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(54) BULB SOCKET ASSEMBLE

(57) A bulb socket assembly includes a bulb holding socket base (10) and a bulb socket body (20). The diametrically opposite sides of the cylindrical portion (11) of the bulb holding socket base (10) are cut substantially flush with the cuboid extension portion (12) so as to form two openings (14). The cylindrical cavity portion (21) of the bulb socket body (20) has two diametrically opposite longitudinally extending raised ribs (23) at positions corresponding to the openings (14) of the bulb holding socket base (10). The diametric interval between the two raised ribs (23) is slightly smaller than the diameter of the bulb (40) to be inserted. This bulb socket assembly can effectively prevent the bulb from turning or loosening in the bulb socket body, ensuring good contacts between the terminals of the bulb and the electric wires and a long service life of the bulb.

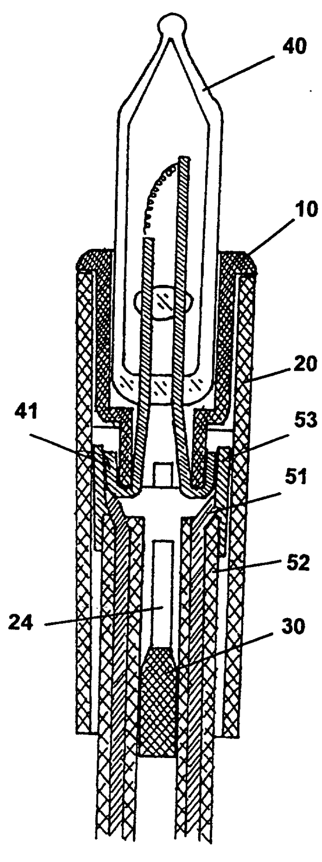

Fig. 1

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Description

[0001] The present invention relates to a bulb socket, particularly to a bulb socket for an ornamental lamp.

[0002] In many countries of the world, particularly in European and American countries, in order to celebrate Christmas or other jubilant festivals, large amount of ornamental lamps are used to add the joyous atmosphere to festivals. Among various forms of ornamental lamps, the most widely used are strings of serially connected small lamps. These lamp strings not only can decorate Christmas trees, but can also be hung separately for ornamentation. Conventional ornamental lamps are of an insert type, as shown in Fig. 6, which generally includes a bulb 40, a bulb holding socket base 210, a bulb socket body 220 and two electric wires 50. The bulb 40 is inserted into the bulb holding socket base 210, and the bulb 40, together with the bulb holding socket base 210, is inserted into the bulb socket body 220 so that the terminals of the bulb 40 can contact the electric wires 50 in the bulb socket body 220, thus completing an ornamental lamp. In this conventional ornamental lamp, the bulb is loosely inserted in the bulb holding socket base, which is in turn inserted into the bulb socket body. In this way, after they are assembled, the bulb will turn or move in the bulb socket assembly consisting of the bulb holding socket base and the bulb socket body, which leads to poor contacts between the bulb terminals and the electric wires mounted in the bulb socket body. The poor contact will cause the bulb to be lightless and shorten the service life of the bulb.

[0003] In view of the above problems in the prior art, an object of the present invention is to provide a bulb socket assembly which not only can prevent bulb from turning or loosening, but also can improve contact performance and lengthen its service life.

[0004] Another object of the present invention is to provide a bulb socket assembly which not only can prevent bulb from turning, but also can prevent electric wires from loosening or being out of electrical contact.

[0005] In order to realize the above-mentioned objects, the present invention provides a bulb socket assembly comprising a bulb holding socket base and a bulb socket body. The bulb holding socket base includes a bulb receiving hollow cylindrical portion for receiving a bulb and a cuboid extension portion. The bulb socket body correspondingly includes a cylindrical cavity portion and a cuboid cavity portion. The improvement of the present invention lies in that diametrically opposite sides of the cylindrical portion of the bulb holding socket base are cut substantially flush with the cuboid extension portion so as to form two openings. The cylindrical cavity portion of the bulb socket body has two diametrically opposite longitudinally extending raised ribs at positions corresponding to the openings of the bulb holding socket base, and the diametric interval between the two raised ribs is slightly smaller than the diameter of the bulb to be inserted.

[0006] In the above bulb socket assembly, the cuboid cavity portion of the bulb socket body has two diametrically opposite longitudinally extending raised bars substantially lying in longitudinal extension lines of the respective raised ribs, thereby defining two incompletely-separated electric wire receiving regions.

[0007] The above bulb socket assembly further includes a wedge member shaped and configured to be inserted into the space between the raised bars of the bulb socket body, thereby to further separate the electric wire receiving regions.

[0008] The bulb socket assembly of the present invention has the following advantages:

1. Because the opposite sides of the hollow-cylindrical portion of the bulb holding socket base are cut substantially flush with the cuboid extension portion to form two openings and the cylindrical cavity portion of the bulb socket body has two opposite longitudinally extending raised ribs at positions corresponding to the openings of bulb holding socket base, when the bulb is inserted into the bulb holding socket base, the periphery of the bulb is exposed at the two opposite openings of the bulb holding socket base to be engaged with the two opposite ribs of the bulb socket body. The raised ribs engage firmly the bulb, which thereby effectively prevents the bulb from turning or loosening in the bulb socket body, ensuring a good contact between the terminals of the bulb and the electric wires and a long service life of the bulb.
2. The cuboid cavity portion of the bulb socket body has two diametrically opposite longitudinally extending raised bars in the longitudinal extension line of the respective raised ribs, and these two bars define two incompletely-separated electric wire receiving regions. This not only can effectively separate the exposed portions of the electric wires so that there is enough electric clearance to guarantee electric safety, but also has the advantage of not affecting the assembly operation so that the assembly operation can be as convenient as an assembly operation without the existence of the raised bars.
3. The present invention also provides a wedge member adapted to be inserted into the space between the opposite raised bars, and this wedge member can be wedged between the two opposite raised bars after the electric wires and the bulb are mounted in the bulb socket assembly to further separate the two electric wires and prevent them from loosening. Therefore, it is possible to guarantee the electric wires to be fixed in proper positions so that they will not be disengaged unexpectedly.
4. Manufacturing costs can be decreased because of the simple structure, the low process requirements, and the easy assembly.

[0009] A preferred embodiment of the present invention will now be described in detail with reference to the accompanying drawings wherein:

Fig. 1 is a longitudinal sectional view of a bulb socket assembly according to the preferred embodiment of the present invention, already fitted with a bulb and electric wires;
Fig. 2 is a sectional view of the bulb socket assembly of Fig. 1, sectioned perpendicularly to the section of Fig. 1;
Fig. 3 is a perspective view of a bulb holding socket base of the bulb assembly;
Fig. 4 is a partially cutaway perspective view of a bulb socket body of the bulb socket assembly;
Fig. 5 is a perspective view of a wedge member of the bulb socket assembly; and
Fig. 6 is a partially cutaway perspective view of a conventional ornamental lamp.

[0010] Fig. 3 and Fig. 4 show respectively a bulb holding socket base and a bulb socket body which constitute a bulb socket assembly according to the preferred embodiment of the present invention. Referring to Fig. 3, the bulb holding socket base generally has two parts: a hollow cylindrical portion 11 and a cuboid extension portion12, which are integrally formed into one unit. In the cuboid extension portion 12, there is a through hole 13 which is communicated with the hollow cavity of the cylindrical portion 11 for inserting the bulb (not shown) therein. The opposite sides of the hollow cylindrical portion 11 are cut substantially flush with the cuboid extension portion 12 so that two opposite large openings 14 are formed. The width of the openings 14 is substantially equal to the width of the cuboid extension portion 12. At the upper end of the cylindrical portion 11 there is provided a flange 15 which will match the upper edge of the bulb socket body 20 when the bulb holding socket base 10 is inserted into the bulb socket body 20.

[0011] Referring now to Fig. 4, the bulb socket body also correspondingly consists of two parts: a cylindrical cavity portion 21 and a cuboid cavity portion 22, which are integrated into one unit. The cylindrical cavity portion 21 is formed to be able to receive the hollow cylindrical portion 11 of the bulb holding socket base 10. On the inner wall of the cylindrical portion 11, at the positions corresponding to the openings of the bulb holding socket base 10, there are formed two diametrically opposite longitudinally extending ribs 23 used to engage the outer wall of a bulb inserted into the bulb holding socket base 10. The diametrically interval between the raised ribs 23 is slightly smaller than the diameter of the bulb so that the raised ribs 23 can firmly engage the bulb to prevent the bulb from turning or loosening. The cuboid cavity portion 22 defines a cuboid-shaped cavity, which is used to receive the cuboid extension portion 12 of the bulb holding socket base 10. On the wall of the cuboid-shaped cavity, there are two diametrically opposite raised bars 24 lying in the longitudinal extension lines of the raised ribs 23, these two raised bars separate the cuboid-shaped cavity into two incompletely-separated electric wire receiving regions which are used to receive the respective inserted electric wires.

[0012] Fig. 1 and Fig. 2 are sectional views sectioned along two sections perpendicular to each other, showing an assembled ornamental lamp. As can be clearly seen from Fig. 1 and Fig. 2, the bulb 40 is inserted into the bulb holding socket base 10, which is in turn inserted into the bulb socket body 20. Two longitudinally extending raised ribs 23 of the bulb socket body 20 engage with the periphery of the bulb 40, thereby preventing the bulb from turning or loosening. In the two electric wire receiving regions of the bulb socket body 20, there are respectively disposed two electric wires 50. They are connected to a power supply or serially connected to other lamps. The electric wires 50 are mostly surrounded or covered by insulating wraps 52, and conductor portions 51 are exposed only at the ends of the electric wires. The conductor portions 51 contact terminals 41 of the bulb 40 through contact pieces 53 fixed to the ends of the conductor portions. A T-shaped wedge member 30 is wedged into the space between the two opposed raised bars 24 from the lower part of the bulb socket body 20, thereby the two electric wires 50 are thoroughly separated and are kept in respective proper positions. Fig. 5 shows a perspective view of the T-shaped wedge member. Of course, the wedge member can take or be formed into any other suitable shapes.

Claims

1. A bulb socket assembly, comprising a bulb holding socket base and a bulb socket body, the bulb holding socket base including a bulb receiving hollow cylindrical portion for receiving a bulb and a cuboid extension portion, the bulb socket body correspondingly including a cylindrical cavity portion and a cuboid cavity portion, **characterized in that** the diametrically opposite sides of the cylindrical portion of the bulb holding socket base are cut substantially flush with the cuboid extension portion so as to form two openings, the cylindrical cavity portion of the bulb socket body has two diametrically opposite longitudinally extending raised ribs at positions corresponding to the openings of the bulb holding socket base, and the diametric interval between the two raised ribs is slightly smaller than the diameter of the bulb to be inserted.

2. The bulb socket assembly according to claim 1, wherein the cuboid cavity portion of the bulb socket body has two diametrically opposite longitudinally extending raised bars substantially lying in longitudinal extension lines of the respective raised ribs, thereby defining two incompletely-separated electric wire receiving regions.

3. The bulb socket assemble according to claims 1 or 2 further including a wedge member shaped and configured to be inserted into the space between the raised bars of the bulb socket body, thereby to further separate the electric wire receiving regions.

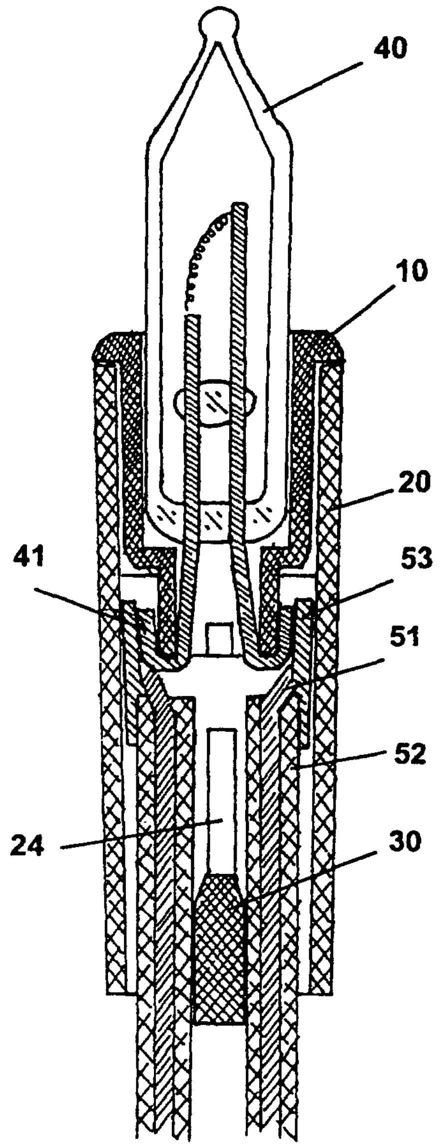

Fig. 1

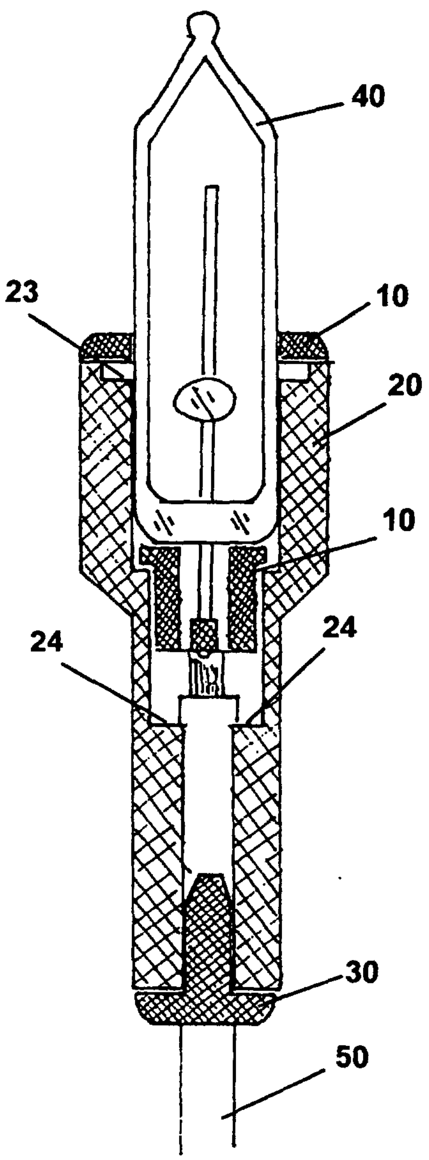

Fig. 2

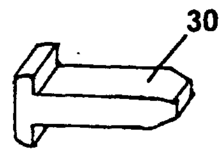

Fig. 5

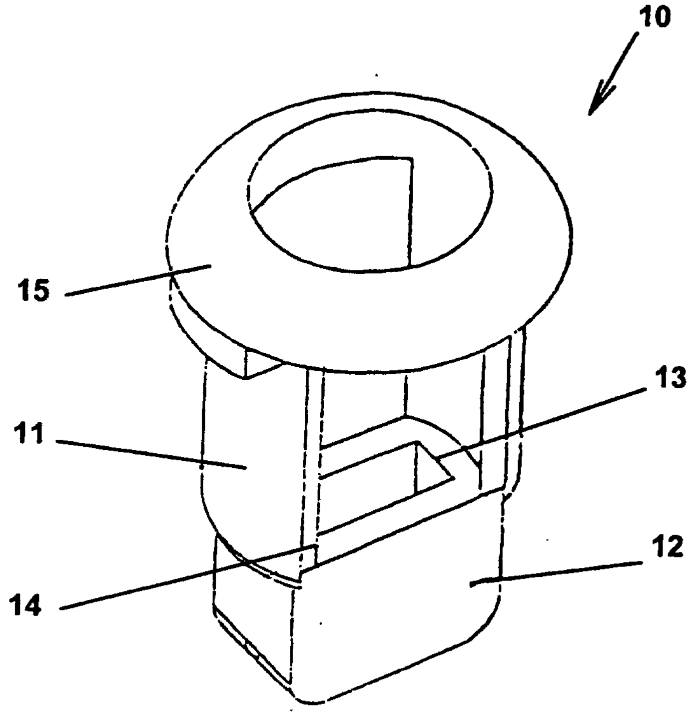

Fig. 3

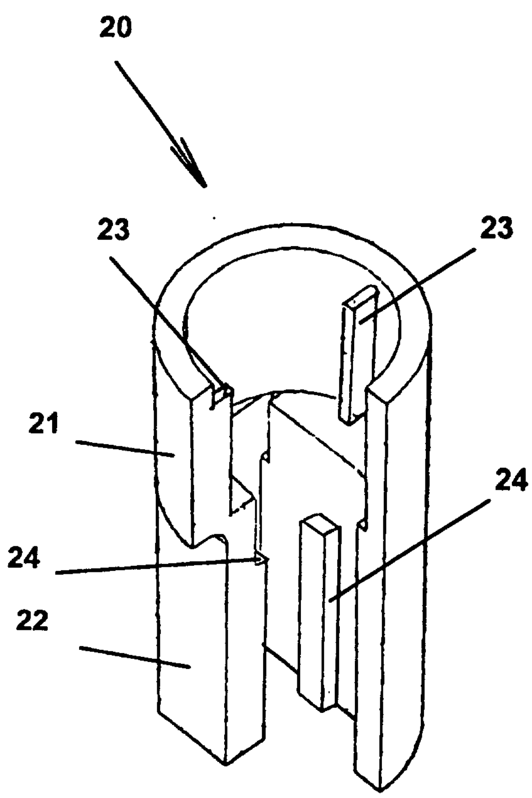

Fig. 4

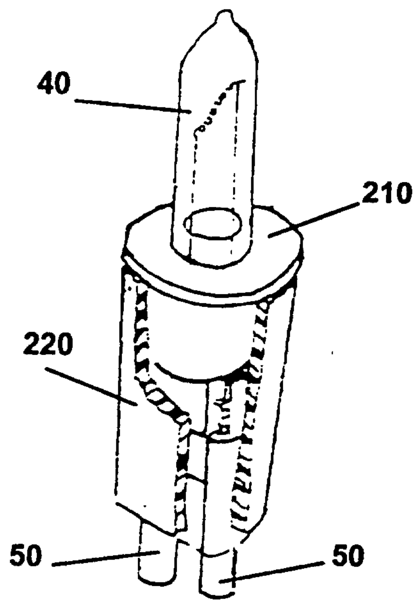

Fig. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN01/00106

A. CLASSIFICATION OF SUBJECT MATTER

IPC^7 H01R 33/46 F21V 21/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC^7 H01R. F21V

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

The patent applications published and the patents announced by Chinese Patent Office.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN-Y-2297800(Jiaojiang Holiday Lamp factory), 18.November.1998(18.11.98), Page 2, Line18—Page. 3, Line5; Figure 1—6	1.12.18
A	CN-Y-2321140(Aolike Electric Appliance Limited), 26.May.1999(26.05.99), Page 1,Line22—Page 2, Line 5; Figure 1—3	1.12.18
A	EP-A1-0718933(Sumitomo Wiring System.Ltd), 26.June.1996(26.06.96), Column 1,Line 40—Column 3,Line 5, Figure 1, 2	1.12.18

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29.March 2001(29.03.01)	

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN01/00106

CN-Y-2321140	26.05.99	None	
CN-Y-2297800	18.11.98	None	
EP-A1-0718933	26.06.96	JP-A-8180947	12.07.96
		US-A-5895283	20.04.99

Form PCT/ISA/210 (patent family annex) (July 1998)