March 17, 1964 E. STOTTER 3,125,301

REFLECTOR ATTACHMENT FOR FLUORESCENT LIGHTING FIXTURES

Filed June 20, 1960

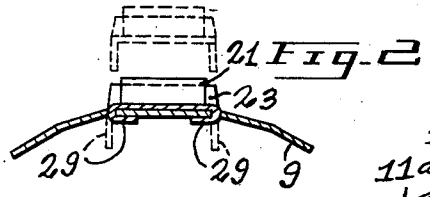


Fig. 2

Fig. 1

Fig. 3

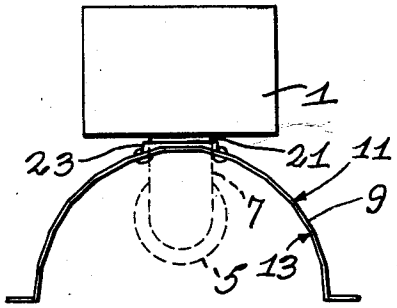


Fig. 4

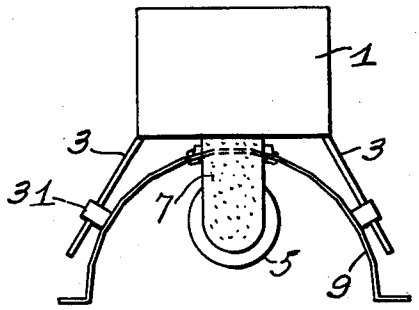


Fig. 5

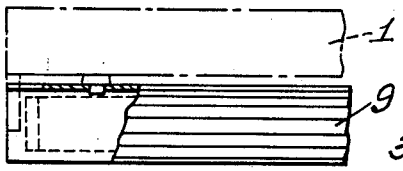


Fig. 6

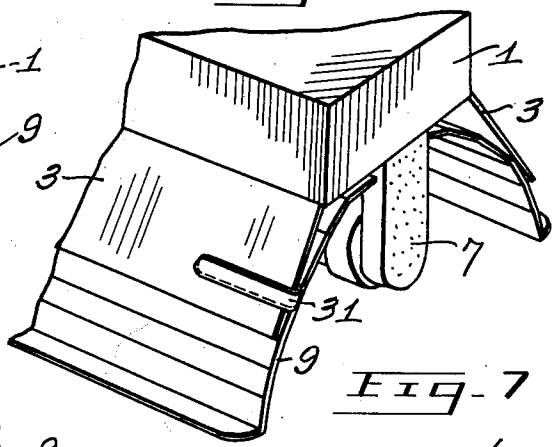


Fig. 7

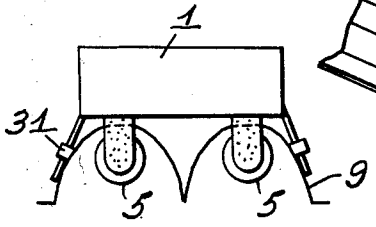


Fig. 8

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REFLECTOR ATTACHMENT FOR FLUORESCENT LIGHTING FIXTURES

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4 Claims. (Cl. 240—51.11)

This invention relates to auxiliary reflectors for fluorescent light fixtures and to combinations of such reflectors with fluorescent light fixtures.

Commercially, light fixtures are sold with an elongated body which is adapted to hold the light bulbs, and the inner face of the body forms the reflective surface. This surface has a fixed reflectability, and once the unit is bought, the purchaser cannot increase the original reflectability of the fixture without considerable expense.

Applicant's Development

The applicant has developed an easily installable, inexpensive auxiliary reflector which can be combined with a fluorescent light fixture without disturbing the normal structure, to provide increased reflectability. The reflector is made of sheet metal which makes it inexpensive to produce. It also has easily connectable connecting means such that it can be installed in a few seconds without the use of tools. The applicant's development can be adapted to single and multi-bulb fixtures.

Having thus generally described the nature of the invention, it will be referred to in more detail be reference to the accompanying drawings illustrating preferred embodiments and in which:

FIGURE 1 is a perspective view of a preferred construction of an auxiliary reflector according to the invention.

FIGURE 2 is a fragmentary cross-section along the line 2—2 of FIGURE 1.

FIGURE 3 is a fragmentary cross-section along the line 3—3 of FIGURE 1.

FIGURE 4 is a schematic and elevation showing a recflector in accordance with the invention showing its relationship to a fluorescent fixture having no initial reflector.

FIGURE 5 is an end elevation showing the auxiliary reflector of the invention and its relationship to a fixture having an initial reflector.

FIGURE 6 is a side elevation partly in section of one end of the construction of FIGURE 4 showing the magnetic fastening means in more detail.

FIGURE 7 is a fragmentary perspective view of the combination of the reflector and fixture shown in FIGURE 5 showing the deformable auxiliary clips or fastening means.

FIGURE 8 is a schematic end elevation showing a pair of auxiliary reflectors along the line of FIGURES 1 and 5 design in place in relation to a two-bulb fluorescent lighting fixture.

Referring more particularly to the drawings, there is shown a fluorescent fixture **1** having a bulb supporting base or a frame which may or not have reflecting side pieces **3** attached. The fluorescent bulb **5** is connected to the base of the fixture by brackets **7**.

In accordance with the invention, an auxiliary reflector **9** is attached to the fixture **1**, providing an auxiliary reflecting surface having greater reflective power than the normal surface of the main fixture with or without side reflecting panels.

In the form of device shown in FIGURE 1, the auxiliary reflector **9** is made up of an elongated sheet metal body of the form shown, having an outer convex surface **11** and an inner concave surface **13**. The body is formed with a series of narrow substantially flat panels **11A**, **11B** and **11C**, etc. which divide the reflective surface into a number of contiguous areas which combine to present a complete concave reflective surface. This construction affords structural strength, so that the auxiliary reflector **9** can be made out of relatively thin material. The auxiliary reflector **9** has cut-out openings **15** and **17** adapted to accommodate the existing brackets **7** of the fluorescent fixture **1**.

The longitudinal marginal edges of the auxiliary reflector **9** are preferably formed to have flanges which extend outwardly at each side. This is particularly useful when two or more reflectors are connected together to be mounted on a two or more bulb lighting fixture as shown in FIGURE 8. These outward flanges also add strength to the reflector structure.

The auxiliary reflector **9** may be hung from the main lighting fixture **1** by two different connecting means which can be used singly or combined. The connecting means are attached fixedly to the auxiliary reflector **9** and in one construction consist of magnets and in the other deformable clips. The first connecting means, a pair of spaced apart magnets **19** and **21** attached to the outer surface of the reflector are shown specifically in FIGURES 1, 2 and 3.

In one preferred form of the invention shown in the drawings, the magnets **19** and **21** are attached to the outer convex surface **11** of the auxiliary reflector by clips **23**. Said clips can be punched out of sheet metal in the form desired. The particular form of clips shown have lips **25** bent upward on two opposite edges adapted to engage the edges of the magnet **27**. These edges of the magnet **27** are beveled to form a surface which can be engaged by the clips.

Each clip **21** also has on its two opposite edges, extended flaps **29** which are adapted to extend through slots **29A** provided in the convex surface **11** of the auxiliary reflector **9** and are bent under in retaining position. The pair of spaced apart magnets **19** and **21**, can be, of course, attached in any other suitable manner, for example, by adhesives or the like.

The magnetic connecting means of the invention is usually adequate to provide secure attachment of the auxiliary reflector **9** to a fluorescent light fixture frame. The fluorescent bulb itself tends to retain the auxiliary reflector from falling out of the fixture should the attachment be inadvertently shaken loose from its magnetic attachment. The applicant, however, has also provided auxiliary attaching means in addition to the magnetic attachment for particular use when the fluorescent light fixture frame has already attached to it light reflecting surfaces **3**, such as are shown in FIGURES 5, 7 and 8.

The auxiliary supporting means or clips comprise thin elongated bendable strips of metal **31**, each pivotally attached at point **33** for example by a rivet or some other such attaching means to the outside surface of the curved sheet material reflector body. These strips **31** are adapted to be turned to extend over the ends of the reflector body, and then to be bent back over the existing light reflecting surfaces **3** to secure the auxiliary reflector **9** within the fluorescent light fixture, or more clips can be provided with each auxiliary reflector attachment. They can be placed on opposite sides and at opposite ends of the reflector **9** as shown in FIGURE 1. A maximum of four (4) can be usefully used for each reflector attachment located on each side of the spaced apart magnets **19** and **21**.

In operation, the device is applied to the fixture as shown in FIGURES 4, 5, 6, 7 and 8. The fluorescent bulb being first withdrawn from the brackets attaching it to the fixture body. The auxiliary reflector **9** is then placed in magnetic engagement with the undersurface of the existing fixture body and the clips **31** of the auxiliary

fastening bent outward and over the edges of the existing reflecting light surfaces 3, if required.

The preferred metal from which the auxiliary reflector 9 is made is aluminium, the preferred gauge of the metal being from 18 to 26 gauge.

Desirably, the curvature of the reflector body 9 is parabolic. It is preferably made by forming a plurality of longitudinal bends in the metal from about ¼ to 2½ inches in width. The purpose of the individual reflecting surfaces which are formed by this bending, best shown in FIGURE 2, is for the purpose of structurally strengthening the reflector. In addition, the multiple reflecting surfaces formed in this manner give the light as reflected in lines as compared with the normal flat or curved reflecting surfaces which are continuous.

Preferably, the reflecting surface of the auxiliary reflector 9 is vacuum-plated and can be coated by vacuum aluminizing to provide a very shiny surface. This surface is comparable with that of a mirror and gives a high reflection. The reflecting surface may also be lacquered, if desired, to protect it from finger-prints and oxidation of the aluminum. The non-reflecting surface of the reflector may be painted white or any other color, or otherwise finished.

It will be understood that various modifications can be made to the exact structure shown within the scope of the invention.

I claim:

1. An auxiliary reflector for a fluorescent lighting fixture having a permanent reflector and a fluorescent lighting tube spaced therefrom, comprising, a one-piece elongated curved rigid sheet metal body of substantially trough-shape, said body being formed with a plurality of identical adjoining rectangular facets running in the longitudinal direction of the body, each of the facets being of a constant width and meeting the adjacent facets at an angle whereby the facets combine to present a composite concave parabolically curved uninterrupted vacuum-aluminized reflective surface extending from end to end and side to side of said body and a concave reverse face, said body being adapted to underlie the permanent reflector of a fluorescent lighting fixture and to intervene the surface of the latter and the fluorescent lighting tube as the sole reflecting surface, a magnet mounted on the convex surface of each end of the body for releasably engaging the permanent reflector of the fluorescent lighting fixture to hold the auxiliary reflector body thereto.

2. An auxiliary reflecting attachment, as defined in claim 1, wherein said auxiliary reflecting body is provided with cut-out portions bordered by tabs punched out of said body metal and bent to engage said magnets.

3. A fluorescent lighting fixture, comprising, in combination, an elongated base having means supporting a permanent elongated reflector and a lighting tube in spaced-apart relationship to said reflector, an auxiliary reflector attachment including a one-piece elongated curved metal body of substantially trough-shape mounted on said permanent reflector, said auxiliary reflector attachment having a concave reflective uninterrupted surface completely intervening the permanent reflector and tube, and means releasably connecting said auxiliary reflector attachment to said permanent reflector and in a position between the permanent reflector and lighting tube and adapted to act as the sole means of reflecting the light emanating from said tube.

4. A fluorescent lighting fixture, as defined in claim 3, in which the concave surface of the trough-shape body is made up of a plurality of adjoining rectangular facets running in its longitudinal direction, each of the facets being of a constant width and meeting adjacent facets at an angle thereby to form a continuous uninterrupted parabolic reflecting face, said reflecting face being provided with a vacuum aluminized surface thereby to be highly reflective.

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