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HOLDING MEANS FOR DIFFUSER OF LIGHTING FIXTURES

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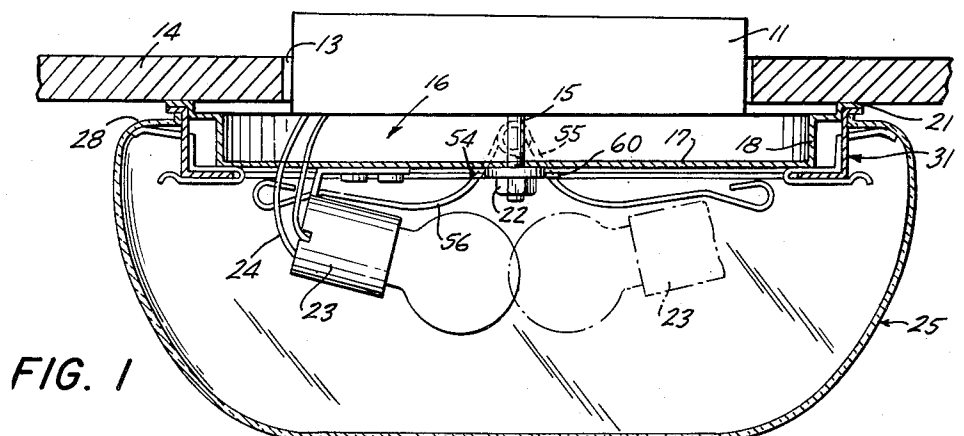


FIG. 1

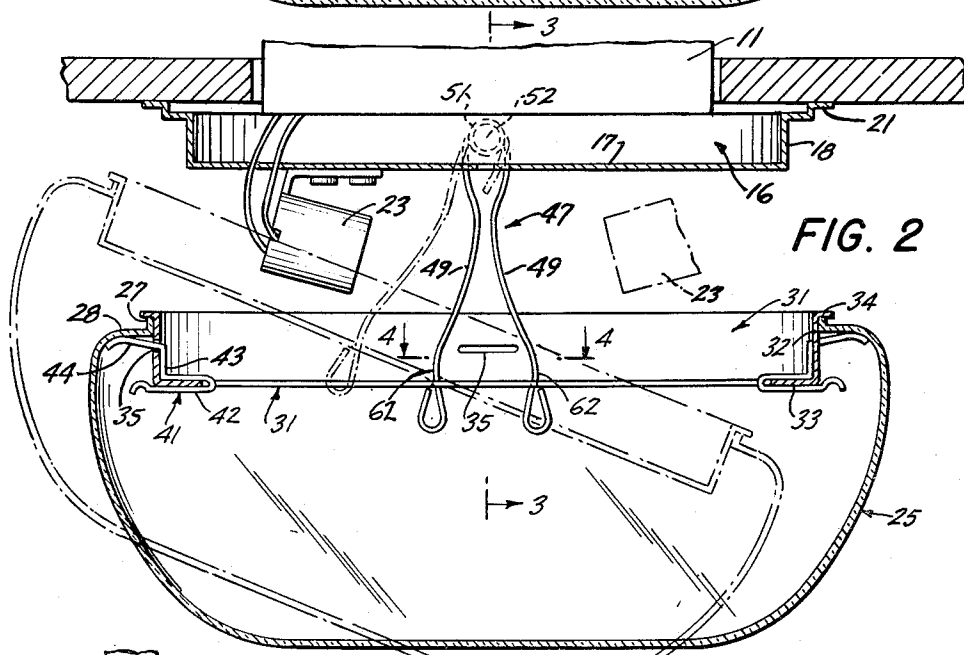


FIG. 2

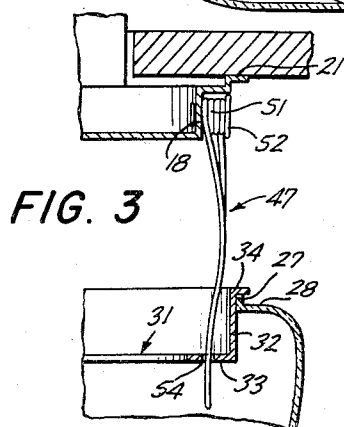


FIG. 3

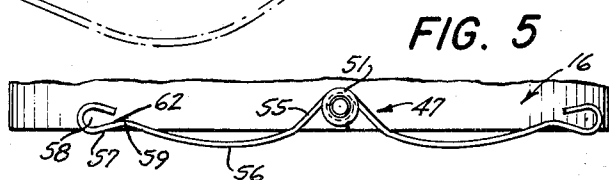


FIG. 5

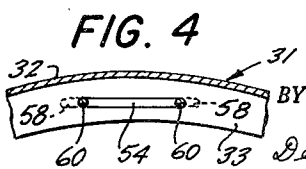


FIG. 4

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1

3,024,356 HOLDING MEANS FOR DIFFUSER OF LIGHTING FIXTURES

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This invention relates to the art of lighting fixtures and more particularly to the diffuser holding means thereof.

As conducive to an understanding of the invention, it is noted that when a translucent globe, for example, that forms the diffuser of a lighting fixture is releasably retained in juxtaposition with a lamp mounting member, by means of a holder clip which has legs that extend a considerable distance into the globe, the shadows cast by the legs of the holder clip when the globe is illuminated would be visible to the occupant of the room in which the fixture is installed, producing an undesirable effect.

It is accordingly among the objects of the invention to provide retaining means for the translucent diffuser of a lighting fixture, which is simple in construction and may readily be fabricated at low cost, which enables the diffuser to be readily displaced from the lamp mounting member to provide access to the latter for relamping and also to facilitate cleaning of the diffuser, without likelihood of dropping of the diffuser or need to hold the latter while servicing the fixture, and which permits ready replacement of the diffuser to closed position in juxtaposition with the lamp mounting member and secure retention thereof in such position, with substantially no shadows being cast by the retaining means, and with complete concealment of the retaining means when the diffuser is in closed position, and which also permits complete physical removal from and replacement of the diffuser on the lamp mounting member, all without the use of tools or complicated manipulations.

According to the invention, these objects are accomplished by the arrangement and combination of elements hereinafter described and more particularly recited in the claims.

In the accompanying drawings in which is shown one of various possible embodiments of the several features of the invention,

FIG. 1 is a sectional view of a lighting fixture according to the invention with the diffuser in closed position,

FIG. 2 is a view similar to FIG. 1 with the diffuser in open position,

FIG. 3 is a detail fragmentary view taken along line 3-3 of FIG. 2,

FIG. 4 is a view similar to FIG. 3 taken along line 4-4 of FIG. 2, and

FIG. 5 is a detail fragmentary side elevational view showing the holder clip in unstressed condition.

Referring now to the drawings, the lighting fixture is designed to be secured to a junction box 11 of any conventional type which is supported in conventional manner in an opening 13 in a ceiling 14, said box 11 having a depending threaded nipple 15 to which the fixture is secured.

In the illustrative embodiment of the invention herein shown, the lighting fixture comprises a substantially cup-shaped lamp mounting member 16 commonly known as a ceiling pan, having a circular flat bottom 17 of greater diameter than opening 13, the upper edge of the side wall 18 of the lamp mounting member 16 having an outstanding lateral flange 21.

The bottom 17 of member 16 has an axial opening through which the nipple 15 extends, the lamp mounting

2

member being securely retained with the flange 21 thereof against the periphery of the opening 13 in the ceiling by means of a nut 22 screwed on the end of nipple 15.

The outer surface of the bottom 17 of member 16 carries a plurality of lamp sockets 23, each to retain a conventional light bulb, and suitable wiring 24 is connected from the sockets 23 to electric lines leading into the junction box 11.

Associated with the lamp mounting member 16 is a diffuser 25, illustratively a translucent globe of any suitable material such as glass or plastic and which has a circular mouth 27 defined by an inwardly extending flange 28 integral therewith.

Associated with the diffuser 25 is a support ring 31 of diameter slightly less than that of the mouth 27 of the diffuser 25. As shown in FIG. 2, the support ring 31 has a vertical wall 32 with an inwardly extending annular flange 33 at its lower edge and an outwardly extending annular flange 34 at its upper edge, the latter flange resting on the rim of the mouth 27 of the diffuser 25.

Although the support ring 31 may be secured to the diffuser 25 in any suitable manner, as illustratively shown, the vertical wall 32 of the support ring 31 has a plurality of horizontal slots 35 therethrough equidistantly spaced therearound and positioned so that with the flange 34 resting on the rim of the mouth 27 of the diffuser the slots 35 will lie in a plane below that of the flange 28 of the diffuser 25.

Associated with each of the slots 35 is a spring clip 41 which has a reversely bent leg 42 designed snugly to engage the flange 33 and an upstanding leg 43 which extends from the flange 33 to the associated slot 35, the upper end of leg 43 having an outstanding finger 44 which extends through such slot 35 beneath the flange 28 of the diffuser 25 securely yet releasably to retain the support ring 31 and the diffuser 25 together.

Means are provided releasably to secure the diffuser 25 to the lamp mounting member 16.

To this end, a plurality of holder clips 47 is provided, illustratively torsion springs, each of which desirably has a pair of legs 49 extending from a plurality of turns that defines a coil 51 at the root ends of the legs.

Extending through the coil 51 is a rivet 52 which is secured to the outer surface of the side wall 18 of the mounting member 16, to hold the clip 47 in position. In the illustrative embodiment shown, two holder clips 47 are provided, secured to the side wall 18 by the rivets 52, in diametrically opposed relation.

The pair of legs of each holder clip 47 is designed to coact respectively with a pair of elongated slots 54 extending through the flange 33 of the support ring also in diametrically opposed relation.

Each of the legs 49 of the clip 47 has a straight portion 55 adjacent the coil 51, which portions are spaced to define a V, the angle defined by the apex of the V when the coil 51 is unstressed, being such that the spacing between such straight portion 55 near the outer ends thereof is greater than the length of the slots 54.

The remaining portion 56 of each leg from the end of the straight portion 55 thereof is concave and when the clip is unstressed extends in a plane substantially parallel to that of the bottom 17 of the lamp retaining member. The outer end 57 of each leg 49 is bent to form an inverted V and then is reversely bent to define a stop loop 58, the latter being spaced from the apex 59 of the V to define a retaining conformation 62.

To mount the diffuser 25, the legs 49 of each clip are pressed together so that the loop ends 58 thereof may be inserted through an associated slot 54.

Since the legs 49 are under tension, tending to spread apart, they will react against the ends 60 of the associated

slot, thereby urging the diffuser 25 upwardly until it is in juxtaposition with the lamp mounting member as shown in FIG. 1.

In this position, the straight portions 55 of the legs 49 will react against the ends 60 of slots 54, retaining the diffuser in such closed position, and since the remaining portions of legs 49 will be closely adjacent the mouth of the diffuser 25 above the plane of the lamp bulbs they will cast substantially no shadows.

For access to the light bulbs, the diffuser 25 may readily be pulled downward, initially moving hard by reason of the short lever arm, defined by the portions of legs 49 against which the ends of the slots 54 abut, exerted against the coils 51 of the holder clip, but gradually moving easier as the downward movement increases by reason of the increase in the length of the lever arm defined by the legs 59.

When the diffuser 25 is moved downwardly sufficiently so that the ends of the slots 54 pass the apex 59 of the V at the ends of the legs 49, and abut against the loops 58 as shown in FIG. 2, the tension exerted on the legs 49 by the coil 51 will hold the retaining conformation 62 of said legs against the ends of the slots 54 so that the diffuser will be urged downwardly and hence will remain in such open position without need for the maintenance man to hold the latter.

In the open position of the diffuser 25, the loops 58 at the ends of legs 49 limit the downward movement so that the diffuser 25 does not become physically separated from the lamp mounting member 16 yet is so far displaced therefrom as to permit ready relamping or cleaning.

It is of course apparent that the legs 49 of one of the spring clip holders can be pressed together so that the loops 58 clear the ends of the associated slot to be withdrawn therefrom to permit the diffuser to hinge downward from the other holder clip.

The diffuser can of course be physically detached from the lamp mounting member by manually pressing the legs of both spring clip holders together so that the loops at the ends thereof clear the associated slot.

The diffuser can be restored to position in similar manner, all without need for tools or complicated manipulations.

Although the holder clips are illustratively shown mounted on the lamp mounting member, it is of course to be understood that they could be mounted on the support ring of the diffuser and the slots 54 could be located in the lamp mounting member.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a lighting fixture, a lamp mounting member, a light diffusing member depending therefrom and axially aligned therewith, said diffusing member having an up-

per portion and a main body portion depending from said upper portion, means to limit the extent of displacement and removal of said light diffusing member, said means comprising a pair of holder clips each comprising a torsion spring having a coil portion and a pair of legs extending from said coil portion in substantially opposed directions when said coil portion is unstressed, means mounting the coil portions of each clip in opposed relation, to one of said members adjacent its periphery, a pair of opposed slots in the other of said members associated respectively with said holder clips and also positioned substantially adjacent the periphery of said other member, said slots each having inner and outer ends, the legs of each clip extending through an associated slot and reacting against the ends thereof to retain said members axially aligned in juxtaposed relation, the portions of the legs of each clip extending through said slots when said members are juxtaposed, extending in opposed directions substantially at right angles to the axis of said members and being substantially concave, and positioned closely adjacent the upper portion of said diffusing member, whereby said clips are substantially concealed when said members are juxtaposed, said legs each having a stop near its outer end to limit the displacement of said diffusing member from said mounting member for access in servicing.

2. The combination set forth in claim 1 in which the legs of each clip adjacent the coil portion thereof are substantially straight, said straight portions defining an inverted V, and the concave portion of each leg extends from the end of the straight portion thereof, the ends of said straight portions extending through said slots when the members are juxtaposed and reacting against the ends of the slot to retain the coil portions under tension.

3. The combination set forth in claim 2 in which the free end of each leg is bent to define an inverted V, and is also reversely bent to define a loop terminating short of the apex of said V to define said stop.

4. The combination set forth in claim 1 in which said diffusing member comprises a translucent globe having a mouth, a retaining ring releasably mounted in said mouth, said slots being located in said ring in diametrically opposed relation, said clips being mounted on said lamp mounting member also in diametrically opposed relation.

5. The combination set forth in claim 4 in which said globe has an inwardly extending flange defining a mouth, said retaining ring has a vertical wall adapted to be positioned in said mouth, said wall having an annular inwardly extending flange at its lower edge and an annular outwardly extending flange at its upper edge adapted to seat on the inner periphery of the globe flange, and clip means are provided having a portion engaging said inwardly extending flange and having a finger extending through said vertical wall beneath the flange of the globe.

References Cited in the file of this patent

UNITED STATES PATENTS

2,701,299	Florence	Feb. 1, 1955
2,805,328	Jaffe	Sept. 3, 1957
2,829,243	Stonehill	Apr. 1, 1958
2,887,569	Frei	May 19, 1959