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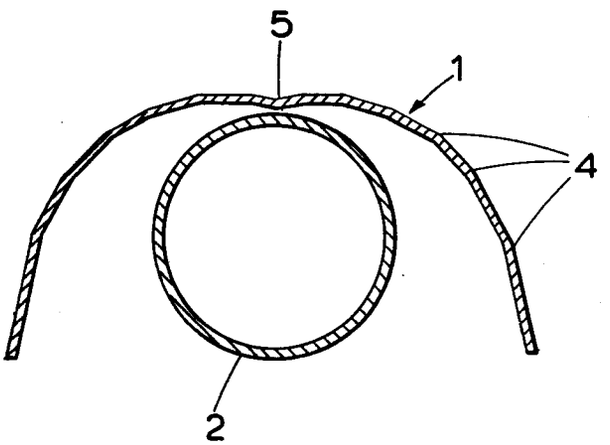
(54) Reflector for a tubular lighting element.

(57) This invention discloses a lighting installation which employs a reflector shield of a certain shape which is designed to provide non-directionalized reflection of light back into the room which would otherwise be lost towards the ceiling around the installation. The reflector (1) has a highly reflective surface and comprises an elongate member having two wings (4) disposed symmetrically about a line (5) at which they join together. Each wing (4) has a plurality of facets each running the full lenght of the wing and which are positioned at gratatory angles to one another so that the light from the lighting element is reflected downwardly and diffusely therefrom. This reflector maximizes the reflection of the light and reduces the number of light fixtures required.



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REFLECTOR FOR A TUBULAR LIGHTING ELEMENT

This invention relates to a reflector for a tubular lighting installation such as a ceiling fluorescent light fixture.

A problem with ceiling lighting is that a good portion of the light omitted from the installation is absorbed by the ceiling, which is generally made of non-reflective material, or, if reflective, is diffused and not efficiently directed downward. The result is that a larger number of lighting installations are required in order to adequately illuminate a room than would be the case if the available light were efficiently utilized.

Parabolic reflector shields which maximize light reflection are known, but these are not of much use for general lighting purposes, as they directionalize or focus the reflected light in a beam.

It is, therefore, desirable to have a type of reflector within a tubular lighting installation which gives an even distribution of light, yet maximizes reflection of the light which, but for the reflector, would be lost toward the ceiling.

In accordance with the invention, a reflector is provided which, when positioned about a tubular lighting element, will give an even distribution of light, yet maximize reflection of light back into the room which would otherwise be absorbed by the ceiling.

In the present invention is provided a reflector for a tubular lighting element comprising an elongate member having two wings disposed symmetrically about a line at which they join together. Each wing has a plurality of facets which run the full length of the wing and are positioned at gradatory angles to one another.

The winged configuration of the reflector, combined with its many faceted surface, reflects the light at several different angles into the room, and has the effect of diffusing the reflected light and providing an even distribution of light into the room.

In addition are provided attachment means for the reflector which may comprise one or more wire clips with arms attached to opposite lower edges of the reflector which can be snugly clamped around the tubular lighting element. Thus, the reflector is positioned to overhang the lighting element in close proximity. Since the reflector will be likely to be used in association with a ferrometallic fixture, magnetic means may also be used to position the reflector about the lighting element.

As the reflector shield should also comprise a highly reflective material,the objects of the present invention are met, that is reflected light is maximized and evenly distributed.

Preferred embodiments of the invention are described in detail below, by example only, with reference to the accompanying drawings, wherein:

Figure 1 is a bottom perspective view of the reflector of the present invention when installed within a ceiling lighting fixture; and

Figure 2 is a cross-sectional view of a preferred reflector of the present invention as positioned about a tubular light producing element.

A preferred embodiment involves the use of a reflector in conjunction with a lighting installation designed to accommodate a standard fluorescent light bulb. The reflector is made of a material having suitable strength and the ability to receive and retain a mirrored Surface thereon. Examples of such material include plastics or metals. Preferred plastics include acrylic plastics, PVC platics and ABS plastics.

Preferred metals include steel and aluminum. The mirrored surface may also comprise several embodiments. Suitable examples include a vacuum metalized mirror surface, a mirrorized film applied to the reflector, a chomium deposit applied to the reflector, an anodized surface with or without polish, applied thereto.

Referring to Figure 1, it will be seen that the reflector 1, of the present invention, is placed to overhang the top and sides of the fluorescent lighting element 2. Small wire clips 3 are placed at intervals along the reflector 1, each with arms for holding the the bottom edges of the reflector 1 at opposite sides thereof. The wire clips 3 clamp snugly over the top of the light producing element 2 to hold the reflector 1 in place.

Alternatively, the reflector can be equipped with magnetic clips at either end thereof for magnetically attaching the reflector 1 to the housing of a fixture 6 for the lighting element 2.

Ideally, the reflector 1 should extend substantially the entire length of the light producing element in order to maximize the light reflective properties referred to above.

In cross-section, it will be observed from Figure 2 that the reflector 1 has two wings 4 disposed symmetrically about a line 5 at which they join together. Additionally, the two wings 4 forming the reflector 1 are not of continuous curve, but are formed by a plurality of facets or planes each running the full length of each wing 4 and which are positioned gradationally at angles to one another. The particular angles used are not an essential feature of the invention, as long as a stepped or gradatory variance in angle is present. In this way, light is reflected at many different angles away from the fluorescent element 2 and is diffused into the room. Depending on the

application , the wings 4 may extend away from the centre line 5 in a more gradual curve or a more pronounced curve than is shown in Figure 2.

From the above description, it will be seen that the present invention provides an addition to a fluorescent lighting installation of a reflector 1 which reflects a light from a tubular lighting element in a diffused manner. Lighting is thus maximized, and when applied to overhead fixtures, the number of lighting installations required to provide adequate illumination in a room can be reduced. Test results have indicated that a 30% increase in the amount of light directed downward from a standard fluorescent fixture can easily be obtained by using a reflector of the invention.

CLAIMS:

1. A reflector (1) having a highly reflective surface for a tubular lighting element (2) comprising an elongate member having two wings (4) disposed symmetrically about a line (5) at which they join together, each wing (4) having a plurality of facets each running the full length of the wing and which are positioned at gradatory angles to one another so that light from the lighting element (2) is reflected downwardly and diffusely therefrom.

2. A reflector as in Claim 1, wherein said reflector (1) extends substantially the entire length of the tubular lighting element (2).

3. A reflector as claimed in claim 1 or 2 wherein said reflector (1) is constructed of plastic or metal.

4. A reflector as claimed in Claim 3 wherein said plastic is selected from acrylic plastic, PVC plastics and ABS plastics.

5. A reflector as claimed in 3 wherein said metal is steel or aluminum.

6. A reflector as claimed in any preceding claim 4 wherein said highly reflective surface is a vacuum metalized mirror surface, a mirrorized film applied to the reflector, a chromium deposit applied to the reflector or an anodized surface with or without polish.

7. A reflector claimed in any preceding claim further comprising, at least two wire clips (3) having arms affixed to opposite lower edges of the reflector, said wire clips (3) being adapted to clamp snugly around the tubular lighting element (2) so that the reflector (1) is maintained in position relative to the tubular lighting element.

8. A reflector as claimed in any one of claims 1 to 6 further comprising magnetic clips positionable thereon to enable attachment of the reflector to a fixture made of a ferromagnetic material.

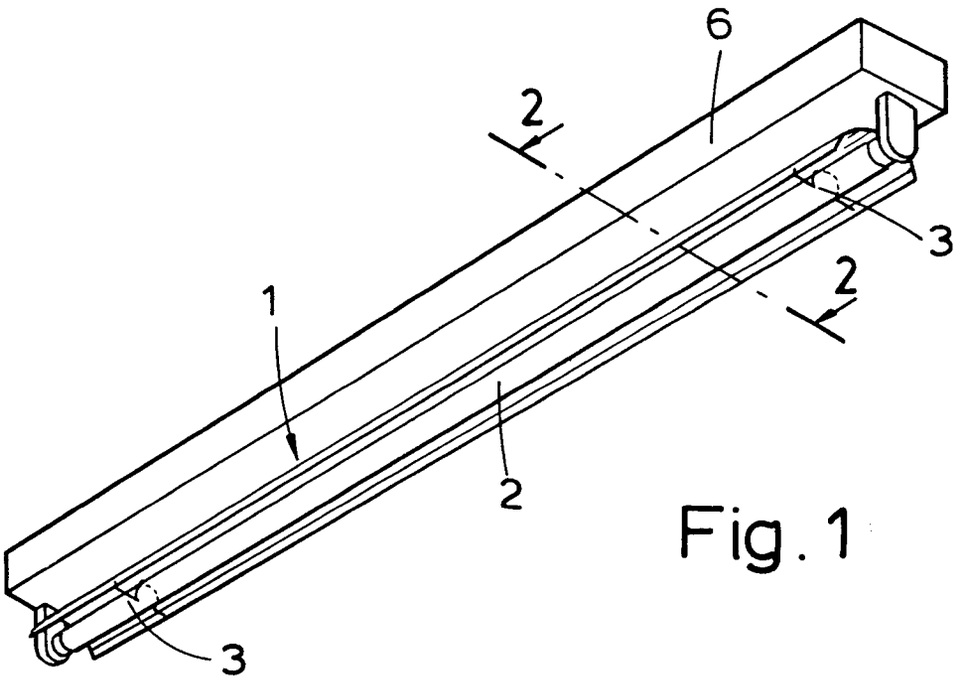

Fig. 1

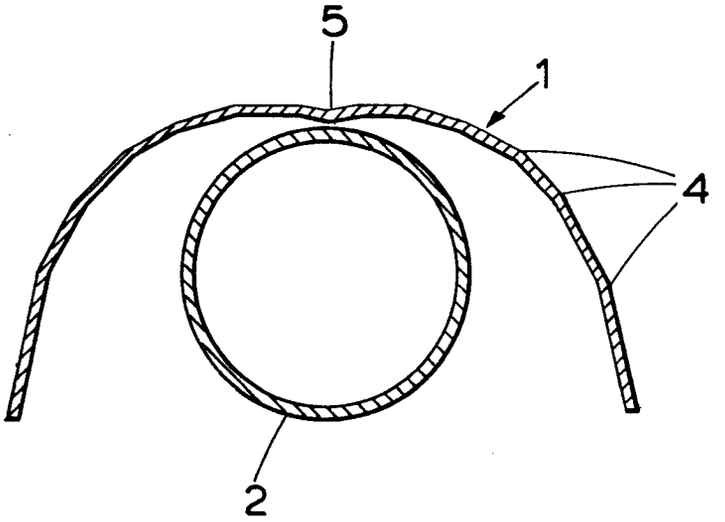

Fig. 2