

Jan. 27, 1953

D. D. HINMAN

2,626,977

MOVABLE CONTACT BASE

Filed Nov. 5, 1947

FIG. 1.

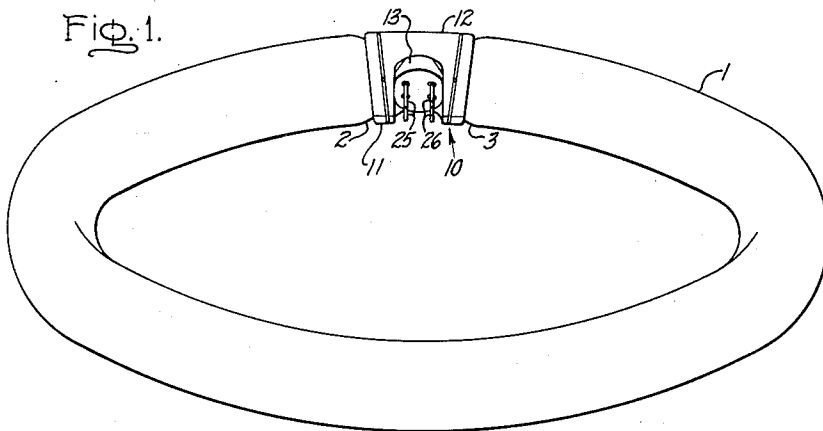


FIG. 2.

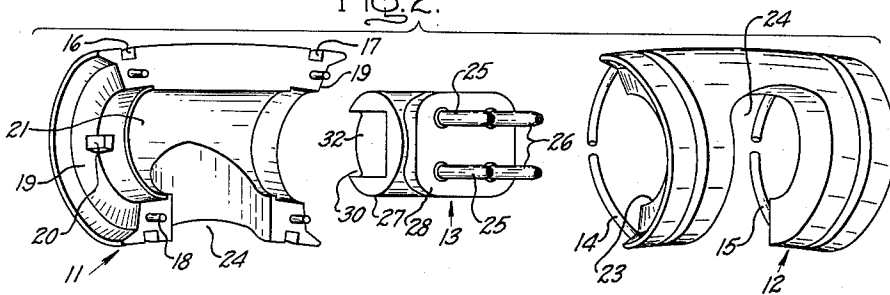
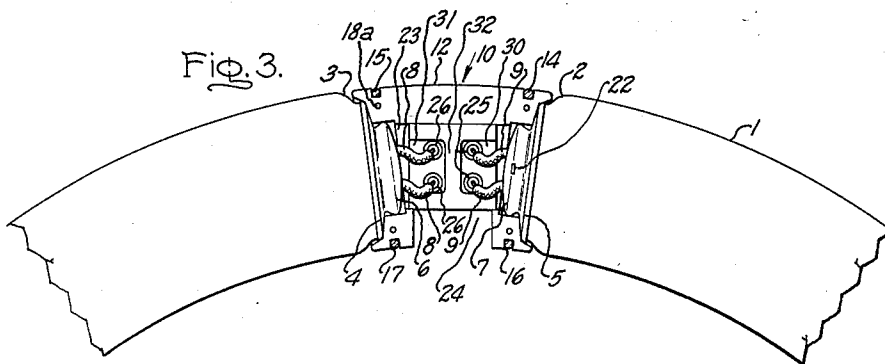


FIG. 3.



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UNITED STATES PATENT OFFICE

2,626,977

MOVABLE CONTACT BASE

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Application November 5, 1947, Serial No. 784,184

3 Claims. (Cl. 173—361)

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The present invention relates to tubular electric lamps such as fluorescent discharge lamps and particularly to such lamps of substantially closed configuration. Fluorescent lamps are now commercially available in which the tubular envelope is bent in the form of a circle with its ends adjacent and directed toward each other. The base for such lamps extends between and engages the ends of the lamp to complete the circle. Contact pins for engaging a socket for the lamp project from the inner side of the base. Lamps equipped with such bases are disclosed and claimed in the U. S. Patent No. 2,339,166, issued January 11, 1944, to Harrison.

An object of the present invention is to provide a lamp of this type in which the contacts are movable around the base so that the pins may be inserted in sockets disposed at various angles to the mounting plane of the lamp. Another object of the invention is to provide such a base of simple structure comprising a minimum number of parts. Further objects and advantages of the invention will appear from the following detail description of a species thereof and from the accompanying drawing in which Fig. 1 is a tilted or perspective view of a circular lamp showing the base embodying my invention; Fig. 2 is an exploded view of the base showing in perspective the various parts thereof; and Fig. 3 is an elevational view with part of the base removed to show the adjacent lamp ends in full and the interior of the base with the lamp in a vertical position and turned about 180° from its position in Fig. 1.

The lamp shown in Fig. 1 is a fluorescent lamp of the positive column discharge type disclosed and claimed in the U. S. Patent No. 2,182,732, issued December 5, 1939, to Meyer et al. The tubular glass envelope 1 of the lamp is bent to a circular outline with the closed ends 2 and 3 of the lamp envelope spaced apart a short distance and directed toward one another. The ends of the lamp envelope have thereon metal end discs 4 and 5 (Fig. 3) constituting the ends of the lamp and presenting on their outer sides apertured bosses 6 and 7 circumferentially constricted adjacent the disc proper as disclosed and claimed in U. S. Patent No. 2,392,661 issued January 8, 1947, to Greiner. These discs 4 and 5 provide a gripping surface useful in bending the tubular lamp to the circular configuration shown. A pair of insulated flexible current leading-in wires 8 and 9 extend from each end of the lamp envelope and through the discs 4 and 5 for connection with the base 10. The base, as shown in Figs. 1 and 3, overlaps and engages the discs 4 and 5, encloses

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the space between the ends 2 and 3 of the lamp envelope and has its outer surface curved longitudinally so that the combined base 10 and envelope 1 have a smooth circular contour.

The base 10 is made up of an outer electrically insulating sleeve longer than the gap between the ends of the lamp, split longitudinally into two sections 11 and 12 and supporting an inner contact carrying member 13. The sleeve is split in a plane including the longitudinal axis of the lamp and the sections 11 and 12 are held together around the lamp ends 2 and 3 by a pair of ring-shaped springs 14 and 15 fitting into a pair of grooves 16 and 17, one adjacent each end of the base 10. The section 11 is provided with a protruding alignment pin 18 near each corner which fits into a corresponding hole 18a in the other section 12 (Fig. 3) to prevent relative displacement of the sections. The ends of the sleeve are in planes which converge toward the center of the circular lamp, have reentrant walls to receive the discs 4 and 5 on the lamp envelope and present shoulders 19 for engaging and butting against the discs. A notch 20 is provided in the inner wall 21 of sleeve section 11 to receive a lug 22 welded to the boss on disc 5 to prevent rotation of the two part sleeve about the lamp ends 2 and 3.

The mid-portion of the sleeve has a single straight bore normal to a diameter of the circular lamp and defined by the inner walls 21 and 23 of sections 11 and 12. A circumferential slot 24 communicates with this bore and is defined by sections 11 and 12. The base member 13 which is of electrically insulating material carries four contact pins arranged in pairs 25 and 26. The cylindrical part 27 of member 13 is slightly longer than the width of slot 24 and fits the straight bore defined by walls 21 and 23 with sufficient play as to be rotatable about its longitudinal axis. The said part 27 has thereon a lateral protrusion 28 which extends part way into the slot 24 and engages the sides thereof for limiting the longitudinal and rotary motion of the cylindrical part 27. The four contact pins 25 and 26 extend outward from the protrusion 28 and through the slot 24 for engaging socket contacts.

The inner ends of the four spaced contact pins 25 and 26 are firmly embedded in the protrusion 28 and the cylindrical part 27 is cut out in back of each pair of pins to expose their inner ends and to provide recesses 30 and 31 at its ends to receive the current leading-in wires 8 and 9.

The outer ends of the flexible leading-in wires 8 are attached to the pins 26 and those of wires

9 to pins 25. The inner ends of wires 8 and 9 are connected with the lamp electrodes in the ends of the lamp in the usual manner. The recesses 30 and 31 are separated by a partition 32 the outer rounded edge of which engages the inner walls 21 and 23 of the sections 11 and 12.

The slot 24 is sufficient in length to allow the contact carrying part 13 to rotate in the sleeve an angular distance of approximately 90° so that the lamp may be mounted in a vertical or a horizontal position or in any position therebetween on a fixture having a lamp socket mounted in a fixed angular position. Thus, the angular position of the socket and the lamp may be changed in different fixtures or in the same fixture for convenience in assembly, or the like.

The ease with which the contact carrying part 13 of the base 10 is rotatable in the stationary outer sleeve 11 and 12 is determined by the dimensions of these base parts and is independent of the spacing of the ends 2 and 3 of the lamp envelope which is difficult to control in bending the envelope 1. The dimensions of the engaging base parts are easily controlled to close tolerances and may be selected to provide either a loose or firm fit between these parts in accordance with the desires of the user.

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

1. A base for an electric lamp having a tubular envelope formed to a substantially closed configuration with its ends directed toward each other, said envelope being of smaller diameter at its end portions than its body portion and having its ends disposed in planes converging inwardly of the lamp, said lamp ends having flexible leading-in wires extending therefrom, said base comprising a tubular insulating sleeve longer than the gap between the ends of the lamp with its end walls re-entrant, disposed in planes at an angle to each other corresponding to that between the planes of the lamp ends and shaped so as to receive and butt against said lamp ends to hold said base therebetween, said sleeve having the same outer diameter as the body portion of the tubular lamp envelope with its outer surface curved longitudinally to the same degree of curvature as said envelop body portion so as to present a smooth surface with said lamp envelope, having a straight bore for receiving the leading-in wires of the lamp and a circumferentially extending slot opening into its interior, said base comprising also a contact carrying member having a generally cylindrical body portion of insulating material frictionally engaging the inner wall of said bore and having a protuberance thereon provided with contacts and engaging the sides of the slot for limiting the rotary and longitudinal movement of the cylindrical portion in the sleeve, the contacts on said protuberance being in the form of pins having their ends embedded in said protuberance and exposed to the interior of the sleeve for connection to the leading-in wires and their outer ends exposed through said slot for connection to a power source, said sleeve having means engageable with means on said lamp to hold said sleeve anti-turningly on said envelope when said contact carrying member is rotated from one position to another in said sleeve.

2. In combination, an electric lamp comprising a tubular envelope of circular shape having its ends closely spaced, directed toward each other and disposed in planes converging toward the

center of the circular lamp, the portions of said envelope back from its ends being of reduced diameter, flexible leading-in wires extending from the ends of the envelope, and a base secured to both ends of said envelope and enclosing said leading-in wires comprising a longitudinally split tubular insulating sleeve longer than the gap between the lamp ends and overlapping the reduced diameter portions of the envelope, having re-entrant end walls receiving said lamp ends, provided with shoulders butting against said lamp ends and being disposed in planes at an angle to each other corresponding to that between the planes of the lamp ends, said sleeve having the same outer diameter as the body portion of the tubular lamp envelope with its outer surface curved longitudinally to the same degree of curvature as said lamp envelope body portion so as to present a smooth continuous surface with said circular lamp envelope, transverse ring-shaped springs on said sleeve to hold it together on said lamp ends, said sleeve having a straight bore and a circumferential slot opening into its interior and said base comprising also a contact carrying member comprising a generally cylindrical body portion of insulating material having contacts projecting therefrom, the said cylindrical portion frictionally engaging the wall of the bore of said sleeve and having thereon a protuberance engaging the sides of the slot for limiting the rotary and longitudinal movements of the cylindrical part in the sleeve, the contacts on said member being in the form of pins having their inner ends embedded in said protuberance and connected to the leading-in wires in the interior of said sleeve and having their outer ends exposed through said slot for connection to a power source, and means on said sleeve and said lamp to hold said sleeve anti-turningly when said contact carrying member is rotated from one position to another in said sleeve.

3. A base for a lamp having an elongated envelope formed to a substantially closed configuration with its ends directed towards each other and electric leading-in wires extending from its ends and comprising: a tubular sleeve having recessed ends shaped to receive and butt against said lamp ends to hold said base between said lamp ends, having means thereon engageable with cooperating means on said lamp to hold said sleeve anti-turningly on said lamp ends, having a straight bore for receiving the leading-in wires and a circumferentially extending slot opening into its interior; said base comprising also a contact carrying member having a generally cylindrical body portion rotatable within the said bore of the sleeve and frictionally engaging the walls thereof and having a protuberance thereon provided with contacts and engaging the sides of the said slot in said sleeve for limiting the rotary and longitudinal movements of said contact carrying member with respect to said sleeve, the contacts on said protuberance being exposed through said slot for connection to a power source and to the interior of said sleeve for connection to the leading-in wires.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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