

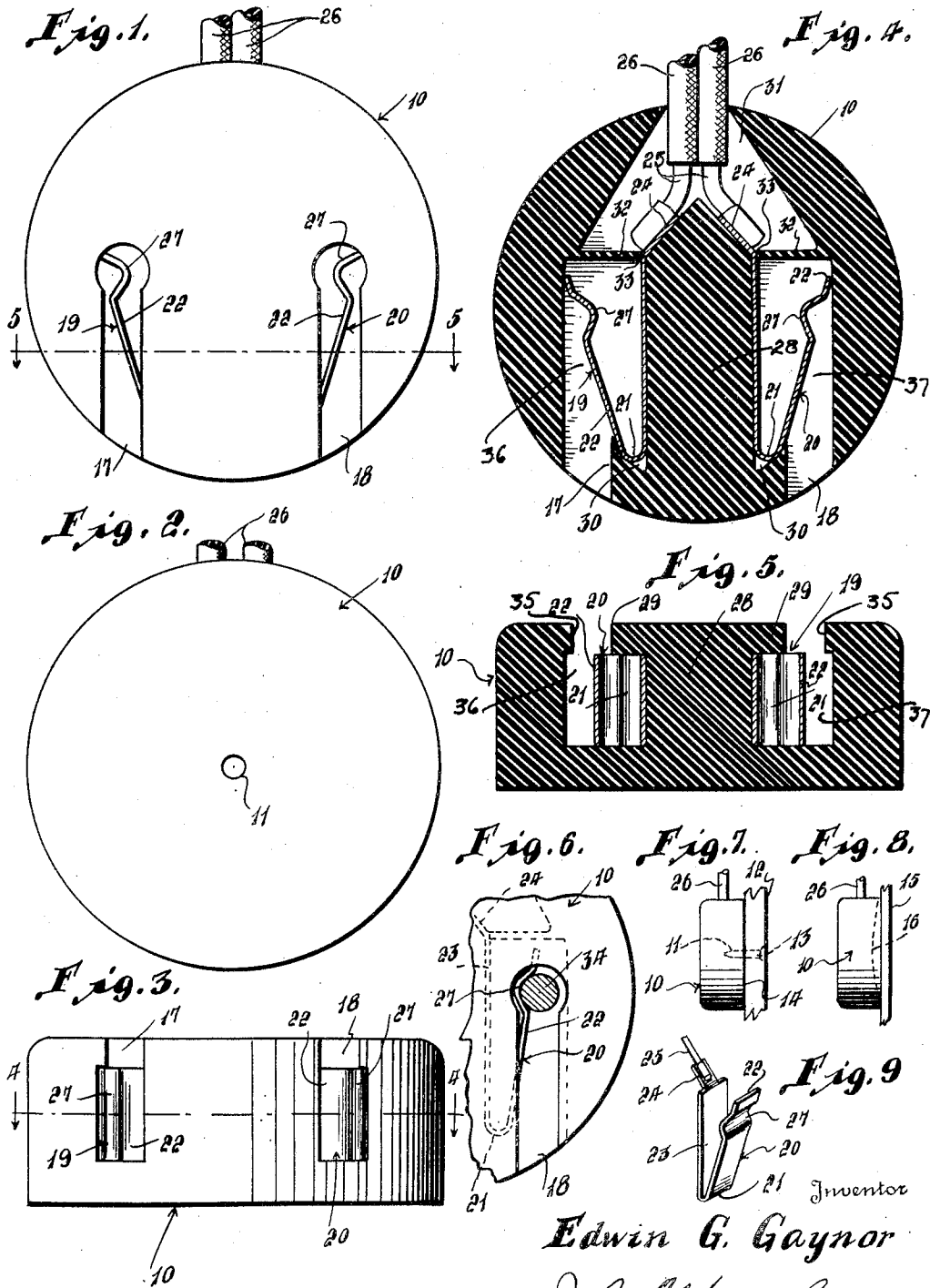
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ONE PIECE RESILIENT BODIED FLUORESCENT LAMP SOCKET

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ONE PIECE RESILIENT BODIED FLUORESCENT LAMP SOCKET

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10 Claims. (Cl. 173—328)

This invention relates to new and useful improvements in sockets for fluorescent lamps and has particular relation to unbreakable holder or socket for such lamps.

An object of the invention is to provide an inexpensive, unbreakable, one piece resilient bodied fluorescent lamp socket.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein a satisfactory embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

Fig. 1 is a front elevational view of the lamp socket of the invention;

Fig. 2 is a rear elevational view thereof;

Fig. 3 is an edge elevational view of the socket, the view being taken as looking from the lower edge of Fig. 1;

Fig. 4 is a sectional view through the socket of the invention the front portion thereof being removed;

Fig. 5 is a sectional view taken as along the line 5—5 of Fig. 1;

Fig. 6 is a detail elevational view showing a terminal of a fluorescent lamp in place in the socket;

Fig. 7 is a side elevational view showing one method of mounting the socket;

Fig. 8 is a similar view showing another mounting method; and

Fig. 9 is a perspective view of one of two similar contact elements employed in the socket.

Referring in detail to the drawing the improved socket of the invention comprises a body generally designated 10 and of a one piece construction being molded of a resilient material as live rubber. Thus the body is of inexpensive manufacture and is unbreakable. In its rear face the body 10 is provided with an opening or hole 11 for the reception of the pointed end portion of a wood screw or the like for the mounting of the socket as suggested in Fig. 7.

There it will be noted that the rear surface of the body 10 is disposed against a support as a piece of wood 12 and that a screw 13 passing through the support is screwed into the opening 11. To replace the screw 13 or in addition thereto adhesive 14 may be used to secure the socket of the invention to a support.

Fig. 8 suggests another way in which the socket may be mounted on a support. There the support is a plate 15 (of metal or wood or other material as desired) and the rear surface of the body 10 is made concave or dished and thus comprises a suction cup 16 used for securing the socket body to the support. Other methods of securing the socket to a suitable support are within the scope of the invention.

Slots 17 and 18 for the entrance of the contact pins or terminals on the ends of a fluorescent lamp (not shown) open through the lower edge and the front face of the body 10. These slots give access to chambers 36 and 37 and arranged in such chambers in positions to be engaged by such contacts or terminals, when inserted through the mentioned slots, are similar contact elements generally designated 19 and 20. Since the slots 17 and 18 and the contact elements 19 and 20 are duplicate pairs a detailed description of one slot and its contact element will, it is believed, be sufficient.

Contact element 20 comprises (see Fig. 9) a piece of springy conducting metal bent upon itself intermediate its ends as at 21 whereby the element comprises a pair of plate-like portions or arms 22 and 23 of which the latter is provided with an extension 24 to which an end 25 of a lead-in wire 26 is soldered as shown. Arm 22 is provided with a transversely extending groove 27 the purpose of which will appear. Since the element 20 is of some springy metal it will be clear that the arm 22 may be forced or sprung toward and from the arm 23.

Within the confines of the body 10 the chambers 36 and 37 are separated by a solid wall portion 28 (into which the screw 13 enters) and the front face of the body extends laterally of portion 28 and overhangs the edges of the chambers 36 and 37 providing flanges 29 (see Fig. 5). Near the lower end of wall portion 28 but within the body pockets 30 are provided for the reception of the bight portions 21 of the contact elements 19 and 20 as will more fully appear. A cavity 31 opens through the upper end of the body for the entrance of lead wires 26 as best shown in Fig. 4. The lower end of this cavity is separated from the contact element receiving chambers 36 and 37 by webs 32 although the latter are notched at 33 for the passage of the elements and for the reception of the extensions 24 of the elements. Toward their upper ends the entrance slots 17 and 18 are rounded being extended slightly through the flanges 29 above mentioned and through opposite and more nar-

row flanges 35 at the edges of the entrance slots facing the flanges 29.

In manufacturing the lamp sockets of the invention a pair of the contact elements 19 and 20 have their extensions 24 soldered or otherwise secured to exposed ends 25 of the lead wires 26. Thereafter through the use of a suitable mechanical dilator (not shown) inserted through the upper end of the cavity 31 the latter is expanded at its entrance portion and the notches 33 through the webs 32 are also expanded. Then the contact elements are inserted into the body through the cavity 31 and the body returns to normal owing to the nature of the live rubber employed. If desired benzine or the like may be applied to the body portions for the purpose of temporarily softening the same and permitting of the insertion of the contact elements without the use of the mechanical dilator.

When the contact elements 19 and 20 are in place they are, the socket not being in use, in expanded condition as shown in Fig. 4 and cannot be pulled back out of the chambers 36 and 37 of the socket body. Also as the bight portions 21 of the elements are received in the pockets 38 in the body such elements will not be casually pushed or pulled through the lower open ends of the entrance slots 17 and 18. The solid rear wall of the body and the overhanging flanges 29 and 35 prevent any casual forward or rearward movement of the elements relative to the body.

From Fig. 5 it will be clear that the arms 23 of the elements are against the sides of the body portion 28 and between the flanges 29 and the solid back of the body. From Fig. 6 it will be understood that the chambers into which the contacts 19 and 20 are inserted extend above the upper or inner ends of the slots 17 and 18 whereby the upper or inner free ends of the arms 22 of the elements are held between the front and rear walls of the body and may not casually move out through the entrance slots 17 and 18.

Figs. 1 and 4 clearly show that when the socket is not in use the contact portions or arms 22 extend diagonally across the entrance slots 17 and 18. When the socket is to be used and is mounted the contact pins or terminals on the ends of a fluorescent lamp are aligned with the entrances or lower ends of the slots 17 and 18 and the lamp moved to carry its terminals or pins inwardly along the slots.

Thus such terminals are brought into engagement with arms 22 of the contact elements 19 and 20 and force or spring such arms toward contact arms 23 as the lamp is moved into position. When the lamp terminals reach the inner ends of the slots 17 and 18 the grooves 27 in the element arms 22 are aligned with and receive the terminals and press outwardly against them holding them yieldingly by a pressure urging them apart and thus insuring good electrical connection between the lamp terminals and the elements 19 and 20 and at the same time securely holding the lamp. While in the foregoing description the body has been described as of live rubber it is to be understood that it may be of natural or artificial rubber or other resilient material the feature being that the body be yielding and unbreakable. Certain artificial or synthetic rubbers have characteristics which are advantageous in particular instances and therefore the word rubber when used herein is to be understood to include either or both of natural and artificial or synthetic rubber or mixtures of the same.

Having thus set forth the nature of my invention, what I claim is:

1. In a lamp socket, a one piece resilient body having a pair of spaced chambers therein, a contact in each of said chambers, said contacts each including a connector arm and an elongated arm supported by and resiliently movable toward and from the connector arm, spaced lamp terminal entrance slots opening through the front wall of the body into the respective chambers and extending substantially in the direction of the lengths of the respective elongated contact arms, and each of said contacts having its arms in diverging relation and arranged with its connector arm against a wall of its chamber and its elongated arm extending diagonally across an entrance slot for yielding wiping contact with lamp terminals inserted into and then moved longitudinally of said slots.

2. In a lamp socket, a one piece resilient body having a pair of spaced chambers therein, a contact in each of said chambers, said contacts each including a connector arm and an elongated arm supported by and resiliently movable toward and from the connector arm, spaced lamp terminal entrance slots opening through the front wall of the body into the respective chambers and extending substantially in the direction of the lengths of the respective elongated contact arms, each of said contacts having its arm in diverging relation and arranged with its connector arm against a wall of its chamber and its elongated arm extending diagonally across an entrance slot for yielding wiping contact with lamp terminals inserted into and then moved longitudinally of said slots, and said elongated diagonally disposed arms of the contacts having transversely extending grooves partly receiving the lamp terminals when the latter are moved fully home.

3. In a lamp socket, a one piece resilient body having a pair of spaced elongated chambers therein and spaced lamp terminal entrance slots extending for substantially the length of and entering said chambers, pockets in the walls of the chambers adjacent the ends thereof, a pair of contact elements arranged one in each of said chambers and each comprising a pair of diverging resilient arms connected by a bight portion, said elements each having an arm arranged to be yieldingly engaged by a lamp terminal inserted into its chamber through its entrance slot, and said elements having their bight portions in said pockets whereby the elements are held in place and may not be casually moved out through the ends of said chambers.

4. In a lamp socket, a one piece resilient body having a pair of elongated chambers therein and lamp terminal entrance slots extending for substantially the length of and entering said chambers through the front wall and one edge of the body, pockets in the walls of said chambers adjacent that edge of the body through which said slots enter, a pair of contact elements arranged one in each of said chambers and each comprising a pair of diverging resilient arms connected by a bight portion, said elements each having an arm arranged to be engaged by a lamp terminal inserted into its chamber through its entrance slot, said elements having their bight portions in said pockets whereby the elements are held in place against casual movement out through the portions of the entrance slots in the edge of the body, said entrance slots of less width than said chambers, and said elements when the socket is not in use of greater width between their arms

than said slots whereby portions of the front wall of the body overlie the elements and prevent their casual movement outwardly through said slots.

5. In a lamp socket, a one piece resilient body having a pair of chambers therein and lamp terminal entrance slots entering said chambers through the front wall and one edge of the body, a cavity in said body beyond the inner ends of said chambers and separated from the latter by portions of the body and communicating therewith through a pair of small notches, contact elements in said chambers, extensions on said elements and projecting through said notches into said cavity, wires fastened to said extensions and passing out of the cavity, said elements within said chambers each including a spring metal piece bent upon itself whereby to comprise a pair of normally diverging arms and a bight portion connecting said arms whereby said elements may not be casually pulled from said chambers into said cavity, pockets in the chamber portions remote from said cavity and facing toward the latter and receiving the bight portions of the elements whereby the latter may not casually be pulled or pushed from the chambers through the outer ends of said slots, and said elements within said chambers adapted to be contacted by lamp terminals inserted through said slots.

6. In a lamp socket, a one piece resilient body having a pair of chambers therein and lamp terminal entrance slots entering said chambers, a cavity in said body beyond the inner ends of said chambers and separated from the latter by portions of the body and communicating therewith through a pair of small notches, contact elements in said chambers, extensions on said elements and projecting through said notches into said cavity, wires fastened to said extensions and passing out of the cavity, said elements within said chambers each including a spring metal piece bent upon itself whereby to comprise a pair of normally diverging arms and a bight portion connecting said arms whereby said elements may not casually be pulled from the chambers into said cavity, other means preventing casual movement of said elements out through the outer ends of said slots, and said elements within said chambers adapted to be contacted by lamp terminals inserted through said slots.

7. In a lamp socket, a body comprising a single block of resilient material having flat front and rear sides and having spaced chambers and spaced entrance slots opening through said front side and an edge of the body into the respective chambers, a pocket in each of said chambers integral with said body and facing toward an edge of the body opposite that through which said entrance slots open, a contact in each of said chambers and having a portion in the pocket of said chamber whereby the contacts may not be casually moved out through said entrance slots where they pass through said edge of the body, and leads connected with said contacts and passing out through the edge of the body opposite that through which said entrance slots open.

8. In a lamp socket, a body comprising a single

block of live rubber having flat front and rear sides and having a pair of chambers therein and entrance slots opening through said flat front side and an edge into the respective chambers, said entrance slots of less width than said chambers and entering the latter toward their remote edge portions, separator means integral with said body between and separating said chambers, a contact in each of said chambers, said contacts each comprising a pair of arms, leads connected respectively with one arm of each contact and extending out of the body, said contacts arranged with their lead connected arms against said separator means and with their other arms extending diagonally across the entrance slots of the respective chambers from adjacent said separator means toward the remote edges of the chambers, and said diagonally extending arms resiliently yieldable whereby as lamp contact terminals are inserted into and moved inwardly longitudinally of said entrance slots said arms are forced toward one another by being engaged on their outer sides by said terminals.

9. In a lamp socket, a body having a pair of chambers therein and entrance slots opening into the respective chambers, separator means between and separating said chambers, a contact in each of said chambers, said contacts each comprising a pair of arms, leads connected respectively with one arm of each contact and extending out of the body, said contacts arranged with their lead connected arms against said separator means and with their other arms extending diagonally across the entrance slots of the respective chambers from adjacent said separator means toward the remote edges of the chambers, and said diagonally extending arms resiliently yieldable whereby as lamp contact terminals are inserted into and moved inwardly longitudinally of said entrance slots said arms are forced toward one another by being engaged on their outer sides by said terminals.

10. In a lamp socket, a one piece resilient body having a pair of chambers therein and lamp terminal entrance slots entering said chambers through the front wall and one edge of the body, a cavity in said body beyond the inner ends of said chambers and separated from the latter by portions of the body and communicating therewith through a pair of small notches, contact elements in said chambers, extensions on said elements and projecting through said notches into said cavity, leads fastened to said extensions and passing out of the cavity, said elements within said chambers each including normally diverging arms whereby said elements may not be casually pulled from said chambers into said cavity, pockets in the chamber portions remote from said cavity and facing toward the latter and receiving portions of the elements whereby the latter may not be casually pulled or pushed from the chambers through the outer ends of said slots, and said elements within said chambers adapted to be contacted by lamp terminals inserted through said slots.

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