging teats or projections 39 at the lower end of candle tube 10, when base elements 11, 11' are assembled into face-to-face arrangement around tube 10, thus retaining tube 10 against axial removal from base elements 11, 11'. In the lower portions of each of base elements 11, 11' are formed corresponding parts of a spherical recess 45 (shown only in element 11) to provide, when elements 11 and 11' are assembled together, a generally spherical socket of a ball-and-socket joint for receiving and retaining ball 46 on clamp member 13 (illustrated as a conventional spring clamp) to retain the entire lamp assembly on the branch of a Christmas tree or other support.

As will be understood from the foregoing, the socket assembly including socket elements 15, 15' and contact members 19 and 20 is inserted, as explained above, into candle tube 10 and retained therein as described, with lead wires 25 and 26 extending out the bottom of tube 10. Then base elements 11, 11' are assembled together in

face-to-face arrangement around the bottom of tube 10 so as to grip lead wires 25 and 26 in notches 37, to engage teats 39 in slots 38, and to engage ball 46 in socket 45. In this manner, the entire assembly is retained together by fastening rivet 35, 35' to base elements 11, 11'.

There is also provided, at least in the embodiment illustrated here, a drip pan 12, primarily for decorative purposes but also in a manner which conveniently hides the heads of rivet 35, 35' in a preferred although obviously not necessary manner. Thus, drip pan 12 is here provided as a ring of decorative metal such as brass, and including two depending spring clips 50, 50', serving as means for both hiding the head of rivet 35, 35' and for holding drip pan 12 in position. To this end, a recess 51' is shown in the outer surface of base member 11', a similar recess being formed in base member 11, to receive, respectively, spring clips 50' and 50 on drip pan 12. As shown in more detail in FIG. 3, recess 51' includes a wedge shaped block 52' for engaging spring clip 50'. Thus, as drip pan 12 is forced downwardly over tube 10 to fit around flanges 53, 53' at the top of base members 11, 11', spring clip 50' will fit into recess 51' in base element 11', will be forced outwardly by wedge 52', and will snap back underneath wedge 52 to be retained tightly in recess 51'. A similar operation occurs with spring clip 50 in the corresponding recess (not shown) on the outer surface of base element 11.

As will be understood from the foregoing, there is thus provided, according to this invention, clamp-on lamps for receiving electric bulbs and in which the socket and base portions are each formed of but two readily molded interfitted pieces. Similarly, the interlocking means for maintaining socket elements 15, 15' in position within tube 10 and the interlocking means for maintaining tube 10 and clamp 13 assembled into base 11 all involve merely molded arrangements all held together with but a single rivet to provide extremely advantageous simplicity of manufacture and assembly for enhanced economy and rigidity and long life. The utilization of simple electrical spring contacts 19 and 20, instead of the conventional metal threaded socket, permits the manufacture of all parts out of cheap and durable plastic materials, while also permitting an arrangement for gripping lead-in wires 25 and 26 in stress-relieving fashion to increase the life of the soldered connection thereof with contacts 19 and 20.

Although the illustrated embodiment is indicated as simulating a candle and candle holder, it is apparent that a wide variety of other configurations and decorative forms can readily be utilized, particularly in view of the fact that the design of the invention here permits completely free use of plastic materials, with the electrical circuit being independent of the other mechanical arrangements, and, accordingly, an almost unlimited choice of molded decorative or design configurations without increasing necessarily either the small number of individual parts involved or the ease of assembly thereof from two similar halves to be assembled in face-to-face relation in interlocking manner as disclosed. Similarly, as will be apparent from the foregoing, socket elements 15, 15' and the threaded portion 16 thereof can readily be formed so as to receive and retain a light bulb having a bayonet connection or other forms of connection, instead of the conventional threaded base, without otherwise changing the ease of manufacture and assembly advantages hereof.

While the articles herein disclosed form preferred embodiments of this invention, this invention is not limited to these precise articles, and changes may be made therein without departing from the scope of this invention which is defined in the appended claims.

What is claimed is:

1. An electric lamp of the character described adapted for receiving an electric light bulb and for decorative use in connection with decorating Christmas trees and

the like, which comprises in combination a bulb-receiving socket assembly for receiving and mechanically engaging an electric light bulb with operative electrical contact and including a pair of substantially identical interlocking socket-forming members for assembly into face-to-face relation to form said bulb-receiving socket, a decorative outer member including an axial tubular passage for receiving said bulb-receiving socket assembly in interlocking engagement, a pair of substantially identical base members for interlocking engagement in face-to-face arrangement, and fastening means for maintaining said pair of base members in assembled relation, said pair of base members including means forming an interlocking engagement with said outer member for retaining all parts of said lamp in assembled disposition upon fastening of said fastening means.

2. An electric lamp as recited in claim 1 in which said socket members and said axial tubular passage of said outer member include cooperating means for fastening and retaining said bulb-receiving socket assembly within said tubular passage means.

3. An electric lamp as recited in claim 1 in which said socket members include formed means for mechanically engaging and retaining a bulb in said bulb-receiving socket substantially independently of electrical contacts with said bulb.

4. An electric lamp as recited in claim 1 in which said bulb-receiving socket assembly includes means for maintaining electrical contact with an electric light bulb engaged in said socket assembly and substantially independently of said means for engaging and mechanically retaining said bulb in said socket assembly.

5. An electric lamp as recited in claim 1 including electrical contact members for maintaining said operative electrical contact with a light bulb received therein, electric lead wires connected to said contact members and extending out through said base members, and interlock-

ing means in said base members for gripping and holding said lead wires against pulling stresses thereon.

6. An electric lamp as recited in claim 1 including clamping means for positioning and fastening said electric lamp upon a support therefor and interlocking means on said base members for engaging said clamping means.

7. An electric lamp as recited in claim 1 in which said outer member is formed to simulate a candle and said base members are formed to simulate a candle holder, which also includes a drip pan member and means for interlocking engagement thereof around said outer member and said base members.

8. An electric lamp as recited in claim 1 in which said bulb-receiving socket assembly includes means for engaging and retaining an electric light bulb having a threaded base thereon.

9. An electric lamp as recited in claim 1 in which said bulb-receiving socket assembly includes means for engaging and retaining an electric light bulb having a non-threaded base thereon.

10. An electric lamp as recited in claim 7 in which said drip pan member includes means for decoratively hiding said fastening means.

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