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2,392,785

LAMP BASE

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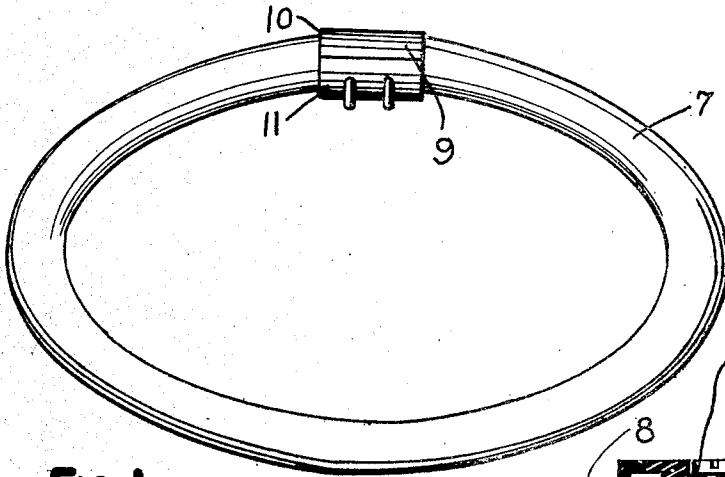


FIG. 1

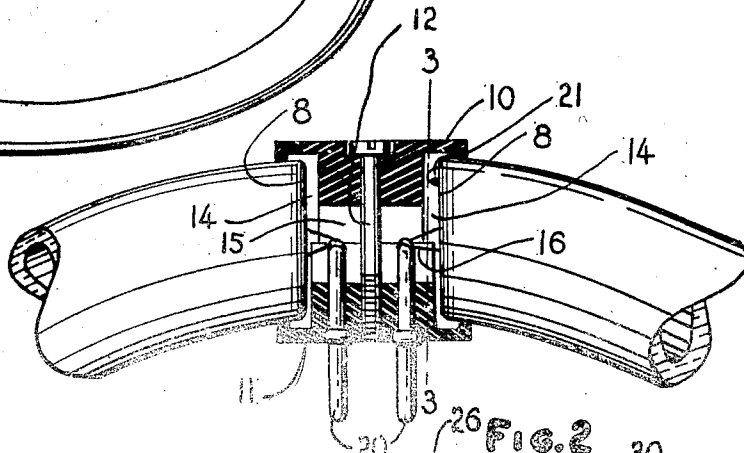


FIG. 2

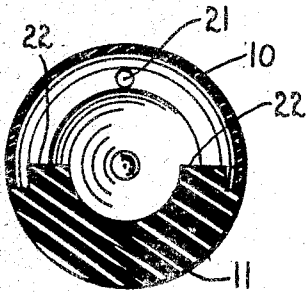


FIG. 3

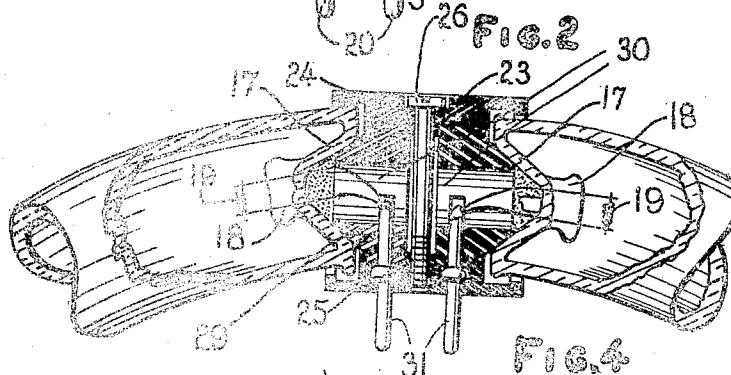


FIG. 4

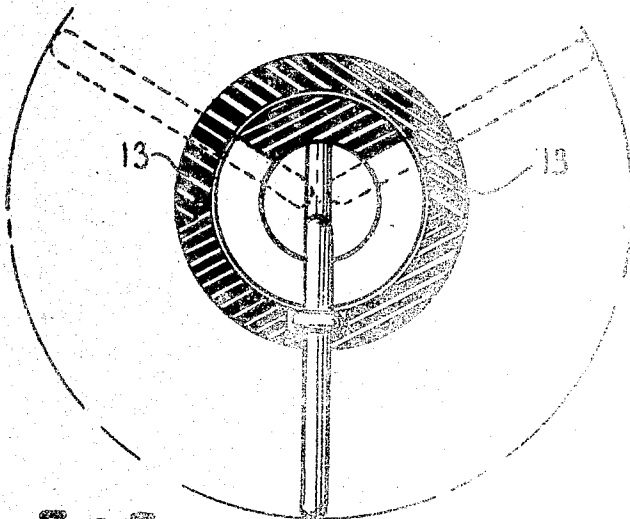


FIG. 5

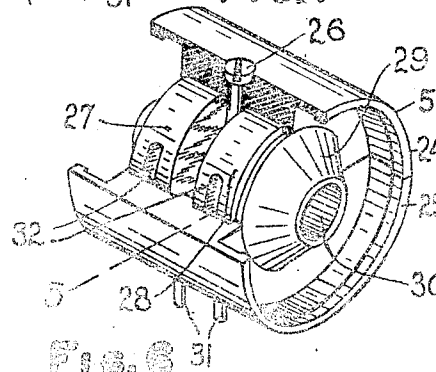


FIG. 6

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2,392,785

LAMP BASE

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5 Claims. (Cl. 176-32)

This invention relates to discharge lamps and particularly to such lamps which are bent into curved form and having their ends disposed in opposed relation.

In lamps of the type indicated, it is necessary to provide special means for making the necessary connections for energizing the lamp. It is an object of the present invention to provide means for readily connecting the lamp to a source of power.

A further object of the invention is to provide a bent tubular lamp having a base joining its ends which is rotatable into a plurality of positions.

A further object of the invention is to provide in a bent tubular lamp having its ends disposed in opposed relation a base which is readily applied to the lamp at a minimum of cost.

Other objects and features will more fully appear from the following description and will be particularly pointed out in the claims.

The present invention may be applied to various types of electric discharge lamps but will be described herein in connection with hot or cold cathode fluorescent lamps. In certain applications of this type of lighting the use of elongated straight tube lamps is inconvenient or impossible consequently the curved tube lamp which is bent back upon itself was developed. Such lamps provide an ample supply of light in a relatively restricted space. An obvious form for such a lamp is the circular type as described herein. However, the lamp may present other forms than that of a circle. The ends of tube are positioned in opposed relation and spaced a short distance apart. A base member of insulating material is molded in two hollow semi-cylindrical sections which are placed around the tube ends and held together by suitable fastening means. In one form of the invention the assembled base member fits loosely upon the tube ends permitting it to be rotated into various positions. One of the sections is provided with contact pins for supplying current to the lamp. Two or more such pins are provided depending upon the circuit connections required by the lamp used. The pins desirably project into the base substantially to its axis and flexible wires connect the pins to the filaments or other electrodes of the lamp.

In another form of the invention a pair of plug members are cemented into the ends of the lamp in fixed position and are provided with openings through which the lamp's lead wires are fed. The plugs constitute a fixed inner member. An outer hollow cylindrical member is fitted to and arranged to rotate upon the inner member. The

outer member is provided with conductor pins the inner ends of which travel in slots formed in the inner member.

To present a better understanding of the invention particular embodiments thereof will be described and illustrated in the accompanying drawing in which:

Figure 1 is a perspective view of a lamp embodying the invention;

Figure 2 is a longitudinal sectional view through the lamp base;

Figure 3 is a cross sectional view on line 3-3, Figure 2;

Figure 4 is a longitudinal sectional view similar to Figure 2 showing a different embodiment of the invention;

Figure 5 is a diagrammatic view illustrating the adjustability of the device; and

Figure 6 is a perspective view partially in section of the lamp base shown in Figure 4.

The invention applies particularly to lamps in which the tube ends are disposed in opposed relation and spaced a short distance apart. Their general shape may be circular or any desired conformation. The close proximity of the tube ends permit connections to the lamp electrodes to be made within one connecting device which will hereinafter be termed the lamp base.

As shown in the drawing the invention is applied to a circular lamp 7 presenting end faces 8. The faces 8 desirably are parallel and symmetrically disposed with respect to a radius from the center of the lamp circle.

The lamp base 9 is made generally in the form of a hollow cylinder divided longitudinally into two sections 10 and 11 the sections desirably being molded of insulating material and are held together by any suitable means such as the screw 12 the head of which is seated in the portion 10 and having its other end threaded in the part 11. Such construction permits the lamp base to be assembled upon the lamp. An interlocking rabbet construction 13 is formed along the edges of the sections 10 and 11 to prevent relative laterally movement thereof.

The ends of the base 9 are formed to present chambers or recesses 14 within which the ends of the lamp are loosely received. The ends of the lamp project a substantial distance into the recesses 14 to insure the base will not become detached from the lamp. In the form of the invention shown in Figure 2 a relatively large central chamber 15 is formed within which flexible lamp lead wires 16 are received.

The ends of the lamp are, or may be, of stand-

ard construction having a reentrant flare portion 18 and a press portion 19 within the tube and supporting the lamp electrodes 19. The lead wires 16 are soldered to the inner ends of a pair of conductor pins 20 which are molded or otherwise fixed in position in the base section 11 and are spaced the correct distance to be received in a socket made to receive them not shown in the drawing. Either two or four pins may be employed depending upon the type of lamp used and its circuit requirements.

In use the socket for supplying the lamp with its operating current may be situated in a number of different positions within a fixture, lamp stand or other installation and permit the lamp base to be readily received therein. The design of the device in which the lamp is used may require that the lamp be inserted in a certain manner while another device may require its insertion in a different manner depending on their mechanical and electrical structure. The present invention enables the lamp to be inserted in installations having a wide variety of structural designs. By rotating the base 9 into its most convenient angular position the installation of the lamp is greatly facilitated. In Figure 5 three angular positions of the base are shown. Any intermediate position may also be used. It is also possible to insert the base 9 in its socket and thereafter swing the lamp into its operating position.

It is obvious that the flexibility in the application of the lamp provides a greatly enlarged scope for the designer of fixtures, lamp stands or other devices in which the lamps are used. Moreover, a lamp embodying the invention overcomes the possibility that several varieties of lamps having different types of fixed bases must be made for use in various illuminating units. One lamp with adjustable base fulfills the requirements.

It is desirable that the base 7 be restricted in its rotation to prevent excessive twisting of the lead wires. It has been found that an angular adjustment of approximately 240° is sufficient to adapt the lamp to any installation. A desirable means for accomplishing this end is to form a projection 21 upon the end face of the lamp at or near its periphery. Stop shoulders are provided which engage the projection 21 at the limit of the travel of the base 9. Stop shoulders may be provided in any suitable manner. As illustrated in the drawing the portion of at least one of the recesses 14 formed in the section 11 of the base 9 is relatively shallow in depth while that portion formed in the section 10 is of greater depth and sufficient to receive the projection 21. The difference in depth between the two portions of the recesses 14 presents stop shoulders 22 best shown in Figure 3, which engage the projection 21.

A modified form of the invention is shown in Figures 4 and 6 wherein the base 23 is composed of an outer shell which rotates upon an inner structure cemented to the lamp ends. The outer shell is made up of two semi-cylindrical portions 24 and 25 held together by the screw 26, the outer shell is fitted to the inner structure to freely rotate thereon.

The inner structure is composed of a pair of discs 27 and 28 which have conical end faces 29 which project into and are cemented within the flares in the lamp ends. The two discs are disposed in axial alignment and spaced apart a short distance which provides a chamber in which the screw 26 may move. Desirably the inner wall of the outer member is grooved to embrace the discs and thus maintain alignment between the outer

shell and the inner fixed structure. The discs are provided with axial apertures 30 through which the lamp lead wires are fed.

The conductor pins 31 fixed in the member 28 extend inward through radial slots 32 in the discs 27 and 28, and outward for reception in a socket member not shown. The slots 32 limit the rotation of the outer member. This modified form of the invention functions in the same manner as the form of the invention first described and may be provided with two or more conductor pins.

What I claim is:

1. In combination with a tubular discharge lamp of non linear configuration having its ends disposed in spaced opposed relation, a hollow cylindrical base member loosely embracing the ends of the lamp and extending therebetween whereby the base may be rotated thereon, lead wires connected to the lamp electrodes and extending into said base member, conductor pins extending through and secured in said base, the inner ends of the pins projecting into the hollow interior of the base and their other ends projecting outward for connection to a source of energy and means to connect said lead wires to said pins.

2. In combination with a tubular discharge lamp of non linear configuration having its ends disposed in spaced opposed relation, a hollow cylindrical base member loosely embracing rotatably mounted upon and extending between the ends of the lamp tube, electrodes within the ends of the lamp having lead wires extending through the lamp ends and into the interior of the base, said base being split lengthwise to permit attachment to the lamp and a plurality of conductor pins anchored in the wall of said base projecting into the base, means to connect the pins to said lead wires, said pins having outward extensions for reception in a socket.

3. In combination with a tubular discharge lamp of non linear configuration having its ends disposed in spaced opposed relation, a cylindrical base member extending between the lamp end for effecting electrical connection to both ends of the lamp, said base member being divided lengthwise into two sections to permit attachment to the lamp, means for securing the sections together, said base having an axial aperture therethrough, said aperture being enlarged at its end to form recesses within which the lamp ends are loosely received permitting rotation of the base thereon, lead wires connected to the lamp electrodes and extending into said aperture, a plurality of conductor pins anchored in the base member, projecting inward into said aperture for connection to said lead wires and extending outward for connection to a supply circuit.

4. In combination with a tubular discharge lamp of non linear form having its ends disposed in spaced opposed relation, a hollow cylindrical base member extending between and loosely embracing the ends of the lamp thus permitting its rotation thereon, a projection from at least one of the lamp ends, a pair of stop shoulders on said base member spaced at least 90° and situated in a radial plane common to said projection said shoulders acting to limit the rotation of the base by engaging said projection, lead wires connected to the lamp electrodes and extending into said base and a plurality of conductor pins anchored in said base extending inward and connected to said lead wires and projecting outward for connection to a supply circuit.

5. In combination with a tubular discharge lamp of non linear form having its ends disposed

in spaced opposed relation and provided with operating electrodes, a base member of insulating material extending between the ends of the lamp said base having a two part inner cylindrical member rigidly secured to the ends of the lamp and having an axial aperture, an outer member surrounding and rotatably mounted upon said inner member, said outer member being divided lengthwise into two sections to permit its assembly upon the inner member, lead wires con-

nected to the lamp electrodes and extending into said aperture in the inner member, radial slots extending through said inner member and embracing an angle of at least 90°, a plurality of conductor pins anchored in said outer member projecting inward through said slots and connected to said lead wires said pins also projecting outward for connection to a supply circuit.

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