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[56]

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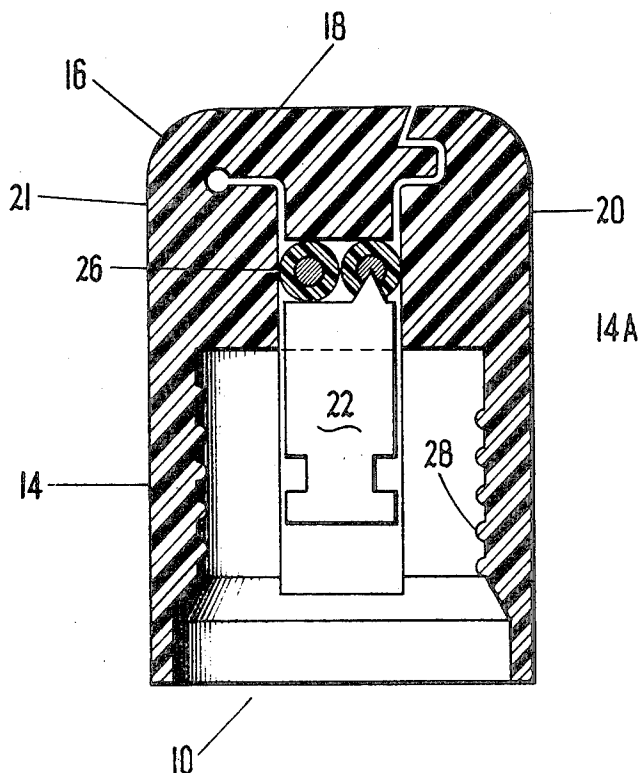
[54] **LAMP SOCKET**
7 Claims, 6 Drawing Figs.

[52] U.S. Cl. **339/97 L,**
339/199 R

[51] Int. Cl. **H01r 11/20**

[50] Field of Search **339/72, 73,**
75, 97—99, 180, 199

ABSTRACT: A socket assembly including a hollow socket housing into which a lamp can be inserted and a set of contacts affixed within the socket housing. The single-piece housing of a yieldable material is adapted for connection to an electric cord.



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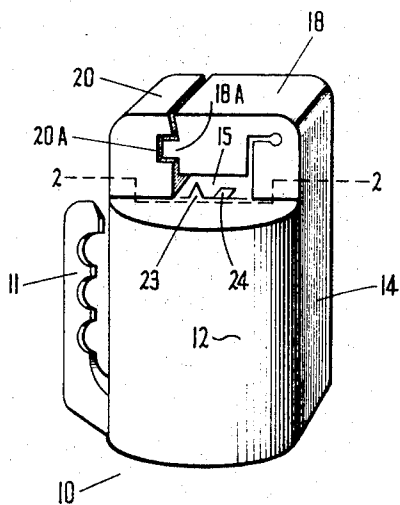


FIG. 1

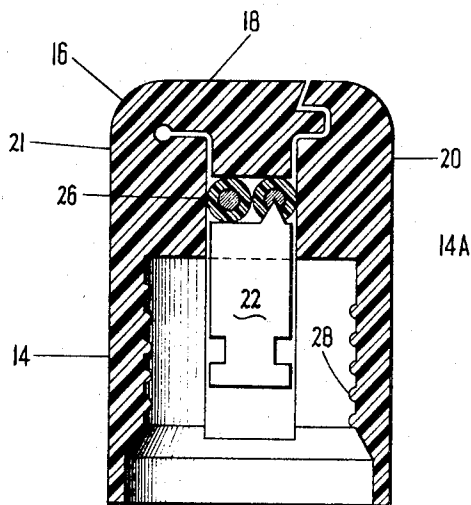


FIG. 2

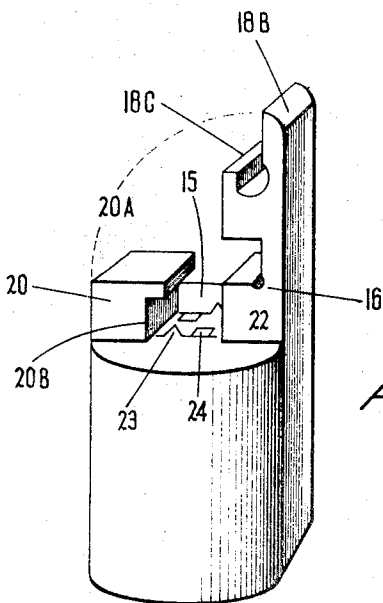


FIG. 4A

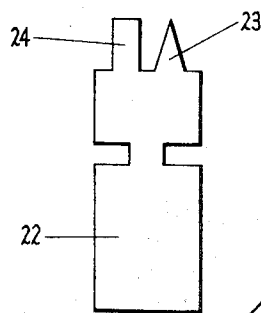


FIG. 3

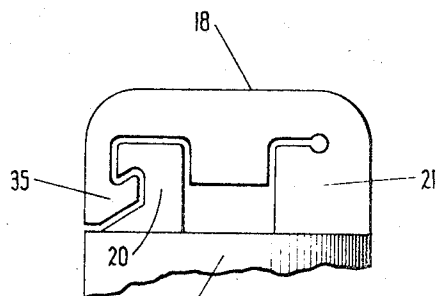


FIG. 4C

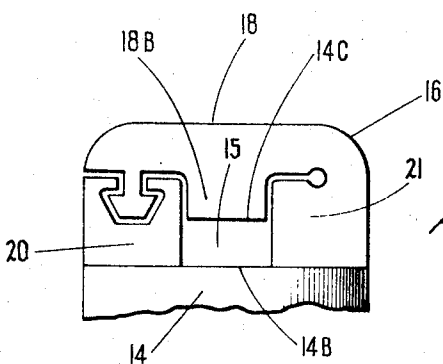


FIG. 4B

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LAMP SOCKET

BACKGROUND OF THE INVENTION

The present invention relates in general to lamp socket assemblies, and more particular, to a socket assembly for a lamp or bulb capable of connection to a two-conductor cord in a manner to provide an electrical connection between the bulb and the cord.

Most socket assemblies presently in use are of the two-piece type, including a lamp-receiving piece and a mating cap piece. A recess is sometimes formed in the lamp-receiving piece, thereby defining a channel which is adapted to receive a two conductor wire. Projecting into the slot or recess in the lamp-receiving piece are prongs or contacts which are adapted to penetrate the insulation of the wire when the wire is located within the recess, and the cap piece is snapped into place. One drawback associated with this structure particularly as it pertains to the assembly of the socket assembly to the wires is that the process is time consuming and costly. This is particularly so when a plurality of such socket assemblies have to be attached to a two-wire conductor for use, for example, as Christmas lights or for other lighting purposes.

Two-piece socket assembly also requires two separate molding operations. Some socket assemblies are constructed so that the cap section can be inserted in two ways, only one of which is correct. This places a burden upon the assembler to recognize the correct procedure and tends to increase the cost of the end-product.

Another drawback in available sockets assemblies is that the piercing contacts sometimes pierce both wires at the same time causing a short. This is caused in part by the irregularity with which the contacts are inserted into the assembly.

SUMMARY OF THE INVENTION

It is an object of the present invention, therefore, to provide a simple, integral, foolproof one-piece lamp socket assembly for connection to a two-wire conductor.

It is another object of the present invention to provide a one-piece lamp socket assembly having an integrally hinged cap portion adapted to positively engage and secure a two-wire assembly in a channel electrically communicating with the lamp base recess.

It is still a further object of the present invention to fabricate a lamp socket assembly in a single molding operation.

A further object of the present invention is to provide means for preventing the shorting of the two-conductor wire by providing for the regular insertion of the contacts into the assembly.

In the present invention a one-piece lamp socket assembly is provided including a hollow socket housing for receiving a light bulb with an integrally formed cap portion hinged to it.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the lamp socket assembly;
FIG. 2 is a cross-sectional view of the socket assembly taken on line 2-2 of FIG. 1;
FIG. 3 is a drawing of the insertable contact; and
FIG. 4A through 4C show various configurations for the socket housing.

DETAILED DESCRIPTION OF THE DRAWINGS

Lamp socket assembly 10 is shown in FIG. 1 and generally including a one-piece socket housing 12 having a lamp-receiving part 14 and a cap portion 18. The socket assembly 10 also includes a set of contacts 22 held within socket housing 12, as shown in FIGS. 2 and 3. Clip 11 is shown as integrally forming a part of socket housing 12 and is adapted to facilitate connection of the socket assembly to an article such as a nail or tree branch.

Lamp-receiving part 14 is formed with projecting wall portions 20, 21. Wall portion 20 has a recess 20A formed in one face. Cap portion 18 has a face with a projecting flange 18A shaped to mate with the recess 20A in wall portion 20. Hinging portion 16 is integrally formed between cap portion 18 and wall portion 21 and has a stress-relieving hole formed therethrough which allows cap portion 18 to swing from a vertical open position to a closed horizontal position as shown in FIG. 1. When in the closed position, the mating faces are fixedly interlocked.

No wires are shown in FIG. 1 so that piercing tab 23 and positioning tab 24 of contact 22 are seen positioned in socket housing 12. In the embodiment of FIG. 1, the contacts are inserted in a slit provided during the molding operation. The contacts are therefore inserted from above. When a two-conductor wire is placed in recess 15 (defined as the area between wall portions 20, 21 and cap 18) and cap portion 18 is forced down into an interlock position, one of the wires is pierced by piercing tab 23, and an electrical contact is formed between the pierced wire and the contact 22. A second contact (not shown) positioned on the hind side of the wall portions provides contact for the second wire.

FIG. 2 is a cross-sectional diagram of the lamp socket assembly taken along line 2-2 of FIG. 1. Threads 28 provide means for allowing the bulb to be held in the hollow portion of part 14. Such means may also comprise dimples. One of the wires 26 is shown pierced by the piercing tab 23 of contact 22, with wall portion 20 mating with cap portion 18.

FIG. 3 illustrates a contact 22 in planar form prior to incorporation in housing 12. Positioning tab 24 and piercing tab 23 extend from one end. When positioned in the socket housing 12, positioning tab 24 is bent at an angle of 90° over the outer surface of end wall 14A and provides a limiting tab defining the extent with which the contact can be inserted. Tab 23 projects from wall 14A into recess 15 in order to contact with wire 26. The bottom end of one contact 23 bent over the inner surface of wall 14A to contact the bottom of the bulb when inserted, while the other contact 22 is positioned along the inner surface of the annular wall-forming part 14 to electrically contact the threads of the metal base of an inserted bulb.

FIGS. 4A through 4C shows various configurations of the mating portion of lamp assembly 10. The mating configurations shown and others are all contemplated as falling within the scope of the present invention.

In FIG. 4A the socket housing 12 is in an open position illustrating contacts 22. Wall portion 20 has an overhanging lip 20A that may be formed with an undercut recess 20B. Cap 18 articulates about hinge part 16 on an axis parallel with the length of lip 20A. A tongue 18B and lock 18C integrally formed and extending from cap 18 are adapted to engage and lock to lip 20A. Contacts 22 with their piercing tabs 23 are arranged on opposite sides of the recess 15.

FIG. 4B illustrates another modification where like numbers refer to like components in the previously described embodiments. Here lamp-receiving part 14 has an end wall 14B formed with a groove 14C extending across the wall 14B. Cap 18 articulates about hinge part 16 on an axis parallel with groove 14C. A boss 18B projects from the surface of cap 18 and is designed to project into groove 14C a distance close to but short of wall 14B, thereby defining recess 15 within which two-wire conductors may be clamped. A barbed projection 20 integrally formed on cap 18 is designed to lock into a corresponding recess in wall 14 when cap 18 is closed.

FIG. 4C illustrates a further modification in which cap 18 is formed with an engaging barbed projection 35 at its outer extremity. This barbed projection is designed to engage a recess formed on the outer surface of projection 20 to secure a two-wire system, as previously described.

I claim:

1. A lamp socket assembly for holding a bulb and for attachment to a pair of current-carrying wires having insulation thereon comprising a one-piece housing member including a hollowed part having means engageable with the base of said

light bulb when the latter is advanced into the member from one end thereof, said housing member having wall portions at the other end thereof defining a recess for receiving a section of current carrying wires, said member further including a cap portion having a wire contacting portion moveable into engaging relationship with wire in said recess and a hinge part integrally formed with said cap portion and hollowed part for pivoting said cap portion and hollowed part to and away from one another and a pair of electrical contacts, each held within the member and protruding into the recess defined by the wall portions thereof, each contact having ends thereon adapted for piercing the insulation of a respective current-carrying wire and for making electrical contact with the conductor portion of the wire, said contacts also having means thereon adapted for making electrical contact with respective conductor portions of the light bulb, one of the wall portions and the cap portion each having complementary mateable faces that are adapted to interlock when in a closed position causing said wire contacting portion to extend into said recess forcing said wires against said contacts piercing the insulation of said wires and thereby causing an electrical contact from the wires to the bulb.

2. A lamp socket assembly as defined in claim 1 wherein the hollowed part of the housing member internally includes threads capable of accommodating the bulb.

3. A lamp socket assembly as defined in claim 1 wherein the hollowed part of the housing member internally includes spaced nipplelike protuberances capable of accommodating the bulb.

4. A lamp socket assembly as defined in claim 1 wherein each contact includes a bent positioning tab which is adapted to control the positioning of the contact within the housing.

5. A lamp socket assembly as defined in claim 4 wherein the positioning tab is bent at a right angle to the remainder of the contact.

6. A lamp socket assembly for holding a bulb and for attachment to a two-conductor current-carrying wire having in-

sulation thereon comprising:

a unitary housing member including;

a. a lamp-receiving part, cylindrical in shape and having an outer surface and an inner surface having means engageable with the light bulb when the latter is advanced into the lamp-receiving part from one end thereof,

b. first and second wall portions projecting from the lamp-receiving part, and defining a recess for accommodating the current carrying wires,

c. a cap portion including a wire contacting boss positionable within said recess and against said wires when said cap portion is locked to said lamp-receiving part, the first wall portion and the cap portion having complementary mating faces, and

d. a hinging portion intermediate between the second wall portion and the cap portion, and

B. a pair of contacts, each held within the member and protruding into the recess defined by the wall portions thereof, each contact having an end thereon adapted for piercing the insulation of a respective current-carrying wire and for making electrical contact with the conductor portion of the wire, said contacts also having means thereon adapted for making electrical contact with respective conductor portions of the light bulb, the confronting complementary mating faces of the first wall portion, and the cap portion being adapted for movement about the hinging portion and to interlock when in a closed position whereby the boss is forced into said recess against said wires thereby causing the piercing of the wire by the contact and further causing an electrical contact between the conductor wires and the inserted bulb.

7. A lamp socket assembly as defined in claim 6 wherein the hinging portion has means defining a stress-relieving channel therein to thereby allow the cap portion to swing from an open to closed position without damaging the hinging portion.

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