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(54) **Electrical connector**

(57) An easy to assemble electrical connector, particularly for use in a lamp holder body, is provided.

The electrical connector has two complementary body portions (10, 20) which fit together to form the connector, the first body portion (20) containing contact means (35, 36) for electrical contact between the connector and a target to be supplied with electrical current and the second body portion (10) containing retaining means to retain wires (30, 31) to supply current to the connector, whereby the wires (30, 31) can be maintained in electrical contact with the contact means (35, 36) when the body portions (10, 20) are fitted together, the retaining means comprising a plurality of slots (14), each slot (14) to receive one end of a wire (30, 31), and a channel (15) adjacent each slot (14) to receive a connector portion (34) of a conductor tag (32) attached to the end of the wire (30, 31) to be received in the respective slot (14), the connector portion (34) of the tag (32) extending substantially normally to the wire (30, 31).

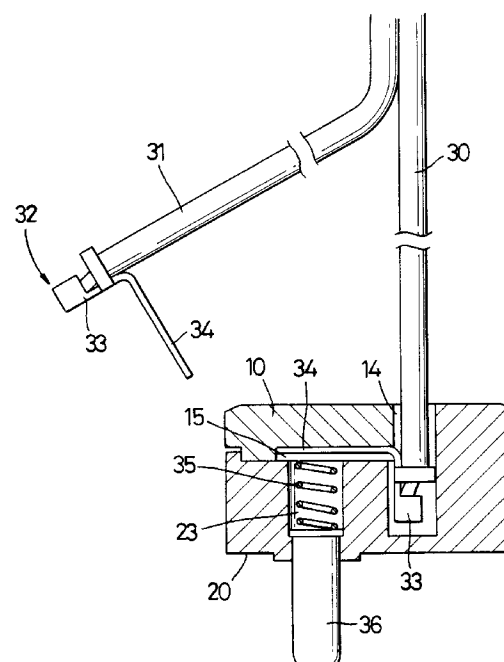


Fig.5

Description

This invention relates to an electrical connector and particularly to a connector to be used as a lamp holder.

For convenience, the invention will be described below with particular reference to lamp holders although it will be appreciated that it is not intended to be limited thereto.

Lamp holders conventionally comprise two pre-moulded parts, joined together, e.g. by screw thread fittings formed integrally on the parts. A first part may contain spring-loaded, electrically conducting plungers to maintain electrical contact with the lamp and the second part is usually fitted with two short lengths of conducting wire. One end of each length of wire is secured in the second part, e.g. by screws or tags, and makes contact with one of the plungers when the two parts are fitted together.

The construction of conventional lamp holders is a relatively complicated affair and the electrical contacts achieved are not always completely reliable. It is an object of the present invention, therefore, to provide an improved electrical connector and, particularly, to provide a pre-wired lamp holder that is easy to assemble to its pre-wired ready for use condition.

Accordingly, the invention provides an electrical connector having two complementary body portions which fit together to form the connector, the first body portion containing contact means for electrical contact between the connector and a target to be supplied with electrical current and the second body portion containing retaining means to retain wires to supply current to the connector, whereby the wires can be maintained in electrical contact with the contact means when the body portions are fitted together, the retaining means comprising a plurality of slots, each slot to receive one end of a wire, and a channel adjacent each slot to receive a connector portion of a conductor tag attached to the end of the wire to be received in the respective slot, the connector portion of the tag extending substantially normally to the wire.

Thus, a conductor tag suitable for use in the aforesaid connector of the invention may have a body portion crimpable to the end of a wire and a connector portion extending substantially normally to the body portion.

In a preferred embodiment, the invention provides a lamp holder body having two complementary body portions which fit together to form the holder body, the first body portion containing contact means for electrical contact between the lamp holder and a lamp and the second body portion containing retaining means to retain two lengths of wire, whereby the lengths of wire can be maintained in electrical contact with the contact means when the body portions are fitted together, the retaining means comprising two slots, each slot to receive one end of a wire, and a channel adjacent each slot to receive a connector portion of a conductor tag attached to the end of the wire, the connector portion

extending substantially normally to the wire.

Thus it will be appreciated that in the preferred embodiment, the lamp, i.e. light bulb, is the target to be supplied with electricity.

Although only two wires are required for a lamp holder, it will be appreciated that the connector of the invention may be designed to accommodate three or more wires, if required.

The invention will be more specifically described below with reference to lamp holders in which the first body portion contains spring-loaded plungers for bayonet-type connections as the means for electrical contact between the lamp holder and a lamp. However, it is not intended that the invention be limited thereto and it is equally applicable to other types of holders, e.g. Edison screw type plastic or ceramic holders.

It will be appreciated that a lamp holder body is normally fitted into a casing to form the completed lamp holder. Lamp holder bodies of the present invention similarly will normally be fitted into a casing but as the casings may be quite conventional, they will not be specifically described herein.

Preferably each channel in the second body portion is provided with a transverse bar or bridge under which the tag fits so that the tag is retained in the channel by the bar or bridge so as to assist securing the two body portions together without displacement of the wires from their required positions, whereby the desired contact between the connector portions of the conductor tags and the contact means can be ensured.

In another preferred embodiment the means by which the body portions fit together to form the lamp holder body is a pair of integrally-formed legs on one body portion to fit through corresponding holes in the other body portion, each leg having a foot which locks its respective leg into place by a snap fitting thus locking the two body portions together. Preferably the legs are formed integrally with the second body portion.

The body portions may be made of any suitable material and are preferably mouldings of plastic or ceramic material.

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

Figure 1 is a plan view of a second body portion of a lamp holder body of the invention;

Figure 2 is a section on line II-II of Figure 1;

Figure 3 is a plan view of the first body portion of a holder body of the invention;

Figure 4 is a section on line IV-IV of Figure 3; and

Figure 5 is a sectional view through a lamp holder body of the invention with the two body portions locked together.

In Figures 1 and 2 second body portion 10 of a lamp holder is an integral plastics moulding of generally disc shape and having two legs 11 (with feet 12) extending at right angles from one of its major faces 13. Adjacent each leg 11 is a slot 14 in the exterior perimeter of body portion 10 and extending through its thickness, the slots being equi-spaced about the perimeter. Each slot is to receive the end of a wire as described below. At the inner end of each slot is a channel 15 which is defined in face 13 and extends from adjacent the inner end of the slot to the opposite perimeter of the body. Each channel 15 is to receive a connector portion of a tag attached to the end of the wire as described below. A bridge 16 extends across each channel.

In Figures 3 and 4, first body portion 20 is an integral plastics moulding of complementary plan shape to that of second body portion 10. Body portion 20 has a depending skirt portion 21 around its perimeter to define a cavity into which body portion 10 can be received. Two holes 22 through the body portion 20 are sized and spaced to receive legs 11 of the first body portion as a snap fit when the two body portions are pressed together whereby feet 12 of portion 10 lock on the underside of portion 20. (The two parts can then only be separated by use of a special tool designed to release the legs and feet.).

Body portion 20 is also provided with a pair of through holes 23 to receive the contact means, namely a spring and plunger for each hole, as described below in more detail with reference to Figure 5.

In Figure 5 body portions 10 and 20 have been snap-fitted together by means of legs 11 and feet 12 being forced through holes 22. Two wires 30 and 31 have each been provided at one end with a conductor tag 32. This comprises a conventional tag body 33 crimped around the end of the wire and a tag connector portion 34 extending substantially at right angles to the body 33 and hence to the wire. (For convenience, in Figure 5 one wire is shown in position in the lamp holder body but the other is shown free.).

The wire end with its tag is fitted into one of slots 14 in body portion 10 such that tag connector portion 34, extending normally to the wire, is slid into a channel 15 and under bridge 16 (not shown in Figure 5). By this means the wire and tag are held in the desired position until the two body portions are fitted together. When the body portions are fitted together, as shown, tag connector portion 34 contacts and compresses a spring 35 fitted to extend inside a plunger 36 which is located in hole 23 of body portion 20. Electrical contact is therefore provided through each wire 30, 31 via tag connector portion 34 and spring 35 to plunger 36. A light bulb fitted in conventional manner into the lamp holder will be maintained in electrical contact with a pair of plungers 36 and will be lit when current is supplied through the wires.

Claims

1. An electrical connector having two complementary body portions (10, 20) which fit together to form the connector, the first body portion (20) containing contact means (35, 36) for electrical contact between the connector and a target to be supplied with electrical current and the second body portion (10) containing retaining means to retain wires (30, 31) to supply current to the connector, whereby the wires (30, 31) can be maintained in electrical contact with the contact means (35, 36) when the body portions (10, 20) are fitted together, characterised in that the retaining means comprises a plurality of slots (14), each slot (14) to receive one end of a wire (30, 31), and a channel (15) adjacent each slot (14) to receive a connector portion (34) of a conductor tag (32) attached to the end of the wire (30, 31) to be received in the respective slot (14), the connector portion (34) of the tag (32) extending substantially normally to the wire (30, 31).
2. An electrical connector according to Claim 1, characterised in that each channel (15) in the second body portion (10) is provided with a transverse bar or bridge (16) under which the tag (32) fits so that the tag (32) is retained in the channel (15) by the bar or bridge (16) so as to assist securing the two body portions (10, 20) together without displacement of the wires (30, 31) from their required positions, whereby the desired contact between the connector portions (34) of the conductor tags (32) and the contact means (35, 36) can be ensured.
3. An electrical connector according to Claim 1 or 2, characterised in that the means by which the body portions (10, 20) fit together is a pair of integrally-formed legs (11) on one body portion (10 or 20) to fit through corresponding holes (22) in the other body portion (20 or 10), each leg (11) having a foot (12) which locks its respective leg (11) into place by a snap fitting thus locking the two body portions (10, 20) together.
4. An electrical connector according to Claim 1, 2 or 3, characterised in that the body portions are mouldings of plastic or ceramic material.
5. An electrical connector according to any one of the preceding claims, characterised in that the second body portion (10) is of generally disc shape and the slots (14) are formed in the exterior perimeter of the disc.
6. An electrical connector according to Claim 5, characterised in that the first body portion (20) is of complementary plan shape to the second body portion (10) and has a depending skirt (21) around its pe-

rimeter to define a cavity into which the second body portion (10) can be received.

7. A lamp holder body having two complementary body portions (10, 20) which fit together to form the holder body, the first body portion (20) containing contact means (35, 36) for electrical contact between the lamp holder and a lamp and the second body portion (10) containing retaining means to retain two lengths of wire (30, 31), whereby the lengths of wire (30, 31) can be maintained in electrical contact with the contact means (35, 36) when the body portions (10, 20) are fitted together, characterised in that the retaining means comprises two slots (14), each slot (14) to receive one end of a wire (30, 31), and a channel (15) adjacent each slot (14) to receive a connector portion (34) of a conductor tag (32) attached to the end of the wire (30, 31), the connector portion (34) extending substantially normally to the wire (30, 31).

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8. A lamp holder body as claimed in Claim 7, characterised in that each channel (15) in the second body portion (10) is provided with a transverse bar or bridge (16) under which the tag (32) fits so that the tag (32) is retained in the channel (15) by the bar or bridge (16) so as to assist securing the two body portions (10, 20) together without displacement of the wires (30, 31) from their required positions, whereby the desired contact between the connector portions (34) of the conductor tags (32) and the contact means (35, 36) can be ensured.

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9. A lamp holder body as claimed in Claim 7 or 8, characterised in that the means by which the body portions (10, 20) fit together to form the lamp holder body is a pair of integrally-formed legs (11) on one body portion (10 or 20) to fit through corresponding holes (22) in the other body portion (20 or 10), each leg (11) having a foot (12) which locks its respective leg (11) into place by a snap fitting thus locking the two body portions (10, 20) together.

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10. A lamp holder body according to Claim 7, 8 or 9, characterised in that the contact means for electrical contact between the lamp holder and the lamp are spring-loaded plungers (35, 36).

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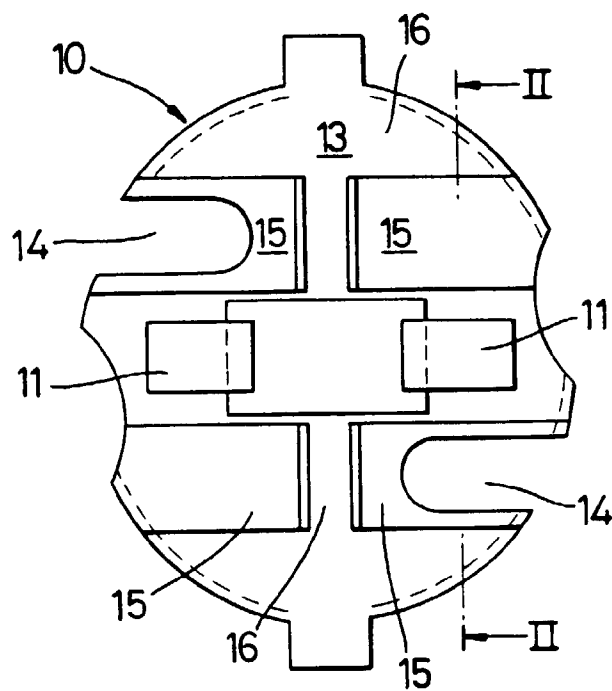


Fig. 1

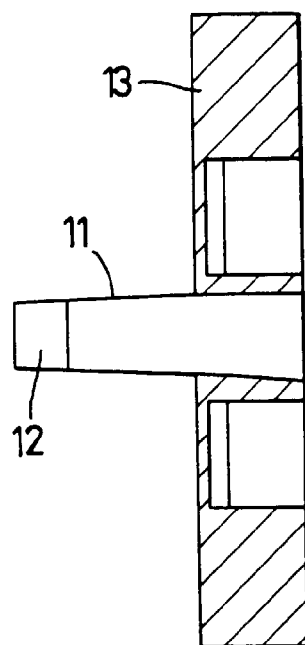


Fig. 2

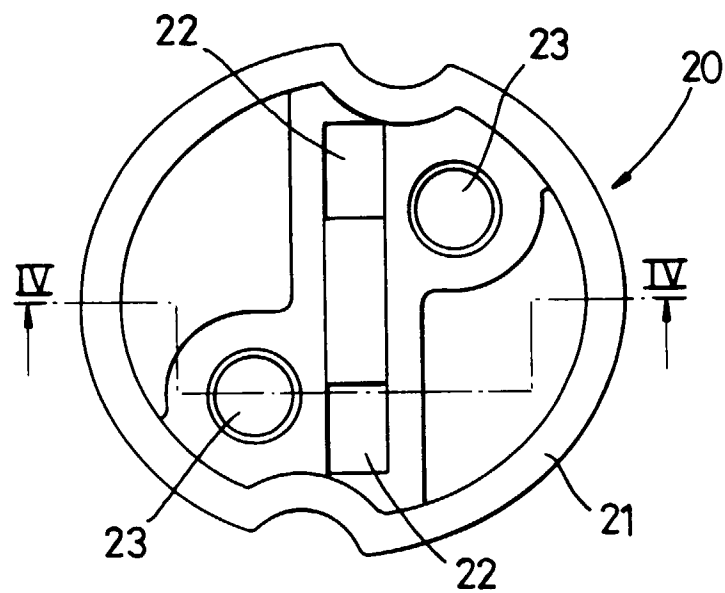


Fig. 3

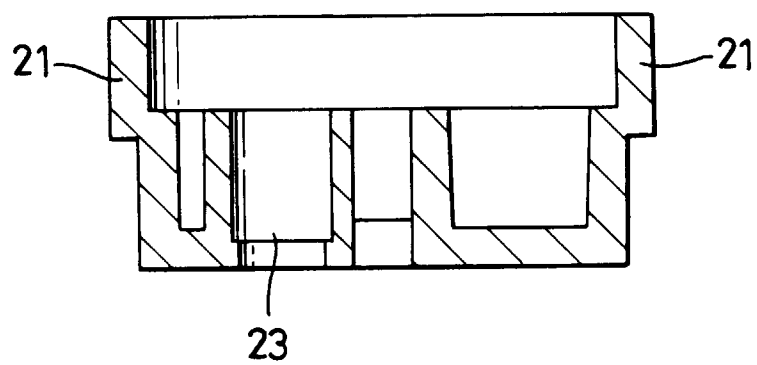


Fig. 4

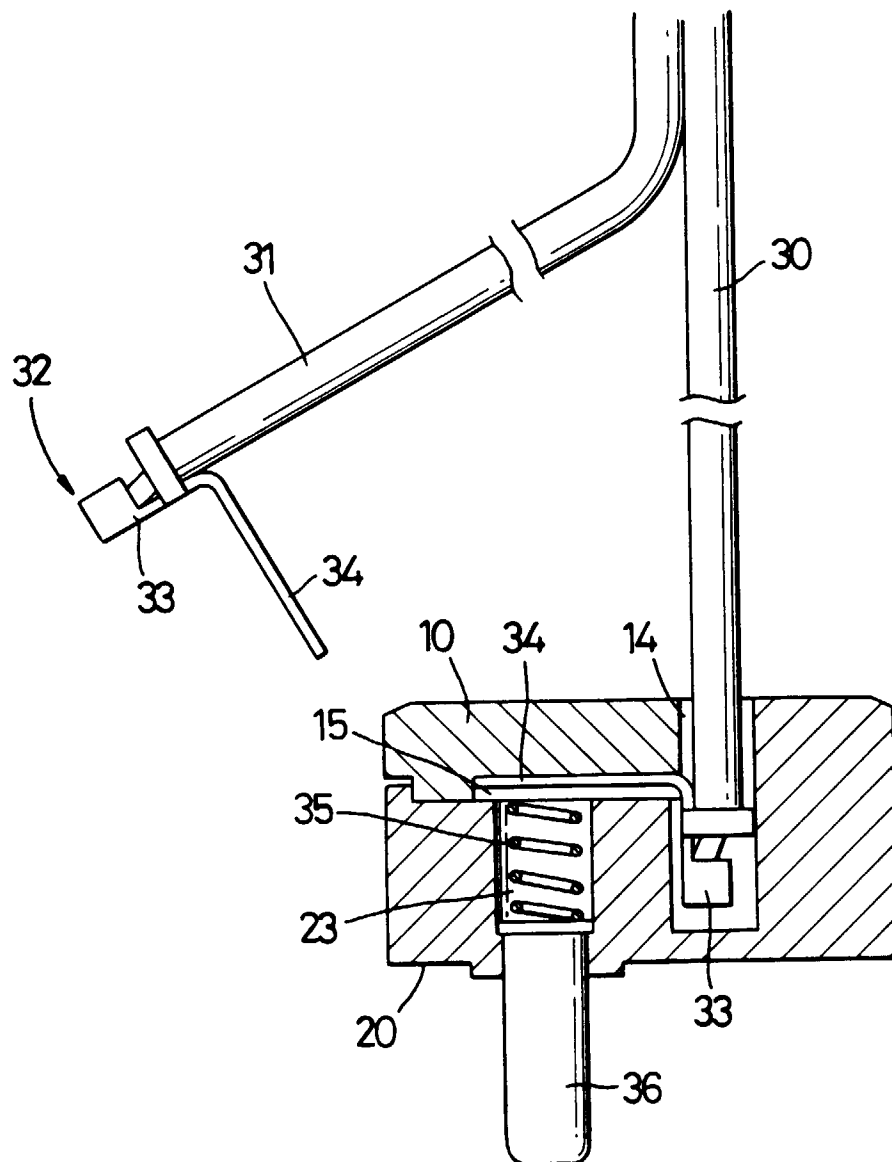


Fig. 5