June 28, 1960 E. G. REAVES 2,943,238

FLUORESCENT LIGHTING

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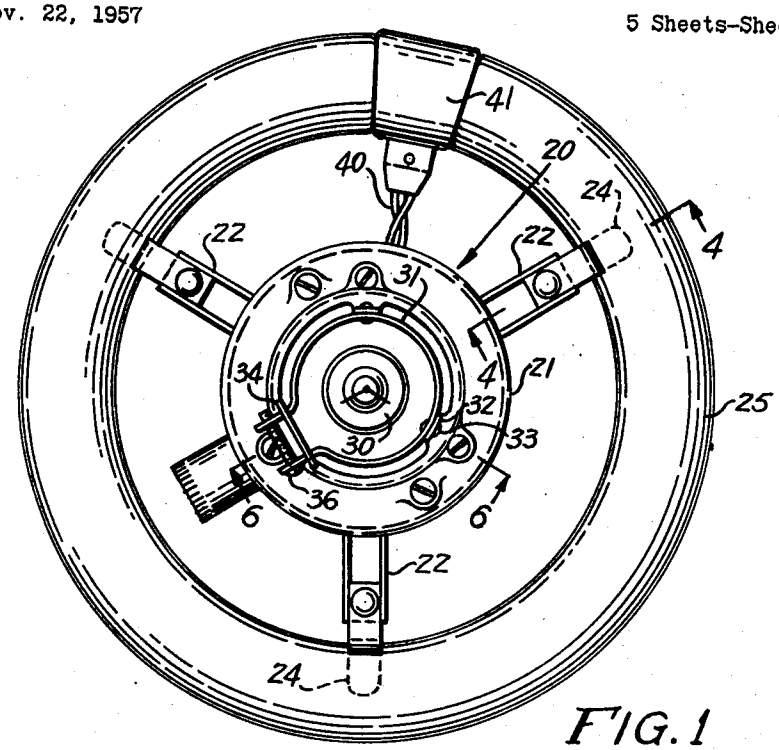


FIG. 1

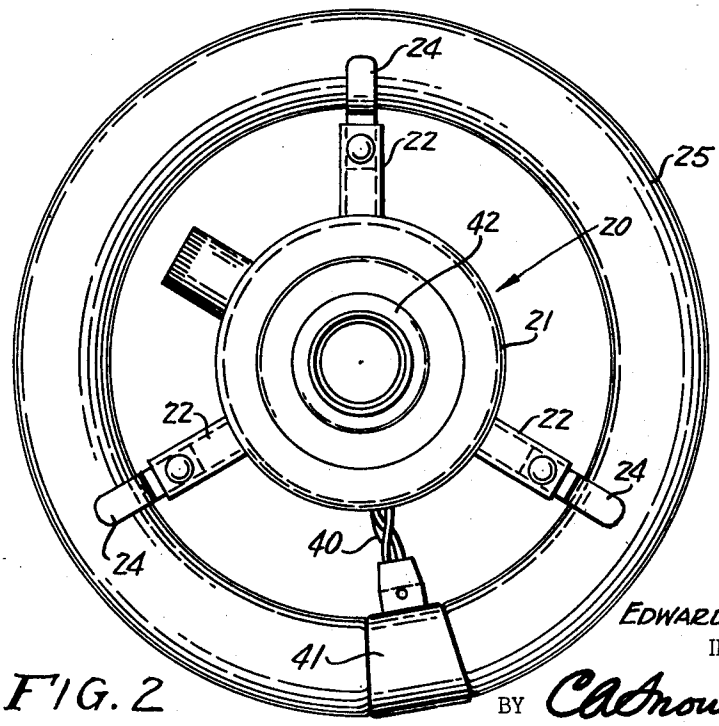


FIG. 2

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FLUORESCENT LIGHTING

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FIG. 3

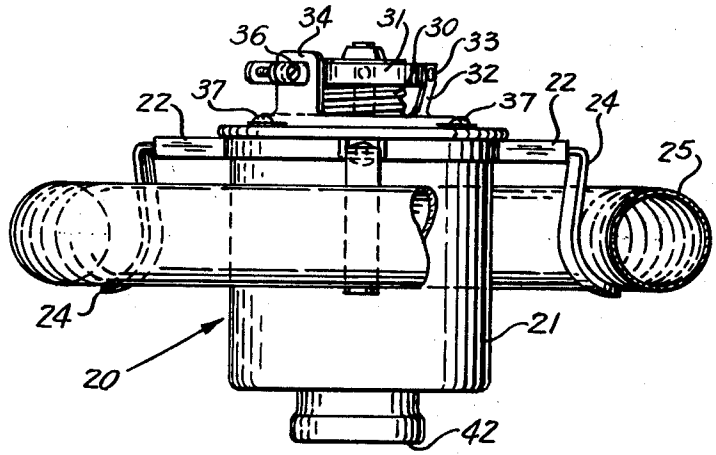


FIG. 4

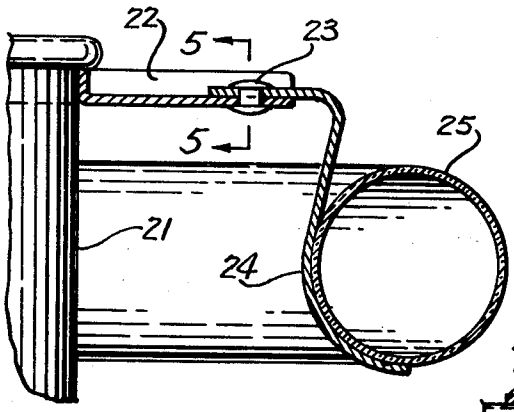
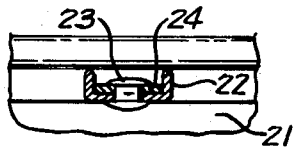


FIG. 5



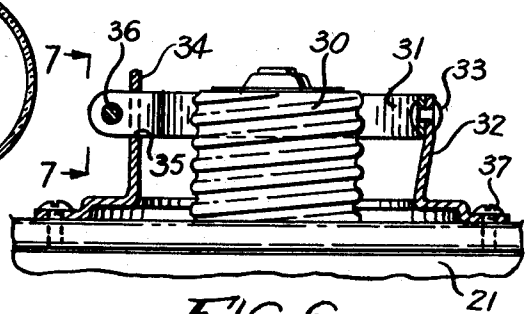


FIG. 6

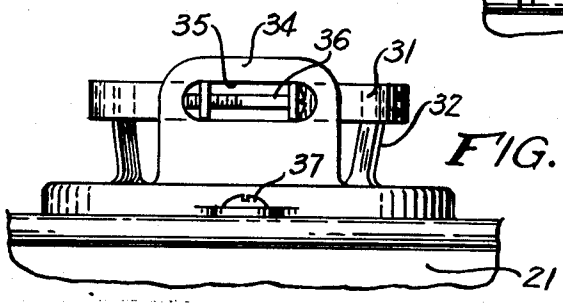


FIG. 7

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FLUORESCENT LIGHTING

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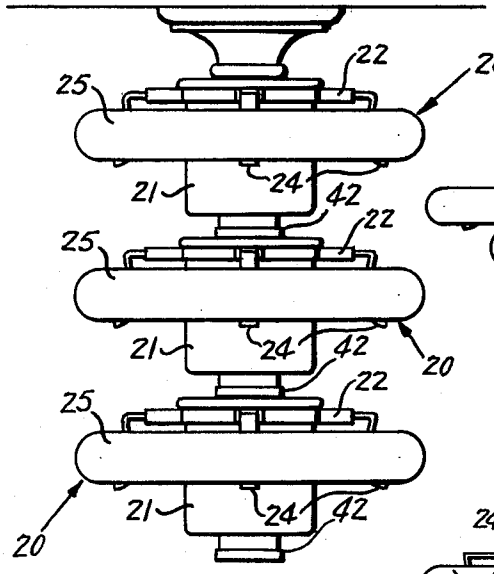


FIG. 8

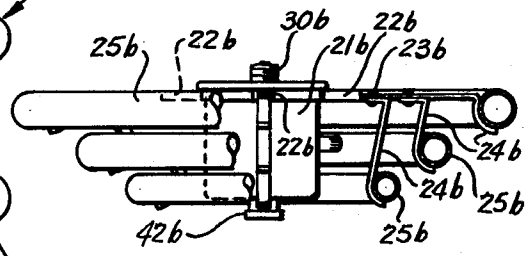


FIG. 11

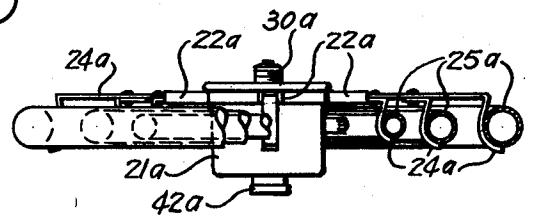


FIG. 10

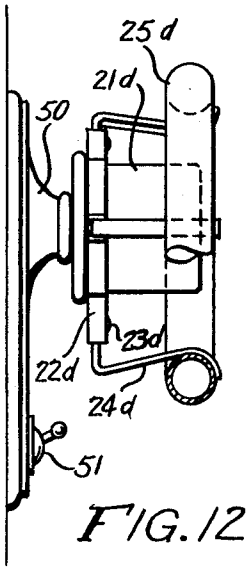


FIG. 12

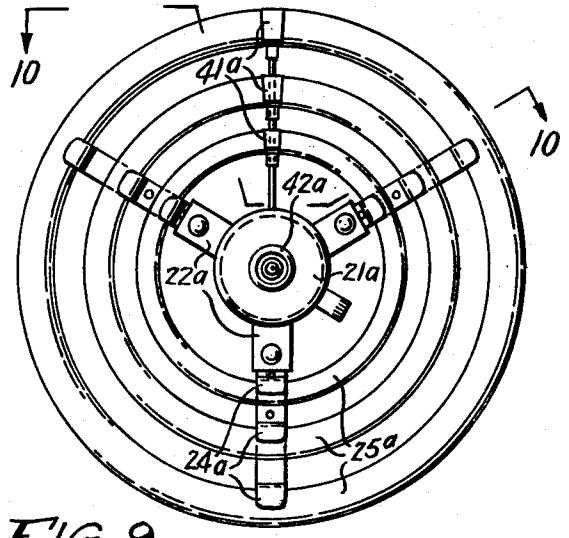


FIG. 9

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FLUORESCENT LIGHTING

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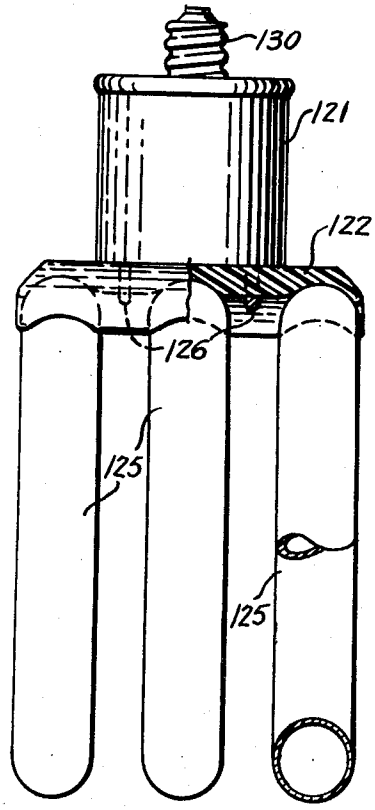


FIG. 14

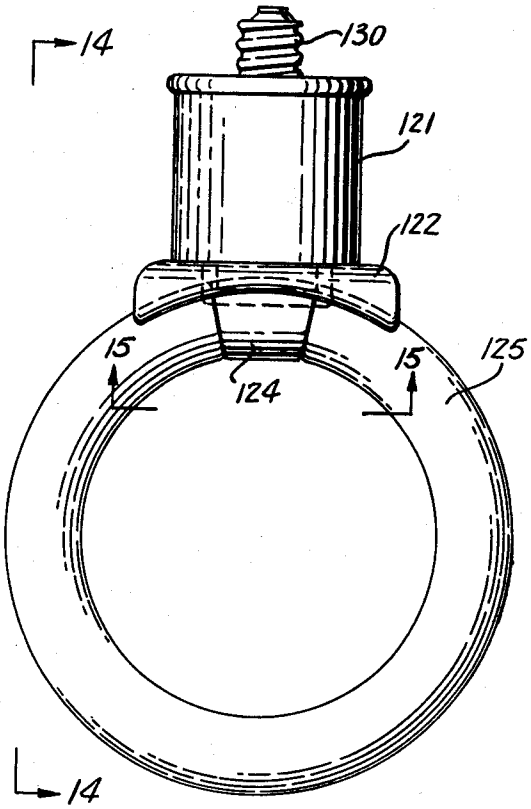


FIG. 13

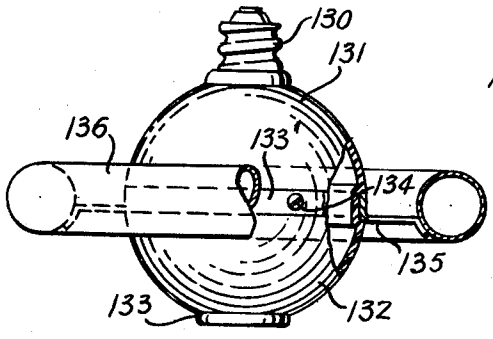


FIG. 16

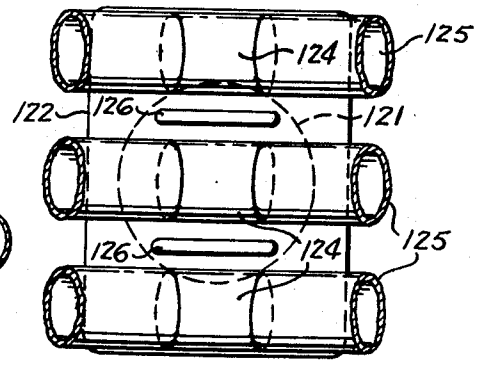


FIG. 15

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FLUORESCENT LIGHTING

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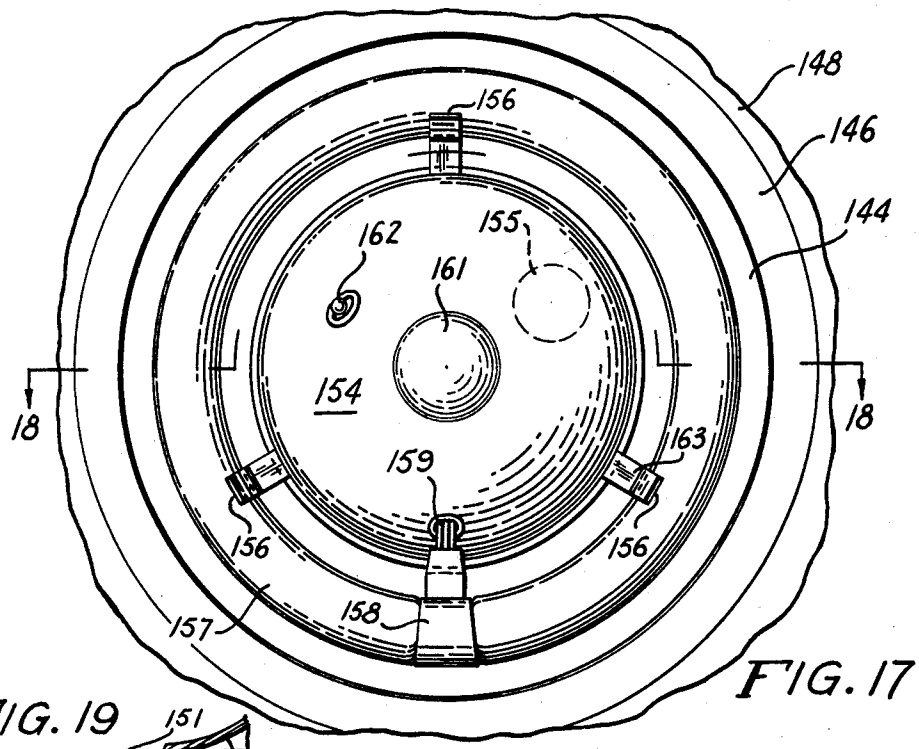


FIG. 17

FIG. 19

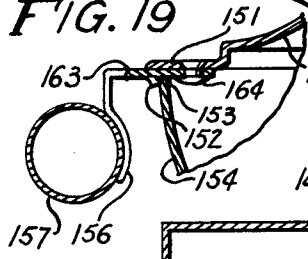


FIG. 18

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United States Patent Office 2,943,238 Patented June 28, 1960

2,943,238

FLUORESCENT LIGHTING

Edward G. Reaves, 206 S. Beltline Blvd., Columbia, S.C.

Filed Nov. 22, 1957, Ser. No. 698,276

2 Claims. (Cl. 315—100)

This invention relates to fluorescent lighting in circular or bulbous form, and has as its primary object the provision of an improved fluorescent lighting which will diffuse the lighting element to all sectors of a selected enclosure.

A secondary object of the invention is the provision of an improved support for such fluorescent lights which will engage circular and tubular elements of fluorescent lighting in an improved manner.

Still another object of the invention is the provision of an improved fluorescent lighting which comprises circular tubes, which may be applied in any desired manner in such fashion they will provide diffused illumination for any enclosure in which they are placed.

Still other objects reside in the provision of a device of this character which is sturdy and durable in construction, reliable and efficient in operation, and relatively simple and inexpensive to manufacture, assemble and install.

Other objects reside in the combinations of elements, arrangements of parts and features of construction, all as will be more fully pointed out hereinafter and disclosed in the accompanying drawings.

In the drawings:

Figure 1 is a top view partially in section of one form of fluorescent lighting device illustrating features of this invention.

Figure 2 is a bottom plan view of the device disclosed in Figure 1.

Figure 3 is a side elevational view of the device partially in section and partially in elevation disclosing the device as installed in one form of the instant inventive concept.

Figure 4 is a sectional view taken substantially along the line 4—4 of Figure 1 on an enlarged scale as viewed in the direction indicated by the arrows.

Figure 5 is a sectional view taken substantially along the line 5—5 of Figure 4 as viewed in the direction indicated by the arrows.

Figure 6 is an enlarged detailed constructional element partially in section as taken substantially along the line 6—6 of Figure 1 as viewed in the direction indicated by the arrows.

Figure 7 is a sectional view taken substantially along the line 7—7 of Figure 6 as viewed in the direction indicated by the arrows.

Figure 8 is a modified view of a constructional form embodying a multiplicity of the elements disclosed in Figure 3.

Figure 9 is a bottom plan view of a still further modified form of construction.

Figure 10 is a sectional view taken substantially along the line 10—10 of Figure 9 as viewed in the direction indicated by the arrows.

Figure 11 is a side view partially in section and partially in elevation disclosing a still further modified form of construction.

Figure 12 is a side view, also partially in elevation and partially in section disclosing a still further modification.

Figure 13 is a side or end view, disclosing still another modification of the instant invention.

Figure 14 is a sectional view, shown partially in elevation, taken substantially along the line 14—14 of Figure 13.

Figure 15 is a sectional view taken substantially along the line 15—15 of Figure 13 as viewed in the direction indicated by the arrows, and

Figure 16 discloses still another modified form of the invention partially in elevation and partially in section.

Figure 17 is a bottom plan view of a still further modified form of the device particularly adapted for insertion into preassembled recessed sockets or fittings.

Figure 18 is a sectional view taken substantially along the line 18—18 of Figure 17 as viewed in the direction indicated by the arrows.

Figure 19 is a detailed transverse sectional view of one of the spring elements for holding the fluorescent light tube.

Having reference now to the drawings, and more particularly to the species of the invention shown in Figures 1 to 7 inclusive, there is disclosed at 20 a fluorescent lighting fixture, which comprises a central supporting element 21, from which extends a plurality of radially disposed arms 22. While in the illustrative embodiment the number of arms shown is three, there may be four or five or six as necessary or desirable. These arms have secured thereto as by means of rivets 23 dependingly arcuate members 24, which are adapted to support a circular fluorescent lighting tube 25. As best shown in Figure 5 the arms 22 are channel-shaped in cross section, to enhance the appearance of the device and to conceal the rivet connections.

The upper end of the fitting 21 is provided with a conventional male plug 30, which is adapted to be associated with any conventional electrical socket, and has surrounding the same a ring 31, supported on uprights 32, to which it is secured by rivets 33, and a side plate 34, having a longitudinally extending aperture 35 therein, in which is positioned a conventional adjusting screw 36 by means of which the ring 31 is adapted to be tightly clamped about any conventional electrical fitting for the purpose of holding the fluorescent lighting assembly 20 in related assembly therewith.

As best shown in Figure 6 the arms are secured to the top of the fitting 21, as by means of screws 37.

Current is supplied to the tube 25, which is filled with the conventional gaseous medium by means of wires 40, and a conventional fitting 41, which connects with the two ends of the separated tubes, in a known manner. The wires 40 are communicated with the plug 30, and the housing 21 contains the conventional transformer or the like for increasing the voltage in order to illuminate the fluorescent tube 25.

In the illustrative embodiment shown in Figures 1 to 7 inclusive, the lower portion of the housing 21 is provided with a female socket 42, which may, if desired be closed by a plug or other medium such as decorative covering to enhance the appearance of the device, but which when exposed may be employed for the attachment of additional elements 20, as best shown in Figure 8. In this arrangement a plurality of assemblies 20 may be connected together in series, to provide increased illumination as may be desired. In this case the clamping ring 31 of each successively lower element is adapted to be clampingly engaged with the lower portion of the socket 42.

Figures 9 and 10 disclose a modified form of device wherein a housing 21*a* is provided with a plug 30*a* having a female fitting 42*a* at its lower extremity, and has extending therefrom a plurality of arms 22*a* substantially identical to the arms 22, but which carry a plu-

rality of depending members 24a, also similar to the members 24, in order to support a plurality of concentric fluorescent tubes 25a, which may be of the same, or different diameters, as best disclosed to Fig. 10.

Connections 41a are also provided to each of the fluorescent tubes, as in the preceding modification.

In Figure 11 there is shown a further modification, which is substantially identical in all structural respects to that of Figures 10 and 11, but which includes a central housing 21b provided with a plug 30b, and radially extending arms 22b, from which depends fittings 24b, substantially identical to the previously disclosed fittings 24 and 24a, but of differing lengths, whereby the tubes 25b are concentrically mounted but depend to different lengths from the top of the fitting 21b, arranged in an inverted pyramidal form. These fittings may also be mounted sequentially due to the presence of a female socket 42b at the lower end of the fitting 21b.

The modification of Figure 12 discloses in general a fluorescent lighting fixture similar to that shown in Figure 1, which includes a body portion 21d, fitted with a male plug, which is not shown, but which is adapted to fit into a side wall fitting 50, and be controlled by a switch 51. The body 21d has extending therefrom radially positioned arms 22d substantially identical in construction to those previously disclosed, and having riveted thereto as by means of rivets 23d, arms 24d, which support a circular fluorescent tube 25d. The chief distinction in this modification is that no provision is provided for the addition of other elements, there being no plug corresponding to the female socket 42.

The modification shown in Figures 13, 14 and 15 comprises essentially the same elements as those of the preceding modification, but includes a plug 130, seated in the top of a housing 121, which contains the previously disclosed elements, but which carries an arcuate base plate 122, provided with a suitable number of recesses, and including clamping elements 124, within which are mounted in vertical position a plurality of circular fluorescent tubes 125. These tubes are provided with connections similar to the previously described connection 41, in order to provide a suitable source of electric power, and the housing or casing 121 contains a similar transformer element, as is conventional. The plate 122 is adapted to be secured to the fitting in any desired manner, as by means of bolts or screws 126.

The modification of Figure 16 discloses an arrangement to that of Figure 1, including a plug 130, and two hemispherical halves 131 and 132, to the upper of which halves is secured the plug 130, the lower half 132 containing the female socket 133. The semi-spherical members are secured together as by means of a tying band 133' held in position by screws 134, the band having arms 135 extending therefrom which carry in horizontal position a neon tube 136. Current is supplied to the tube by a connection similar to the previously described connection 41, and the advantage of this modification is that it may not only be connected in multiple, as in the modification of Figure 1, but that it may be more economically manufactured for the cheaper installation. The bulbous member comprised of halves 131 and 132 contains the transformer elements similar to those described in the foregoing modifications.

Figures 17 and 19 inclusive disclose a still further modified form of the invention particularly adapted for exertion in a previously installed recessed light socket, which may be recessed in either a horizontal or a vertical wall surface. This modification is of particular utility in connection with a previously constructed recessed socket, such as the socket indicated at 140, and supplied with current as through a conduit 141. The socket 140 seats in a built-in receptacle 142, recessed from the wall, and opens into a receptacle 143, having a transverse partition 144 with a relatively large central opening 145, preferably circular in configuration. The receptacle 143 is provided on its face with outwardly extending flange 146, and has a second outwardly extending radial flange 147 positioned interiorly thereof. The flanges 146 and 147 are adapted to seat on opposite sides of a plastered ceiling 148 or wall surface or the like. The fixture of the present invention includes a plug member 149, which is adapted to be threaded into a socket 140 in the conventional manner, and from which depends an outwardly flared upper section 150, which includes a radial flange 151, having an inwardly turned peripheral rim 152, see Fig. 19, which supports the outwardly flared edge 153 of a bowl shaped member 154. The bowl shaped member contains a conventional transformer as previously described, for increasing the voltage to a suitable degree to supply a fluorescent tube.

A conventional starter 155 or the like may be carried on the upper surface of the flange 151.

At suitable spaced intervals about the under side of flange 151 are spring fingers 156, which are similar in configuration to the previously described spring fingers 24, and which are adapted to support a fluorescent lighting ring 157, of circular configuration, which is connected at a suitable point by the usual fitting 158, and supplied with power from the transformer interiorly of the semi-spherical shell 154 by means of wires 159. The lower portion of the member 154 includes a socket 160, which contains the plug of a conventional light bulb 161. A switch member 162 is also provided, which may be used to illuminate either the tube 157 or the bulb 161 individually or together. Each of the spring fingers 156 is provided with a horizontal arm 163, which extends through a suitable aperture in the flange portion 152, and is suitably secured as by means of rivets 164 to the under side of flange 151.

In general use and operation this modification is similar to those previously described.

From the foregoing it will now be seen that there is herein provided an improved fluorescent lighting construction, which accomplishes all of the objects of this invention, and others, including many advantages of great practical utility and commercial importance, and which is adapted to a relatively wide variety of functions and arrangements, as desired.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiments herein before shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

What I claim is:

1. In a fluorescent lighting fixture, a cylindrical support, circumferentially spaced and radially extending arms of U-shape in cross section mounted on said support, clips each having one end bent at right angles to the main body and received between sides of said U-shaped arms and having their opposite ends curved to support a toroidal fluorescent tube, and attachment means for securing the right angle ends of said clips to the U-shaped arms.

2. In a fluorescent lighting fixture, a cylindrical support, circumferentially spaced and radially extending arms mounted on said support, clips secured to said arms extending generally at right angles with respect thereto and having curved outer ends adapted to support a toroidal fluorescent tube, a screw plug secured to the top of said cylinder in inverted and co-axial position, an annular base secured to the top of the cylinder and surrounding said plug and having a pair of diametrically positioned uprights at right angles to its main body, and an aperture in one of said uprights, a clamping ring adapted to engage an electrical fitting secured to the other of said uprights in co-planar relationship with the bottom of said screw plug and having ears on its ends

extending through the aperture in the first of said uprights, and a screw extending through said ears for contacting the clamping ring.

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