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M. SPERO

3,413,462

LIGHTING FIXTURE REFLECTOR SURFACING DEVICE

Filed Sept. 29, 1966

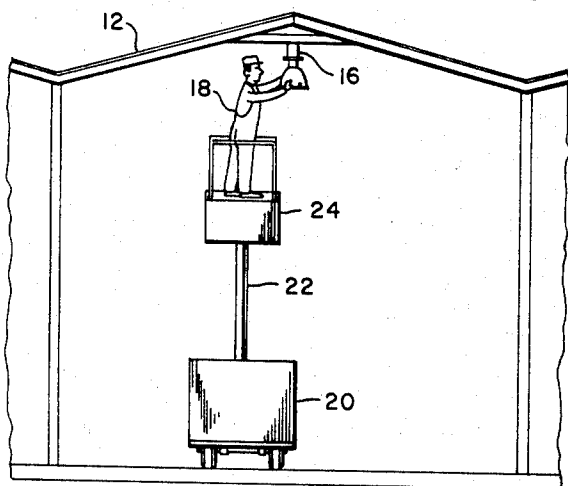


FIG. 1

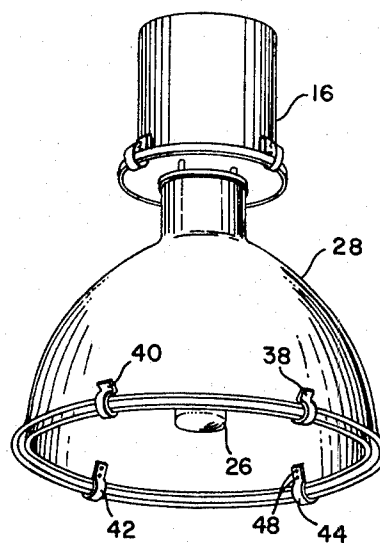


FIG. 2

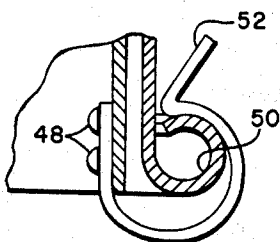


FIG. 4

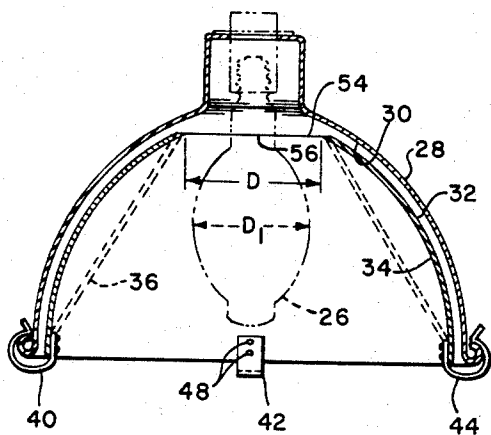


FIG. 3

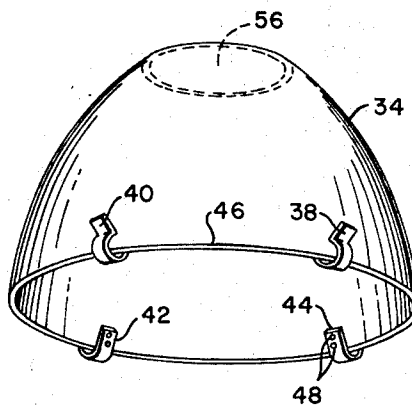


FIG. 5

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1

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LIGHTING FIXTURE REFLECTOR SURFACING DEVICE

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ABSTRACT OF THE DISCLOSURE

A disposable light reflecting unit used with a lighting fixture having a reflector and bulb. The unit is removably mounted by spring clips within the reflector in light reflecting relation to the bulb, and provides a new light reflective surface for the fixture. This eliminates dismantling the lighting fixture to remove and replace the reflector.

The maintenance of lighting fixtures, particularly factory lighting fixtures, is not only a necessary operation but an expensive one. Accumulation of dirt or film on the light reflecting surface absorbs light and progressively diminishes the efficiency of the lamp to a point below minimum requirements for the installation. Thus, regular cleaning of the reflector to restore the lamp characteristics is required. The cost of such maintenance on the larger lighting fixtures, e.g., mercury vapor fixtures, often exceeds several dollars per unit per year.

It has now been found that lighting fixture maintenance may be greatly simplified and made less expensive by providing means for renewing the reflecting surface of a lamp reflector in the form of a similarly configured insertable member adapted to be quickly secured to the existing structure. Thus, by a simple operation with an inexpensive insertable member the lamp may be restored to virtually its original efficiency. In the preferred embodiments hereof, this unit is itself replaceable with a similar unit when it again becomes necessary to renew the reflecting surface.

Briefly stated, the invention is in a device for resurfacing a dulled or dirty light reflecting surface of a reflector used in a lighting fixture also having a light bulb and socket. Accordingly, there is provided an insertable light reflecting surface for removably mounting or positioning between the reflector and bulb of the lighting fixture such that light given off by the bulb strikes and is reflected from the renewed light reflecting surface rather than the dulled light reflecting surface of the original reflector. The original reflector remains in place and coats to support the surface renewing insert.

The following description of the invention will be better understood by having reference to the annexed drawing wherein:

FIG. 1 is an illustration of how indoor lighting fixtures may be worked on;

FIG. 2 is a perspective view of a lighting fixture including a reflector, lamp and socket;

FIG. 3 is a sectional view of a typical reflector illustrating how the independently formed light reflecting shield of this invention is employed;

FIG. 4 is an enlarged sectional view illustrating one means for attaching the shield to the reflector; and

FIG. 5 is a perspective view of the light shield.

Referring more particularly to FIG. 1, there is shown a fixture 10 mounted in a factory bay 12.

The lighting fixture 16 is usually worked on by hand, that is, an individual indicated at 18, is raised and held in position adjacent the lighting fixture 16 in order to work on the fixture. This is usually accomplished by a ladder or it may be a specially designed truck 20 with a telescoping hydraulically operated boom 22. A partially enclosed sup-

2

port or platform 24 is mounted on the free end of the boom and is used to support the individual 18 working on the lighting fixture 16.

The lighting fixture may be of the type disclosed in Patents Nos. 1,981,903, 2,673,287, and 3,047,829. However, the invention will be described in relation to the lighting fixture 16 illustrated in FIG. 2, which is disclosed in co-pending application Ser. No. 366,700, filed May 12, 1964.

Referring more particularly to FIGS. 2-5, the lighting fixture 16 essentially comprises a light bulb 26 partially enclosed in a reflector 28.

The reflector 28 is preferably composed of aluminum and formed by any suitable process, e.g., a process where the reflector 28 is built up of aluminum metal sheet formed on mandril or form.

The invention

As previously indicated, the reflector 28 has a highly polished light reflecting surface 30 which becomes dulled, dirty or tarnished when exposed to the environment of its use. Instead of expensive cleaning of the dulled reflecting surface 30 of the reflector 28, or actually replacing the reflector 28, there is provided an insertable surface renewing reflective insert member 32 for resurfacing the dulled surface 30 of the reflector 28. The member 32 can be made of any suitable material, e.g., plastic or metal similar to the reflector 28, and has a highly reflective surface 34. The member 32 is positioned between the reflector 28 and light bulb 26 such that the reflective surface 34 of the member is adjacent the bulb 26. Thus, light radiating from the bulb 26 will strike and be reflected from the reflective surface 34 rather than from the dulled or damaged reflective surface 30 of the original reflector 28.

The insertable member 32 is preferably shaped to conform to the configuration of the existing reflector 28 in order to more nearly restore the rated candle power or illumination for which the lighting fixture was initially designed. In some cases, however, it may be desirable to change the shape of the member 32 to change the illumination to suit different uses of the lighted area. For example, a frusto-conical insert member 36, shown in dotted lines, can be used in place of the parabolically formed member 32.

The insert member 32 is removably mounted or positioned within the reflector 28 by any suitable means, e.g., a plurality of clips 38-44 equally spaced and secured along the exposed peripheral marginal edge 46 of the insert member 32. The wire clips 38 are preferably formed of spring steel and are secured to the member 32 by any suitable means, e.g., rivets 48 (FIG. 4). The clips 38-40 are configured to frictionally engage a rolled rim 50 of the reflector 28.

The free end 52 of each clip is reversely bent such that it diverges in a direction away from the rolled rim 50 and the reflector 28. This provides a suitable guide or means for distorting the clips when the member 32 is snapped or locked into position within the reflector 28. The diverging clip ends 52 can also be used as auger supports useful in unsnapping the clips for easy removal of the member 32.

The upper portion 54 of the insert member 32 is removed forming an opening 56 having a diameter D which is preferably, slightly larger than the corresponding diameter D₁ of the lamp or bulb 26. This is done to permit removing or positioning the member 32 without having to remove the bulb 26.

It should be apparent from the above description and drawing that the disposable insert member 32 is rigid. It should also be appreciated the ease with which the insert member 32 can be replaced. The members 32 are made relatively thin in order to reduce their weight. Also, the

3

cost of the inserts is substantially reduced to where it is cheaper to use such inserts than it is to clean or replace the reflectors 28. Thus, the high cost of maintenance is greatly reduced at considerable savings while maintaining safe illumination.

It has been found that the reflectors are subject to more wear than other parts of the lighting fixture. The use of spring clips permits easy removal of the surface renewal inserts from the reflectors. Because of this the insert members can be removed with a specially designed device or stick which can be manipulated by an individual, say at ground level. Such a method for removing and replacing the inserts 32 does not require the elaborate and expensive equipment as previously described. Thus, even greater savings can be utilized by using the reflective inserts of this invention.

What is claimed is:

1. A device for replacing the dulled defective surface of a reflector of a lighting fixture including a light bulb, comprising in combination:

- (a) a rigid replaceable insert removably positioned within the reflector independent of the reflector and bulb, said insert having a light reflective surface in light reflecting relation to the bulb, said insert having an opening adjacent the bulb dimensioned larger than the bulb such that the bulb passes through the opening when the insert is positioned or removed,

4

said insert having another opening which is adjacent the rim of the reflector and smaller than the opening defined by the rim; and

- (b) a plurality of spring clips secured to the insert in spaced relation around the periphery of the opening of the insert adjacent the rim of the reflector, said clips extending from the insert and interlockingly engaging the rim of the reflector, and said clips having free ends which are resiliently displaceable from the insert and rim whereby the clips are disengaged from the rim.

2. The device of claim 1, wherein each clip is configured to matingly engage at least a portion of a rim which is rolled.

3. The device of claim 1, wherein the insert is configured to conform to the shape of the reflector and nest therein.

References Cited

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2,907,873	10/1959	Smith	240—103
3,319,062	5/1967	Falk	240—103

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