LIGHTING FIXTURE OF THE RECESSED CEILING TYPE

INVENTOR
ARTHUR ROBERTS

BY HYDE AND MEYER
ATTORNEYS
This invention relates to lighting fixtures and more particularly, to lighting fixtures of the recessed ceiling type.

Among the objects of the present invention is the provision of a lighting fixture of a form adapted to be readily and conveniently mounted or installed in a ceiling opening with the lower end of the fixture flush or nearly so with the exposed ceiling surface; in which the lamp bulb of the fixture may be readily and conveniently adjusted, for focusing or other purposes, along the longitudinal axis of the fixture; in which a burned out lamp bulb may be easily and conveniently replaced; and which fixture is generally characterized by its structural simplicity, its manufacturing economy and its operating efficiency.

Other objects of the present invention will be referred to in or will be evident from the following description of one embodiment of the invention, as illustrated in the accompanying drawings, in which:

Fig. 1 is a longitudinal sectional view of a lighting fixture embodying the present invention, the fixture being mounted or installed in a ceiling opening;

Fig. 2 is a bottom plan view thereof, the lamp bulb of the fixture being omitted;

Fig. 3 is a cross sectional view of the fixture, on the line 3---3. Fig. 1; and

Fig. 4 is a similar cross sectional view, on the line 4---4, Fig. 1.

Before the lighting fixture here illustrated is specifically described, it is to be understood that the invention here involved is not limited to the structural details or the particular arrangement of parts here shown, as lighting fixtures embodying the present invention may take other forms. It also is to be understood that the phraseology or terminology herein employed is for purposes of description and not of limitation, the scope of the present invention being denoted by the appended claims.

The present improved lighting fixture comprises a suitable body or housing which here is in the form of a tubular sheet metal member 10, the inner or upper end of which is closed by a cup-shaped disc 11 riveted at 12 or otherwise suitably retained in place. As here shown, the closure disc 11 is provided with one or more apertures 13, through which may extend the circuit lead wires 14, and if desired, one or more ventilating openings 15 may be provided in the body or housing member 10. Said ventilating openings are not essential, however, and may be omitted.

Extending through and depending from the closure disc 11 are two or more threaded rods 16, there being three such rods, in circumferentially spaced relationship, in the present embodiment of the invention. For the rigid securement of the headed upper ends of said rods to the closure disc 11, clamping nuts 18a are here utilized, said nuts being threaded on said rods and engaging the closure disc from below and the headed ends of said rods engaging the closure disc from above. Adjustably mounted on the lower end portions of said rods is a disc-shaped plate 17 to which is centrally secured, in any suitable manner, a standard lamp socket 19 for the reception of the base of a depending lamp bulb 19, the bulb preferably being of the sealed-in reflector type. As here shown, the disc-shaped plate 17 is clamped between a pair of nuts 20 threaded on the lower end portion of each rod, and by simple manipulation of the nuts 20 of each rod, said plate and the lamp bulb 19 carried thereby may be adjusted up and down, for focusing or other purposes, along the longitudinal axis of the body or housing member 10. The adjustment is one which can be easily and conveniently made, either before or after the fixture is mounted in place, and without the necessity of having any parts extend above the body or housing member 10.

The attaching and supporting means, by which the fixture is mounted or installed in a ceiling opening, such as the opening 22 of the ceiling panel 23, includes a sleeve or band 24 to which are riveted or otherwise suitably secured two or more bendable metal strips 25, there being three such strips, in circumferentially spaced relationship, in the present fixture. If desired, each of these strips may be provided with one or more openings 26 through which may extend screws or the like for the securement of said strips to the upper surface of the ceiling panel 23. As here shown, the lower edge of the sleeve or band 24 is circumferentially slotted to provide a series of tongues 27 which are bent laterally outward above and below, and which are soldered or otherwise permanently secured to the inner edge of a ring 28, the sleeve or band 24 and the ring 28 being thus made a unitary structure. If desired, however, the ring 28 may be formed as an integral part of the sleeve or band 24, as will be readily understood.

To enable the present fixture to be easily and conveniently mounted or installed within the ceiling opening 22, the ring-carrying sleeve or band 24 is suitably formed for the detachable connection thereto of the lower end portion of the body or housing member 10. For such purpose, the sleeve or band 24 is provided with two or more circumferentially spaced openings and with a threaded nut 25. In alignment with each of said openings, the nuts being soldered or otherwise permanently secured to the sleeve or band. The lower end portion of the body or housing member 10 is provided with a corresponding set of openings, and by the use of screws 30, said housing or body member may be detachably connected to the sleeve or band, as will be readily understood.
In mounting or installing the fixture, as thus far described, in the ceiling opening 22, the sleeve or band 24 is first positioned in said opening, with the straps 25 extending upwardly in un bent form and with the ring 26 and band 24 in engagement with the lower surface of the ceiling panel 23, as in Fig. 1. Inasmuch as the body or housing member 10 is disconnected from the sleeve or band 24 and hence not yet in place, it is a simple matter to reach up through the sleeve or band 24 and bend the upper portions of the straps 25 down against the upper surface of the ceiling panel 23, and to secure said straps, by screws or otherwise, to said panel. The body or housing member 10, with the lamp bulb 19 in place and with the lead wires 14 connected to the socket 18, is then pushed into position within the sleeve or band 24, the lower end portion of said body or housing member being thereafter detachably connected to the sleeve or band by the use of the screws 30.

To determine the size and shape of the bottom opening of the fixture and to give the fixture a finished and pleasing appearance from below, the fixture also includes a suitable bottom cover plate.

The cover plate here shown comprises a simple structural member having a membranous portion 31 of disc-like form and an upturned circumferential flange 32 adapted to seat inside of (as here) or outside of a depending circumferential flange 33 with which the ring 38 is provided. Centrally located in the disc-like portion 31 is an opening 34 for the downward passage of light rays emanating from the lamp bulb 19, said opening being of any desired size and of any desired shape, such as round or oval, or rectangular, as here shown. If desired, an upwardly extending duck-forming flange or wall 35 may be provided at the periphery of the opening 34 to confine the light rays passing downwardly through said opening to the desired occluded angle, said flange or wall being here shown as an integral part of the cover plate, although of course, it could be a separate member or otherwise suitably secured to the disc-like portion 31.

To detachably retain the cover plate in position, an annulus 36 is riveted at 37 or otherwise suitably secured within and to the body or housing member 10 in spaced relation thereto and just below the lower end of the depending lamp bulb 19, the spacing of the annulus 36 and the housing 10 being effected by the use of suitable spacing elements 37a, Figs. 1 and 4. Extending upwardly through the disc-like portion 31 of the cover plate, with headed ends below and supporting the portion 31, are two or more threaded rods or bolts 38, there being three such rods or bolts, in circumferentially spaced relationship about the light-transmitting opening 34, in the present embodiment of the invention. Threaded upon the upper ends of the rods or bolts 38 are or on each of said upper end portions 40 adapted to be hooked over the annulus 36 of the body or housing member 10.

Therefore, after the ring-carrying sleeve or band 24 is secured in position within the ceiling opening 22, with the ceiling panel 23 disposed between the ring 26 and band 24 and the downwardly bent upper end portions of the straps 25, and after the body or housing member 10 is secured to said sleeve or band by the screws 30, the bottom cover plate may be easily and conveniently mounted in place, the clips 39 on the upper ends of the rods or bolts 38 being readily hooked over the annulus 36 of the body or housing member 10 by reaching up through the light-transmitting opening 34 of the cover plate.

At any time, when desired, the cover plate may be readily removed or replacement, replacement or adjustment of the lamp bulb 19, by merely unscrewing the threaded rods or bolts 38 to disconnect the clips 39 from the housing annulus 36, the exposed headed lower ends of said rods or screws being sloshed, if desired and as here shown, forming a cover plate 34 to replace the lower end of said cover plate, ready when said may be conveniently removed, after removal of the bottom cover plate, by merely unscrewing the screws 30 which connect said member with the sleeve or band 24.

If desired, of course, the opening 34 of the bottom cover plate may be provided with a glass or other light transmitting member, of either transparent or translucent character, and of either colored or uncolored nature. Similarly, openers may be provided for the cover plate opening 34, if that is desired.

To those skilled in the art to which the present invention relates, other features and advantages of lighting fixtures embodying the invention will be evident from the foregoing description of one such embodiment.

Where I first centralize 1. A lighting fixture for a ceiling opening and capable of being installed from below said ceiling, comprising an annular mounting band for disposition within said ceiling opening and provided with upper and lower outwardly extending means for respective engagement with the upper and lower surfaces of said ceiling to thereby secure the mounting band within the ceiling opening, an upwardly extending tubular housing open at its lower end, the lower end portion of said housing being secured to and having telescopic engagement with said mounting band, lamp socket means within said housing in spaced relation to the open lower end thereof, a cover for the open lower end of said housing and have a light-transmitting opening in registry with said housing member, the outer edge portion of said cover underlying and thereby substantially concealing the mounting band means which engages the lower surface of said ceiling, and means for detachably securing said cover to said housing after said mounting band has been secured within in said ceiling opening and said housing has been secured within said ceiling opening and said housing has been secured to said mounting band, said securing means comprising a ring-like element within and secured to said housing, and hook-shaped clips carried by said cover for detachable connection to said ring-like element, the connection of said clips to said ring-like element being effected through the light-transmitting opening of said cover.

2. A lighting fixture for a ceiling opening and capable of being installed from below said ceiling, comprising an annular mounting band for disposition within said ceiling opening and provided with upper and lower outwardly extending means for respective engagement with the upper and lower surfaces of said ceiling to thereby secure the mounting band within the ceiling opening, said sleeve or band and the downwardly bent upper end portions of the straps and after the body or housing member is secured to said sleeve or band by the screws, the bottom cover plate may be easily and conveniently mounted in place, the clips on the upper ends of the rods or bolts being readily hooked over the annulus of the body or housing member by reaching up through the light-transmitting opening of the cover plate.
light-transmitting opening in registry with said housing opening the outer edge portion of said cover underlying and thereby substantially concealing the mounting band means which engages the lower surface of said ceiling, and means for detachably securing said cover to said housing after said mounting band has been secured within said ceiling opening and having telescopic engagement with said mounting band, said securing means comprising a ring-like element within and secured to said housing, screw elements extending upwardly through said cover into said housing and having manipulating heads abutting the lower surface of said cover, and hook-shaped clips threaded onto the upper end portions of said screw elements for detachable connection to said ring-like element, the connection of said clips to said ring-like element being effected through the light-transmitting opening of said cover.

3. A lighting fixture for a ceiling opening and capable of being installed from below said ceiling, comprising an annular mounting band for disposition within said ceiling opening and provided with upper and lower outwardly extending means for respective engagement with the upper and lower surfaces of said ceiling to thereby secure the mounting band within the ceiling opening, an upwardly extending tubular housing open at its lower end, the lower end portion of said housing being secured to and having telescopic engagement with said mounting band, lamp socket means within said housing in spaced relation to the open lower end thereof, a cover for said housing after said mounting band has been secured within said ceiling opening and said housing having a light-transmitting opening in registry with said housing opening, the outer edge portion of said cover underlying and thereby substantially concealing the mounting band means which engages the lower surface of said housing, and means for detachably securing said cover to said housing after said mounting band has been secured within said ceiling opening and having telescopic engagement with said mounting band, lamp socket means within said housing in spaced relation to the open lower end thereof, a cover for the open lower end of said housing and having a light-transmitting opening surrounded by a continuous flange surface of said cover, and hook-shaped clips threaded onto the upper end portions of said screw elements for detachable connection to said ring-like element, the connection of said clips to said ring-like element being effected through the light-transmitting opening of said cover.

4. A lighting fixture for a ceiling opening and capable of being installed from below said ceiling, comprising an annular mounting band for disposition within said ceiling opening and provided with upper and lower outwardly extending means for respective engagement with the upper and lower surfaces of said ceiling to thereby secure the mounting band within the ceiling opening, the mounting band means for engagement with the lower surface of the ceiling being an annular flange having a downturned marginal edge portion, an upwardly extending tubular housing open at its lower end, the lower end portion of said mounting band being secured to and having telescopic engagement with said mounting band, lamp socket means within said housing in spaced relation to the open lower end thereof, a cover for the open lower end of said housing and having a light-transmitting opening in registry with said housing opening, said cover being of a size to fit within the downturned edge portion of said mounting band flange and said cover having an upturned marginal edge portion extending alongside said downturned edge portion of said mounting band flange, and means for detachably securing said cover to said housing after said mounting band has been secured within said ceiling opening and said housing having been secured to said mounting band, the securing of said cover to said housing being effected through the light-transmitting opening of said cover.

5. A lighting fixture for a ceiling opening and capable of being installed from below said ceiling, comprising an annular mounting band for disposition within said ceiling opening and provided with upper and lower outwardly extending means for respective engagement with the upper and lower surfaces of said ceiling to thereby secure the mounting band within the ceiling opening, the mounting band means for engagement with the upper surface of said ceiling comprising a series of bendable fingers initially upright and which are bent outwardly and downwardly onto the upper surface of the ceiling after the mounting band has been positioned in the ceiling opening, an upwardly extending tubular housing open at its lower end, the lower end portion of said housing being secured to and having telescopic engagement with said mounting band, lamp socket means within said housing in spaced relation to the open lower end thereof, a cover for the open lower end of said housing and having a light-transmitting opening in registry with said housing opening, said cover being of a size to fit within the downturned edge portion of said mounting band flange, and means for detachably securing said cover to said housing after said mounting band has been secured within said ceiling opening and said housing having been secured to said mounting band, the securing of said cover to said housing being effected through the light-transmitting opening of said cover.

ARTHUR ROBERTS.

REFERENCES CITED

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

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,036,194</td>
<td>Daggett</td>
<td>Aug. 20, 1912</td>
</tr>
<tr>
<td>1,236,373</td>
<td>Hotchkin</td>
<td>Aug. 7, 1917</td>
</tr>
<tr>
<td>1,787,486</td>
<td>Smith</td>
<td>Jan. 6, 1931</td>
</tr>
<tr>
<td>1,847,169</td>
<td>Buchanan</td>
<td>Mar. 1, 1932</td>
</tr>
<tr>
<td>1,269,852</td>
<td>Reader</td>
<td>Aug. 2, 1933</td>
</tr>
<tr>
<td>2,124,417</td>
<td>Hamel et al.</td>
<td>July 19, 1938</td>
</tr>
<tr>
<td>2,152,197</td>
<td>Levy</td>
<td>Mar. 28, 1939</td>
</tr>
<tr>
<td>2,227,655</td>
<td>Levy</td>
<td>Jan. 7, 1941</td>
</tr>
<tr>
<td>2,305,015</td>
<td>Langer</td>
<td>Dec. 15, 1942</td>
</tr>
<tr>
<td>2,313,131</td>
<td>Elias</td>
<td>Mar. 9, 1943</td>
</tr>
<tr>
<td>2,494,108</td>
<td>Handler</td>
<td>Jan. 6, 1948</td>
</tr>
</tbody>
</table>