March 18, 1952 E. J. ZELT 2,589,760

LIGHTING FIXTURE FOR CIRCULAR TUBULAR DISCHARGE LAMPS

Filed May 28, 1948

Fig. 1.

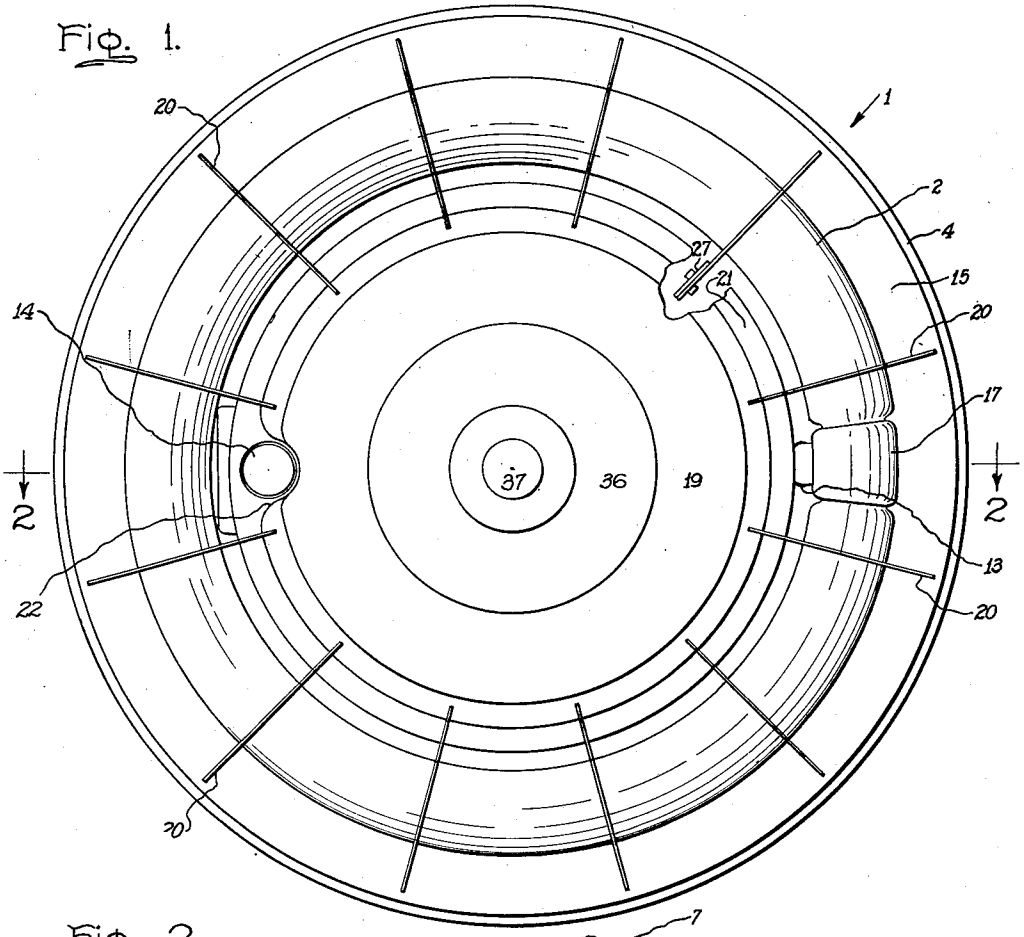


Fig. 2.

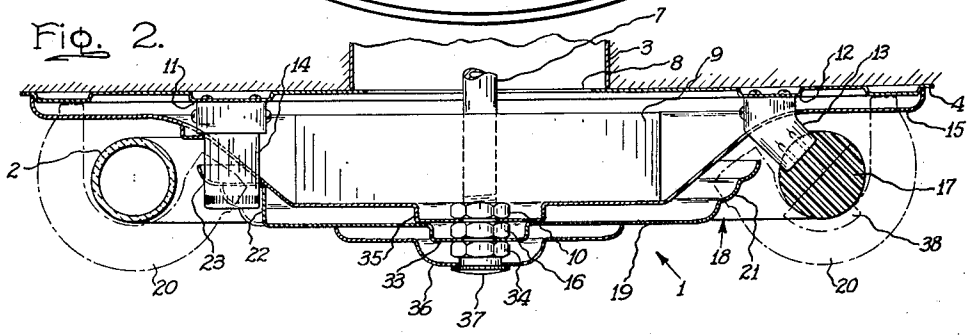


Fig. 4.

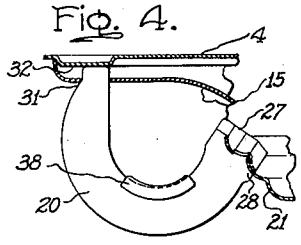
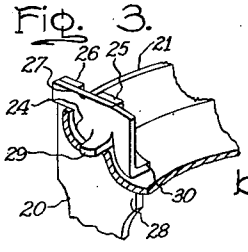


Fig. 3.



Inventor:
Elmer J. Zelt,
by Vernet C. Kauffman
His Attorney.

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LIGHTING FIXTURE FOR CIRCULAR TUBULAR DISCHARGE LAMPS

Elmer J. Zelt, Fort Wayne, Ind., assignor to General Electric Company, a corporation of New York

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2 Claims. (Cl. 240—51.12)

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My invention relates to lighting fixtures and more particularly to such fixtures for circular fluorescent lamps.

An object of my invention is to provide a ceiling-mounted lighting fixture for accommodating a circular tubular lamp and the auxiliary equipment for the lamp, including the lamp ballast and the starting switch.

Another object of my invention is to provide a lamp holder for supporting and shielding a circular tubular lamp.

Further objects and advantages of my invention will appear from the following detailed description of species thereof and from the accompanying drawing in which Fig. 1 is a bottom plan view of a lighting fixture constructed in accordance with my invention; Fig. 2 is a sectional elevational view taken along the line 2—2 of Fig. 1; Fig. 3 is a fragmentary view of part of the lamp holder in the fixture, and Fig. 4 is a similar view of another part of the lamp holder.

Referring to Figs. 1 and 2 of the drawing, the fixture 1 with the lamp 2 in position is shown mounted on a conduit box 3 recessed in a ceiling and with its ceiling plate 4 secured to the conduit box 3 and against the ceiling by the bolts customarily provided for such boxes having covers. In mounting the fixture 1, the said plate 4 is first secured to the said box 3 with the usual pipe fitting or conduit 7 passing through the central opening 8 in the plate 4. The lamp ballast, which may be a choke coil or an autotransformer, is enclosed in a circular casing 9 having a central opening or passage therethrough to receive the pipe fitting 7 and through which the wiring connections are made. The casing 9 is mounted on the pipe 7 after the plate 4 is in position and is held on the pipe by the nut 10 engaging the threaded end of the pipe 7. Obviously, the casing 9 may be held up against ceiling plate 4 by pipe 7 and nut 10 to support plate 4 in the absence of bolts in the conduit box 3. The ceiling plate 4 is provided with two raised portions 11 and 12 spaced from the ballast casing 9 and to which the usual lamp socket 13 and starting switch assembly 14 are bolted before the plate 4 is mounted on the ceiling. After the ceiling plate 4 and the ballast casing 9 are in position, the usual electrical connections between the power terminals in the box 3, the ballast in casing 9, the switch 14 and the socket 13 are made.

The reflector plate 15 is then mounted on the end of the pipe 7 and is held against nut 10 and the bottom of the ballast casing 9 by a second

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nut 16. The reflector plate 15 not only redirects incident light from the lamp 2 but also, with the ceiling plate 4, forms a housing enclosing all exposed connections, the wires and the ballast for the lamp 2. The end of the lamp socket 13 and of the starter switch 14 extend through openings provided in the reflector plate 15 so that the switch 14 is accessible for replacement and the socket 13 for inserting the usual contact pins on the lamp base 17.

With the reflector plate 15 in position, the contact pins on the base 17 are inserted in the socket 13 and the lamp 2 is held by hand underneath the reflector plate 15 until the lamp holder 18 is mounted on the pipe fitting 7.

The holder 18 is in the form of a spider having a hub consisting of a dished plate 19 and having also a plurality of curved arms in the form of louvers 20 extending radially outward from the plate 19. The latter has a fluted side wall 21 which is reflecting and has an indented part 22 around an opening 23 through which extends the end of the starter switch 14. The side wall 21 also has a plurality of radial, spaced slots 24 (Fig. 3) adjacent its rim. Each of the louvers 20 has a pair of spaced prongs 25 and 26 at one of its ends as shown in Fig. 3. The prong 25 extends through a slot 24 and the other prong 26 is disposed outside the wall 21 of the plate 19 and extends above it. Each of the louvers 20 is rigidly secured to the plate 19 by a bracket 27 spot-welded to the ends of the prongs 25 and 26 projecting above the wall 21 as shown in Fig. 3. The bracket 27 has a curved lower edge engaging the inner surface of the fluted wall 21 and the louver 20 has a curved shoulder 28 engaging the outer surface of said wall 21. Flanges 29 and 30 extending in opposite directions from bracket 27 and engaging the upper and lower inner curved surfaces of wall 21, respectively, are provided on the bracket 27 to prevent wobbling of the louver 20 on the plate 19 when the fixture 1 is being mounted on the ceiling. Flanges 29 and 30 also may be spot-welded to the wall 21 to increase the rigidity of the holder and to facilitate the welding of the bracket 27 and the flanges 29 and 30 together by anchoring the bracket before the flanges are welded thereto.

The opposite ends of the louvers 20 are provided with narrow tongues which fit into radial slots 31 (Fig. 4) provided adjacent to the periphery of the reflector plate 4 and bear against the annular raised section 32 of the ceiling plate to provide rigidity to the assembled fixture.

The center portion 33 of the plate 19 is cupped

to accommodate the nut 16 holding the reflector plate 15 and has a central opening for receiving the threaded end of the pipe 7 to which it is attached by the nut 34. The cupped central portion 33 of the plate 19 is smaller in diameter than the similar portion 35 of the reflector plate 15 so that the said plate 19 engages the bottom of the cupped portion 35 of the plate 15 to space the two plates apart as shown in Fig. 2.

With the lamp holder 18 secured in position as described above, the lamp 2 is released from the hand to rest on the louvers 20 by which it is firmly supported in the fixture 1. The decorative cap 36 is then mounted on the pipe and is held against the plate 19 by the decorative nut 37 having a finger-grippable flange engaging the cap 36. Lamp replacement is readily effected by removing the two nuts 37 and 34 to release the cap and the holder 18 from the fixture 1.

It is not necessary that all the louvers 20 engage the glass envelope of the lamp 2 and, in fact, I prefer to restrict the number of louvers engaging the lamp envelope to the minimum required for its firm support and to interpose material of lower heat conductivity than that of the metal louver between the latter and the glass envelope of the lamp. This structure minimizes the loss of heat from the lamp envelope through the louvers and the lamp, which is designed for operation at maximum efficiency with a predetermined envelope temperature, is thus substantially unaffected in its operation by the louvers 20. In Fig. 4 of the drawing I have illustrated a louver 20 provided with a lining 38 of organic plastic, such as methylmethacrylate, in the form of a curved strip grooved to fit over the inner edge of the louver 20 and which engages the lamp envelope to serve as a heat insulator. The louver 20 on either side of the lamp base 17, and two or three others spaced at suitable intervals around the lamp envelope, may be provided with similar linings 38 which also engage the lamp envelope. The other louvers are thus spaced from the envelope of lamp 2 as shown at the left of Fig. 2.

The various parts of the fixture may be stamped from thin steel sheets to provide an inexpensive and attractive lighting fixture.

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

1. A shallow lighting fixture for a circular tubular discharge lamp and a ballast therefor comprising, in combination, a circular housing larger in diameter than the outside diameter of the circular lamp and made up of a flat circular plate and a dished circular reflector plate each having a center opening providing a bore through said housing, a threaded conduit extending through said bore and a nut on said conduit holding the reflector plate with its edge against the flat plate and the flat plate against a suitable support to enclose the lamp ballast within the housing, a lamp holder in the form of a spider having a circular dished hub having a central hole fitted over said conduit, a nut on said conduit clamping said hub against the center portion of the reflector plate with the side wall thereof spaced from and overlapping part of the side wall of said reflector plate, and radially extending arms attached to the side wall of said hub for supporting a circular tubular lamp opposite said wall and in front of the housing.

2. A shallow lighting fixture for a circular tubular discharge lamp and a ballast therefor comprising, in combination, a circular housing larger in diameter than the outside diameter of the circular lamp and made up of a flat circular plate and a dished circular reflector plate each having a center opening providing a bore through said housing, a threaded conduit extending through said bore and a nut on said conduit holding the reflector plate with its edge against the flat plate and the flat plate against a suitable support to enclose the lamp ballast within the housing, a lamp holder in the form of a spider having a circular dished hub having a central hole fitted over said conduit, a nut on said conduit clamping said hub against the center portion of the reflector plate with the side wall thereof spaced from and overlapping part of the side wall of the reflector plate, and radially extending arms attached to the side wall of said hub for supporting a circular tubular lamp opposite said wall and in front of the housing, said arms being shaped in the form of louvers for shielding the lamp and extending into engagement with said housing.

ELMER J. ZELT.

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