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LIGHT CONTROLLING PANEL

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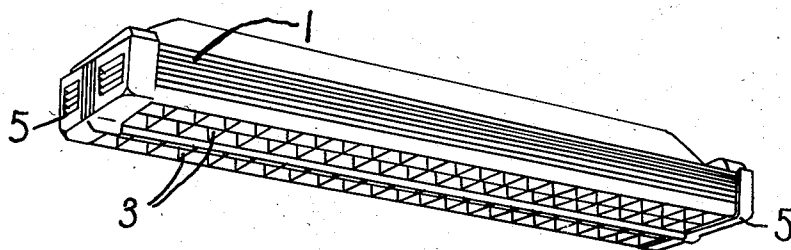


Fig. 1

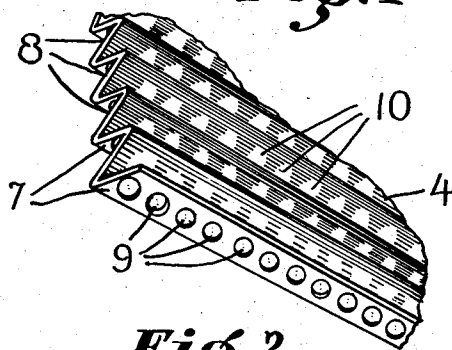


Fig. 2

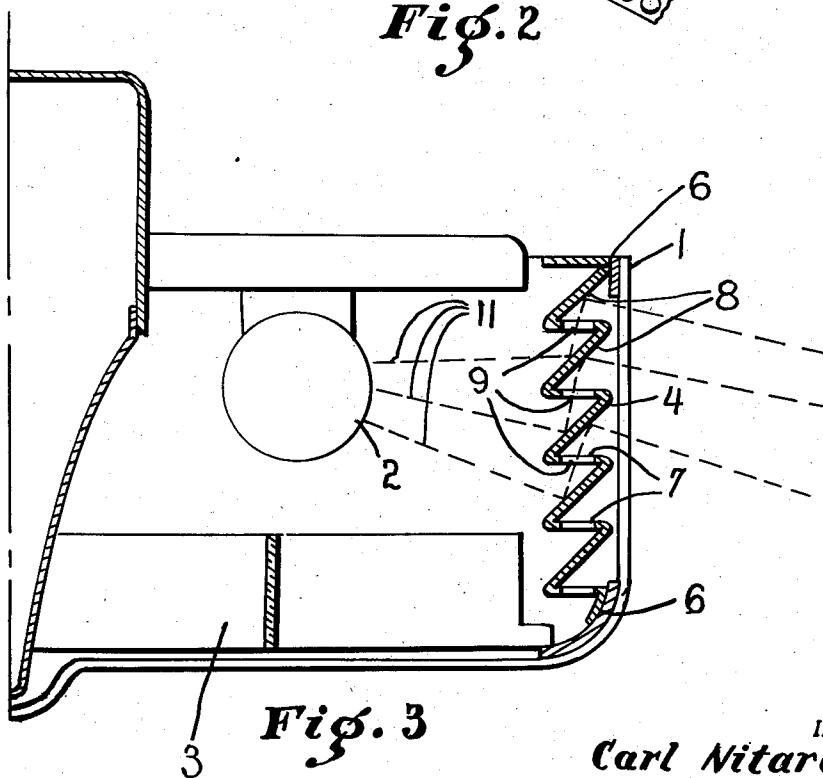


Fig. 3

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LIGHT CONTROLLING PANEL

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2 Claims. (Cl. 240—51.11)

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This invention relates to electric lighting fixtures and particularly to means for providing secondary illumination and decoration for a fixture.

The invention is particularly adapted for intercepting and modifying light emanating from the side portions of the fixture. Panels made of diffusing glass or other similar material have been used to illuminate the sides of fixtures. Such glass panels have been found unsatisfactory for many reasons. They are subject to breakage in use and during shipment and installation. The use of glass is also expensive and requires special and relatively complicated holding framework not required by the present invention.

The invention consists of a light controlling panel which is made of sheet metal and may itself be used to supplement or form part of the fixture structure thus simplifying its design and permitting a wide variety of ornamental effects not otherwise obtainable.

The essential features of the invention reside in the special structure of the panel which may be made in individual units fabricated to a size to fit a fixture or relatively large sheets may be made and subsequently cut to size.

The panel is constructed by bending flat sheets into fluted or plaited conformation in which alternate flat areas disposed at right angles to the general plane of the panel are connected by other areas extending diagonally between the first named areas. Since the panels will in most cases be used in vertical position the areas disposed at right angles thereto will be horizontal in use. These horizontal areas are perforated with a plurality of openings and the panels are so arranged with respect to the light source, within the fixture, that light will be reflected from the inner surface of the diagonal portion and upward through the perforations where it is again reflected in the form of a pattern of the perforations from the outside surface of the diagonal areas. Thus a pattern of diffused light areas will appear upon the panel surface.

It is an object of the invention to provide a light controlling panel which is unbreakable.

A further object of the invention is to provide a light control panel for fixtures which is inherently structurally rigid.

A further object of the invention is to provide a light control panel for fixtures which produces an external pattern of light by reflection.

Other objects and features of the invention will more fully appear from the following description and will be particularly pointed out in the claims.

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To provide a better understanding of the invention a specific embodiment thereof will now be described and illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of a fixture embodying the invention.

Fig. 2 is an enlarged view in perspective of a portion of a light controlling panel.

Fig. 3 is a partial cross sectional view of the fixture shown in Fig. 1.

The fixture illustrated in a conventional type of fluorescent fixture having two or more straight tubular lamps. The invention is especially suited to the tubular fluorescent fixture but may also be used to good advantage in connection with other types of fixtures.

The fixture shown is provided with a box like enclosure 1 surrounding the lamps 2 and acting as a light controlling unit. The major portion of the light from the fixture is directed downward and direct glare from the lamps is controlled by a conventional louvre 3 in the bottom thereof.

Light which emerges from the sides of the fixture is controlled in a specific manner by panels 4 which are constructed according to the invention. If desired also similar means may be provided in the end caps 5.

Desirably the panels 4 extend substantially the full length of the fixture and are secured to the frame of the enclosure 1 in any desired manner.

It may be removably secured in position or it may be permanently secured by riveting or spot welding. As shown in the drawings the panels are spot welded at 6 in which case their inherently rigid characteristics add much to the durability of the fixture.

The benefits of the invention may be fully realized by designing a fixture to take advantage of the rigidity and unbreakable character of the panel. By so doing an extremely rigid and lightweight fixture may be produced.

The panel desirably is made by folding a sheet of metal such as the steel commonly used for manufacturing fixtures. The folding or shaping operation provides a series of flutes or plaits in which alternate flat strips 7 extend the length of the panel and are disposed at right angles to the general plane thereof.

Extending between the strips 7 are additional strips 8 disposed diagonally between adjacent strips 7. The strips 7 are provided with a plurality of perforations 9 which may be of any desired configuration. They may for example represent or follow a particular motif present in the room in which the fixture is to be hung. As shown the perforations are round. The shape and spacing

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of these perforations determined the light pattern seen on the outer surface of the panel.

The light pattern is produced by a double reflection of light. Light rays from the lamps 2 strike the inside surface of the diagonal strips 8 and are reflected upward through the perforations 9 and thence strike the outside surface of the diagonal strip above the perforations where the rays are reflected to form a spot of light 10 for each perforation 9. The path of the light is shown diagrammatically by the lines 11 in Fig. 3. Thus a pattern of light created by the plurality of perforations is seen when viewing the outside surface of the panel.

The effect of the spots of light surrounded by the darker areas of the panel is very pleasing and supplies sufficient light to the otherwise relatively dark areas of its supporting surface adjacent the sides of the fixture.

It will be understood that the angular disposition of the areas 7 and 8 may be other than that shown in the drawings. It may be desirable to bend the areas 7 downwardly from their inside edge to their outer edge or to vary the angle of the areas 8 to produce a desired effect.

The character of the reflecting surfaces may be chosen to produce varying degrees of brightness in the light pattern. It has been found that a satisfactory arrangement is to coat the inside surfaces with a white enamel or its equivalent and the outside surfaces may be specular. With this combination a brilliant light pattern is produced without the appearance of a lamp image to interfere with the pattern.

A somewhat softer effect is produced by coating the outside surfaces with a white diffuse finish similar to the inside finish.

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What I claim is:

1. A light controlling panel of sheet metal having a generally fluted structure presenting a plurality of angularly disposed interconnected strips alternate strips having primary reflecting surfaces having a light-diffusing coating thereon, intermediate strips having perforations therein through which light reflected from the primary surfaces passes said perforated strips being disposed substantially at right angles to the general plane of the panel, and secondary specular reflecting surfaces situated to reflect the light after it has passed through the perforations.

2. In a fluorescent lighting fixture light control panels arranged to intercept light projected from the sides of the fixture, said panels being composed of sheet metal folded to form a plurality of straight flat interconnected strips, the plane of alternate strips being parallel and disposed at substantially 45° to the general plane of the panel said strips having a light-diffusing coating on one side thereof and a specular surface on the other side thereof, the intermediate strips being disposed at substantially 90° to the plane of the panel said intermediate strips having perforations therein.

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