

May 6, 1941.

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2,241,065

LAMP SOCKET

Filed Oct. 28, 1940

Fig. 1.

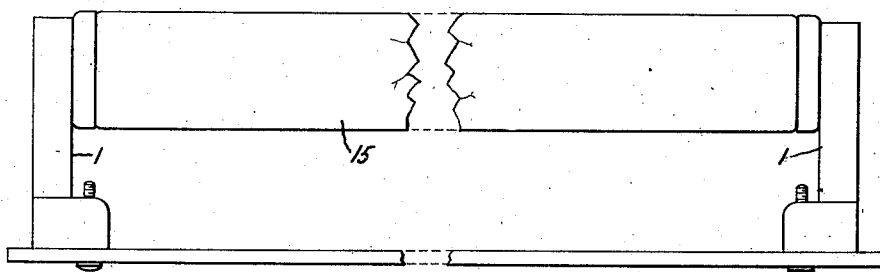


Fig. 2.

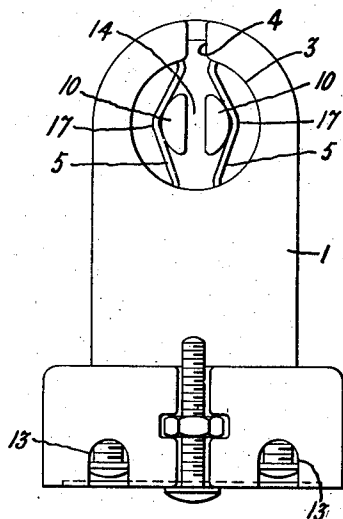


Fig. 3.

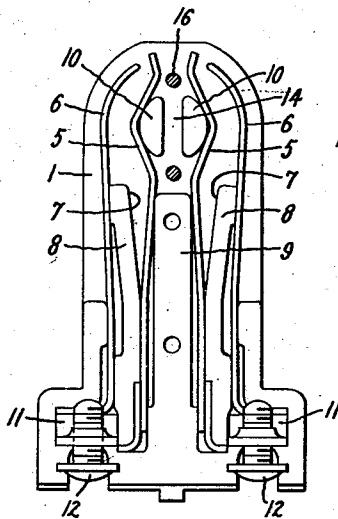
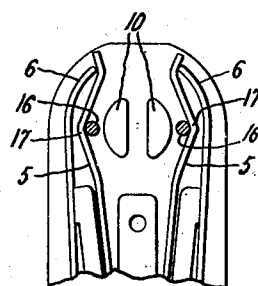


Fig. 4.



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UNITED STATES PATENT OFFICE

2,241,065

LAMP SOCKET

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Application October 28, 1940, Serial No. 363,224
In Great Britain December 8, 1939

7 Claims. (Cl. 173-328)

The present invention relates to sockets for double-ended tubular electric lamps of the gaseous discharge type, and particularly to gaseous discharge lamps in which a filamentary electrode is mounted at each end of the lamp, for example, a fluorescent lamp of the well known commercial type now in use.

In prior constructions, such as disclosed in the Marshaus Reissue Patent 21,545 the socket consists of an insulating member provided in one face thereof with diametrically opposed arcuate slots and a slot extending diametrically of and intersecting both of the arcuate slots and extending to an edge of the face together with spring contact members mounted in the arcuate slots on opposite sides of the diametral slot. The lamp to be used with this socket has at each end a cap having two contact pins, to mount the lamp in the socket. The pins are moved into the diametral slot and the lamp is then rotated to cause the pins to enter the arcuate slots and engage the contact members. Current is thereupon applied to the lamp in the event that the circuit to the socket is energized, inasmuch as one of the contact members in the sockets at each end of the lamp is connected to a source of current, such as an ordinary commercial supply line. There is thus a possibility that when the lamp is not in position in the socket accidental contact may occur between a user's body and the live contact member.

The object of the invention is to provide a socket of the kind above described which will at all times protect the user against the danger of electric shock.

A lamp socket constructed in accordance with the present invention comprises an insulating member provided with a circular opening in the front wall thereof and communicating with a slot extending to the edge of the base member together with a pair of resilient contact members lying within the opening and engageable by contact pins on a lamp cap. An additional contact member is provided to cooperate with each of the aforementioned contact members, the two pairs of contact members being normally insulated from one another and so disposed that, on inserting a two-pin lamp base in the socket and rotating it through an angle of substantially 90°, the pairs of contact members are caused to engage to complete circuit connections between the additional contact members and the lamp pins. The additional contact members are outside the plane of the opening so that accidental contact therewith is prevented.

In prior constructions, one of the contact members exposed within the opening in the socket at each end of the lamp is connected to the current source so that there is danger of accidental contact therewith. In the present construction, the main contact members exposed within the opening in the socket are both insulated and the current is connected instead to one of the additional contacts hidden within the insulating body of the socket. Consequently accidental contact with live metal is entirely avoided since access to the live contact cannot be had through the opening in the socket.

The invention will now be described with reference to the accompanying drawing in which Fig. 1 is a view showing a socket supporting each end of a tubular lamp; Fig. 2 is a front view of the lamp socket; Fig. 3 is a view of the interior of the socket with the lamp pins in partially mounted position; Fig. 4 is a view similar to Fig. 3 showing the lamp pins mounted in final position.

Referring to the drawing, the socket comprises a base member 1 of insulating material which may be made in one or more pieces. The base member is provided with a circular opening 3 from which a slot 4 extends to an edge of the member. The base member supports main contact members 5 and additional contact members 6, the contact members 5 being supported in converging slots 7 formed between projecting portions 8 and 9 of the base member. The contact members 5 and 6 are normally completely insulated from one another. Both contact members 5 and 6 are flexible and are constructed to be biased towards the center of the socket. The projections 8 limit the inward movement of the contact members 6 while opposed projections 10 limit the inward movement of the contact members 5. For connection to a source of current contact members 6 are provided with terminals 11 furnished with terminal screws 12. The base member is provided with apertures 13 through which the external connections may pass to the terminals 11.

The opposed projections 10 are disposed with the plane of the opening 3. They are of sector shape and provide between them a diametral slot 14 which is in a line with the slot 4. The spaces around the projections 10 defined by the opening 3 constitute arcuate slots similar to those shown in the aforementioned Marshaus patent.

A lamp 15 having at each end a pair of pin contacts 16 is adapted to cooperate with the socket illustrated. In operation the lamp pins are inserted through the slot 4, and pass through

the slot 14 between the projections 10 until the lower pin reaches the periphery of opening 3. This opening is of such diameter as to allow the base of the lamp then to be rotated, the pins moving in the arcuate slots whereby the pins make contact with the contact members 5 and separate them. As the contact members 5 are moved outwardly they engage the contact members 6 and complete circuit connections to the lamp pins from the terminals 11, as shown by Fig. 4. In order to grip firmly the lamp pins, the contact members 5 are formed with indented portions 17 which cooperate with the projections 10 to maintain the pins seated in position on the socket.

It will be noticed that the contact members 6, either one or both of which may be alive, are completely hidden and shielded by the cover member and cannot be accidentally touched. If accidental contact is made to the contact members 5 no harm is done since these members are normally insulated from one another and are biased out of engagement with the contacts 6.

As shown in Fig. 1, one socket is provided for each end of the lamp, the sockets being spaced apart a distance slightly greater than the distance between the ends of the lamp so that the lamp may be easily mounted in position.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a socket for use with electric lamps having spaced contact pins, a housing of insulating material having a recess therein and a slot merging with said recess and extending to an edge of said housing, spaced contact members in said recess, additional contact members adapted to be connected to an electric circuit carried by said housing and being normally out of engagement with said first-mentioned contact members, the lamp pins being inserted in said recess by movement through said slot, and means within the recess guiding the lamp pins for rotation into engagement with the first-mentioned contact members to move them outwardly into engagement with said additional contact members to complete an electric circuit to the lamp pins.

2. In a socket for electric lamps or the like, a housing of insulating material having a recess therein, a stud separating said recess into two compartments, said compartments merging into a slot extending to the edge of said housing, spaced contact members adapted to be connected to an electric circuit carried by said housing, and a separate contact member in each of said compartments for engaging the contact pins of a lamp, the lamp pins engaging said last-mentioned separate contact members to move them outwardly into electrical engagement with the first-mentioned contact members to complete an electric circuit to the lamp pins.

3. In a lamp socket for use with lamps having aligned contact pins adapted to be inserted in the socket by straight line motion and subsequent rotation therein, a support of insulating material having walls defining an opening in at least one face and a slot extending from said opening to an edge of said face, spaced flexible contact members mounted in said support within said opening, and a member of insulating material having a groove between said contacts, said slot and said groove being in alignment, and additional contact members carried by said housing outside said opening and being normally out of engagement with said first-mentioned contact members, rotation of the pins into engagement

with said first-mentioned contacts flexing them outwardly into engagement with said additional contact members.

4. A socket for electric lamps or the like comprising a housing of insulating material, said housing being provided with diametrically opposite arcuate slots and also with a slot extending diametrically of and intersecting both of said arcuate slots, said diametrical slots extending to an edge of said housing, spring contact members mounted on said housing within said arcuate slots and on opposite sides of said diametrical slots, and additional contact members carried by said housing outside said arcuate slots and being out of engagement with said first-mentioned contact members when the lamp is removed from said socket, insertion of the lamp in the socket moving said spring contact members into engagement with said additional contact members to complete an electrical circuit to the lamp.

5. In a socket for electric lamps or the like, a housing of insulating material having a recess therein, a stud upstanding from the bottom of said recess, said stud being provided with a diametrical slot, said housing being provided with a slot extending from said recess to an outer edge thereof in alignment with the slot in said stud, spring contact members having portions in said recess cooperating with said stud on opposite sides of said diametrical slot, and additional contact members adapted to be connected to an electric circuit carried by said housing and being normally out of engagement with said first-mentioned contact members, the prongs of a lamp being moved laterally through said slots and rotated about said stud into engagement with said first-mentioned contact members to move them outwardly into electrical engagement with said last-mentioned additional contact members to complete an electric circuit to the lamp pins.

6. A socket for use with a lamp having spaced contact pins comprising, in combination, a housing of insulating material having an exposed recess therein, spaced contact members in said recess adapted to engage the lamp pins upon rotation of the pins within the recess, additional spaced contact members carried by said housing, said additional contact members being out of the plane of the recess and being normally spaced from the first-mentioned contact members, engagement of the lamp pins with the first-mentioned contact members upon rotation thereof flexing said contact members outwardly into engagement with said last-mentioned contact members to complete an electrical circuit to the lamp pins.

7. A socket for use with a lamp having spaced contact pins comprising, in combination, a housing of insulating material having an exposed recess therein, spaced contact members in said recess adapted to engage the lamp pins upon rotation of the pins within the recess, an additional contact member carried by said housing, said additional contact member being out of the plane of the recess and being normally spaced from one of the first mentioned contact members, engagement of the lamp pins with the first mentioned contact members upon rotation thereof flexing said contact members outwardly whereby the said one of the first mentioned contact members engages the additional contact member to complete an electrical circuit to a corresponding lamp pin.

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