June 28, 1938. J. M. SANDOVAL Y CAMPDERÁ ET AL 2,121,886

ELECTRIC LAMP PLUG CONNECTER BASE AND SOCKET

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Fig. 1.

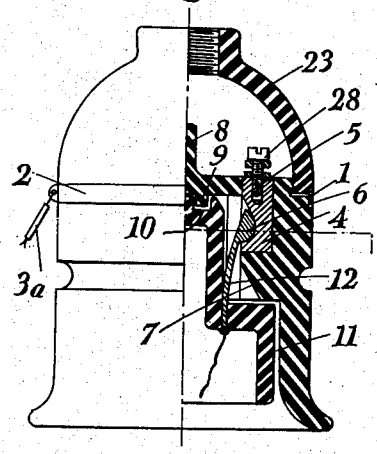


Fig. 2.

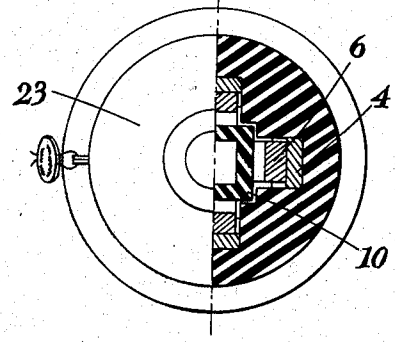


Fig. 3.

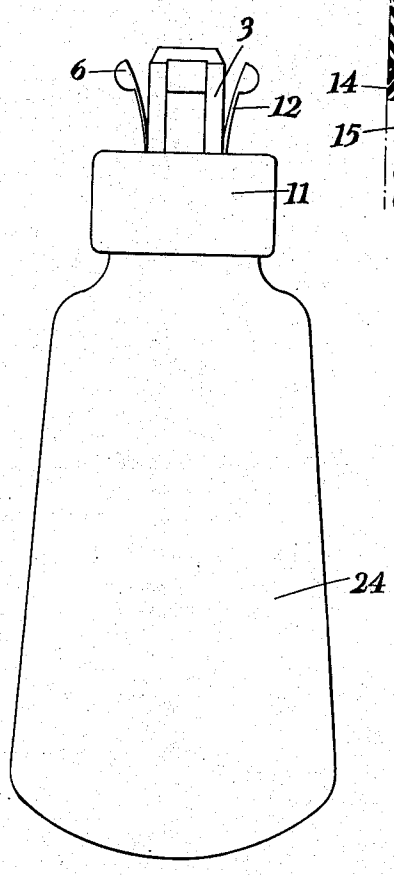
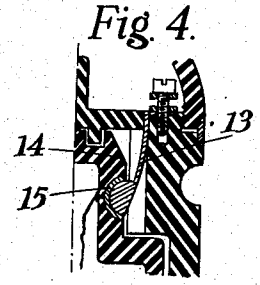


Fig. 4.



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Fig. 5.

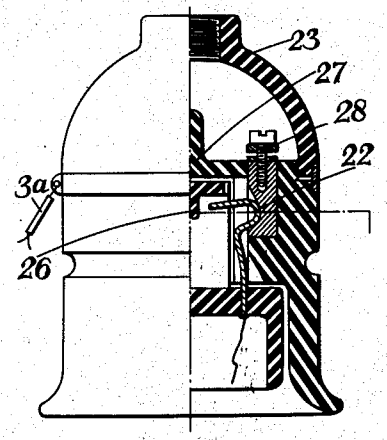
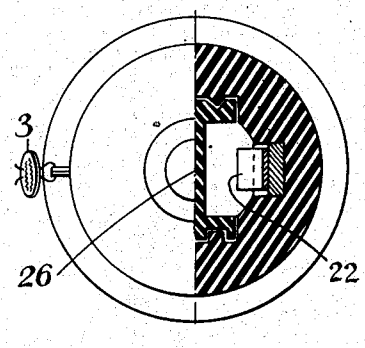


Fig. 6.



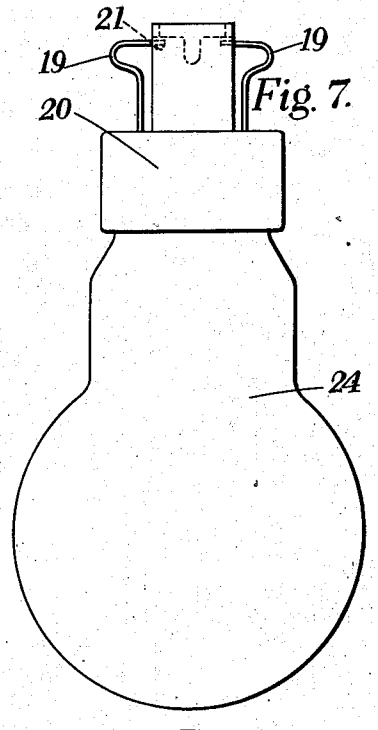
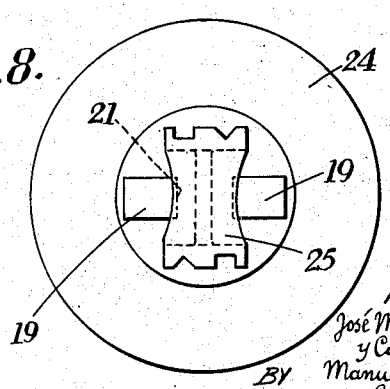


Fig. 7.

Fig. 8.



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ELECTRIC LAMP PLUG CONNECTER BASE AND SOCKET

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Application September 1, 1934, Serial No. 742,484
In Spain January 29, 1934

3 Claims. (Cl. 176—32)

We have filed applications in Spain on the 29th January, 1934, and 3rd May, 1934, in Great Britain on the 1st August, 1934, in Germany on 19 June 1934, in Italy on 27 June and 5 July, 1934, and in France on 19 June 1934.

The present invention relates to electric plug connecter bases and sockets and more particularly to a combination device for holding an electric lamp and connecting it in circuit.

The invention consists substantially in utilizing for fitting to electric lighting lamps, bases of insulating material which comprise laterally held metal parts acting as contact members and as members of the device for securing the lamp sockets, the latter being also of insulating material and having enclosed metallic contact members which may also serve as engaging means for holding the lamp bases, the holding of the lamp bases in position being effected by the resiliency either of the parts of the lamp base or of those of the lamp socket, the lamp bases and lamp holders sockets being provided with mated polarized parts engaging with one another to form a joint having engaging but not interlocking parts, in such manner that a given lamp base can only be applied to a lamp holder having a corresponding polarized part.

In this arrangement, by varying the mated polarized parts it is ensured that for each type of lamp socket only one particular type of lamp base is applicable. This makes it possible to manufacture different types of lamp sockets and corresponding lamp bases for different voltages, powers and combinations thereof. Frauds carried out by interchanging lamps, are also avoided.

Moreover, the lamp sockets according to the invention are provided with means for sealing access to the screws which connect them to the supply leads, thus avoiding the possibility of their being changed without the use of force.

The device is a safe and reliable one inasmuch as there is no metal part located outside, this being in accordance with the regulations enforced in various countries.

There are therefore in the device according to the invention three essential features which in combination characterize it, and which are all directed to the same object, the said features being (1) the lamp base and the lamp socket which are both of insulating material other than glass which has never been employed in any other device of the kind set forth for electric lamps; (2) the resilient metal contact members which cause the retaining and releasing action and require the insulating lamp base in order to enable them to be utilized; and (3) the mated polarized parts which can be used only when the previous two points have been complied with. The invention resides primarily in the device produced by the combination of the aforesaid features. The lamp base and the socket into which it fits are polarized, that is, each is so shaped as to fit with its co-operating mating member and not to fit any other not especially constructed for said fitting.

Some preferred constructional forms of devices according to the invention are illustrated by way of example in the accompanying drawings.

Fig. 1 shows a lamp socket, the left hand half in elevation and the right hand half in vertical section. with the lamp base connected.

Fig. 2 shows the same lamp socket in horizontal projection.

Fig. 3 is a side elevation of an incandescent lamp provided with a plug connecter according to the invention,

Fig. 4 shows a part section of a modified construction in which the arrangement is the reverse of the previous one,

Fig. 5 shows a modified construction of the plug connecter and lamp socket, the left hand side half in elevation and the right hand half in vertical section with the lamp base connected,

Fig. 6 shows the same lamp socket in horizontal projection,

Fig. 7 is a side elevation of an incandescent lamp fitted with plug connecter according to this last modification, and

Fig. 8 shows a further modified lamp socket the left hand half in elevation and the right hand half in vertical section with the lamp base connected.

The lamp socket (Figs. 1 and 2) has outwardly the shape of a widened bell and terminates at the top in a neck provided with an inner screw thread for connecting a union.

The lamp socket may be in one piece or may be made of several pieces if considered advisable.

The lower part of the body is cylindrical inside and outside, and is widened at its edge or rim. The figures clearly show its shape and arrangement. The upper part of the body is cylindrical outside, is connected to the lower part by means of a slightly rounded curved portion and is closed at the top by a spherical cap carrying the union above referred to.

At the junction of the cylindrical part with the spherical cap and throughout its circumference a groove *l* is cut in order that as soon as

the lamp base is fitted into the lamp socket a band 2 with a seal 3a preventing the lamp socket from being changed without it being noticed can be wound in the said groove. The said band has soldered or riveted to it a weight which engages with a hole made half in the cap and half in the lower part of the body.

The said upper part of the body is constituted inside by a central part which is of the same shape as that of the rod or stem 3 (Fig. 3) of the lamp base and which is provided with seatings in which are held or embedded by means of the insulating material of which the lamp socket is made, metal parts 4 (Figs. 1 and 2) which may be suitably bridged or not, as desired. The parts which are to act as contact members are each provided with a hole 5 for securing the connecting leads to the corresponding binding screw. These metal parts may be of various shapes, and their number also may vary. In the constructional example illustrated they consist of metal blocks provided at their outside part with a slot of cylindrical or spherical shape intended to receive the contacts 6 of the base of the lamp. At the bottom part of the blocks ramps 7 of insulating material are provided which afford access and guidance for the contacts of the lamp base, and the surfaces of which automatically engage with the said base when the latter is introduced into the lamp socket, and a slight upward pressure on the base is exerted. The springs of the lamp base are calculated and dimensioned in such a manner that without affecting the reliable hold of the lamp in the lamp socket, the pressure required for introducing the lamp base into position is very small. Above the blocks there is a cross partition 8 of insulating material on the bottom part of which is provided in relief a male member having a given pattern or profile 9, which is of different conformation for each different type of device and co-operates with another patterned member 10 identical in shape with the male member but in intaglio (female) provided on the lamp bases.

The lamp base used in the device shown in Fig. 3, is constituted by two superposed bodies; the bottom one 11 is cylindrical inside and outside and intended to receive the neck of the lamp, and the upper one 3 has a circular or polygonal cross-section.

The contacts provided on the lamp base may vary as to their shape, number and arrangement according to the type of lamp socket to which they are to be coupled. In the event of the latter being provided with metal blocks for access by means of a ramp, the base is provided on the platform which is at the top of the lower part of the body, with flexible metal blades 12 which terminate in small semi-cylindrical members 6 or balls which, whether connected or not by metal bridges, constitute the contacts of the lamp, one or more being allocated to each pole. On the lamp base being introduced into the lamp socket, these contacts in passing through the narrowest part of the ramp, are pressed against the stem until at the end of their travel they engage the hollows or recesses of the aforesaid blocks, and establish contact with them, the lamp being held fast by the reaction of the blades.

In the type under the consideration polarized members in intaglio which fit those in relief provided on the lamp socket are arranged at the top of the lamp base.

Referring to the modified construction shown in Fig. 4, the spring blades 13 are in the lamp socket, the lamp base being provided on its stem with the ramps 14 and seatings with metal contact pieces 15.

Figs. 5, 6, 7 and 8 show another construction of the device. The contacts 19 are blades which may be embedded at one of their ends 20, the other end 21 acting freely. The lamp socket comprises inner metal parts 22 with which the bends of the blades on the lamp which is to be connected, engage.

It will be understood from the foregoing that an essential characteristic feature of the device resides in the connection and fastening in each type of lamp socket and base by means of elastic metal parts, and that the latter may be varied as regards their shape and the points at which they are arranged, and that some of the said parts may act merely mechanically for the fastening, whilst the remaining ones act also as contacts.

As regards the polarized members which are provided on the lamp socket and lamp base, they are constructed in such a manner that the reliefs and recesses of the one member fit accurately with slight play the recesses and reliefs of the other member, without interlocking action.

The lamp base may be provided with its polarized members on the head of the stem or at some other point of the latter, or it may have no stem and they may be at another point of the said base. It will be understood that the polarized members on the lamp and socket and base respectively must be so designed as to ensure a perfect fit.

The dimensions of the parts provided on the lamp base and lamp socket are such that in the event of the said polarized members not fitting into each other, the contacts of the lamp base will not reach their seatings in the lamp socket and therefore the lamp will not be connected in circuit nor be held in position, so that only a lamp provided with a base adapted for use with the lamp socket in question can be employed.

The polarized members may have an infinite variety of shapes and their arrangement on both parts of the device may also vary, provided that there is exact correspondence between each type of lamp socket and base.

Moreover, an endless number of combinations with the shapes of contact and fastening and with the patterned or profiled members could be made.

In order to render the device storm-proof, it may be provided with a suitably secured cowl or hood.

Modifications may be made in the nature of the materials used in the manufacture of the device, and the shapes, dimensions, and colouring thereof without departing from the scope of the invention.

We claim:

1. An electric plug connecter base and socket for connecting an electric lamp in circuit and holding it in position, comprising in combination: a lamp socket made of insulating material; metal contact members forming poles embedded in the insulating material of said lamp socket; screws engaging said metal contact members for the fixation of the current carrying leads; a plug connecter base provided on the lamp; co-operating spring members on said plug connecter base and said metal contact members respectively comprising lateral laminar metal springs terminating in semi-cylindrical end pieces, and recesses with which said end pieces engage resiliently; a transverse partition member in said lamp sockets; polarized projections on said trans-

verse partition member; and recessed polarized parts on said plug connecter base to be engaged by said polarized parts, whereby it is rendered impossible to connect together a plug connecter base and a lamp socket unless they bear precisely corresponding mated polarized parts respectively and are provided with precisely corresponding contacting and fastening means, substantially as described.

2. An electric plug connecter base and socket for connecting an electric lamp in circuit and holding it in position, comprising in combination: a lamp socket made of insulating material; metal contact members forming poles embedded in the insulating material of said lamp socket; screws engaging said metal contact members for the fixation of the current carrying leads; a plug connecter base provided on the lamp; co-operating spring members on said plug connecter base and said metal contact members respectively comprising more than two lateral laminar metal springs terminating in semi-cylindrical end pieces, and more than two recesses with which said end pieces engage resiliently; metallic bridge pieces connecting certain of said metal springs in such manner as to form multiple poles; a transverse partition member made of insulating material in said lamp socket; polarized projections on said transverse partition member; and recessed polarized parts on said plug connecter base adapted to be engaged by said polarized projections, whereby it is rendered impossible to connect together a plug connecter base and a lamp socket unless they bear precisely corresponding mated polarized parts respectively and are provided with precisely corresponding contact and fastening means, substantially as described.

3. An electric plug connecter base arranged on an electric lamp and adapted to be inserted into a corresponding socket to connect the lamp in circuit and hold it in position, comprising in combination: a substantially cylindrical body; a plurality of spring contact members each consisting of a lateral laminar metal spring terminating in a semi-cylindrical end piece adapted to engage with a corresponding recess in the socket; a member made of insulating material arranged on the exterior of said cylindrical body and located within said spring contact members; and polarized parts on said last-named member adapted to engage with corresponding polarized projections in the lamp socket, whereby it is rendered impossible to insert the plug connecter base in to its proper electrically contacting position in the socket unless the polarized projections in the latter correspond to the said polarized parts of the plug connecter base, and said end pieces correspond to the said recesses in the socket.

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