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W. L. LIPSCOMB

2,837,632

CURVED, CELLULAR LIGHT CONTROL PANEL

Filed Jan. 24, 1955

2 Sheets-Sheet 1

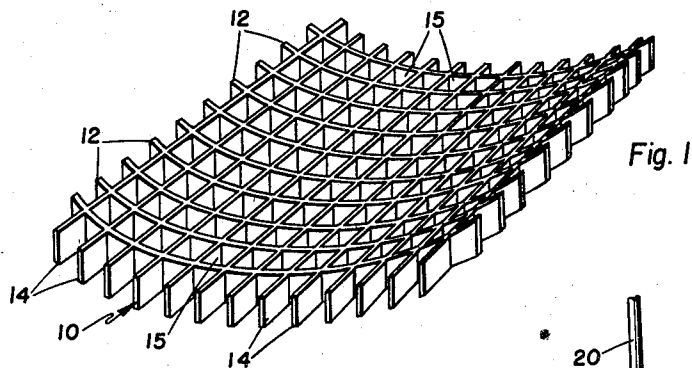


Fig. 1

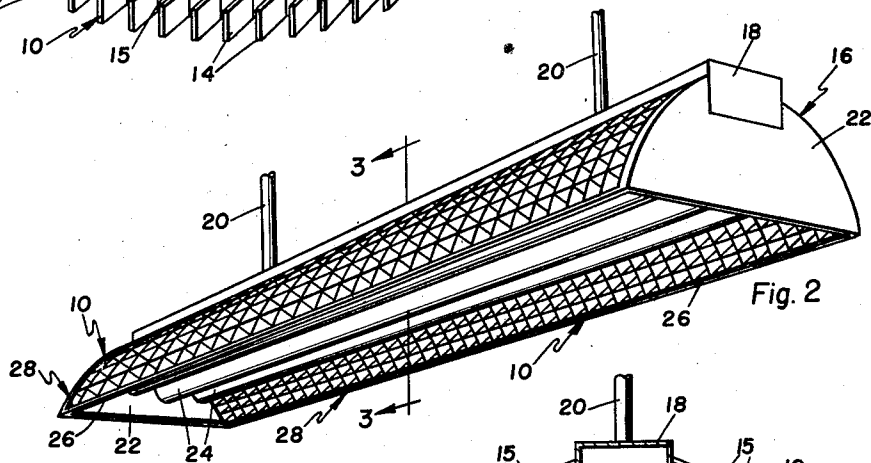


Fig. 2

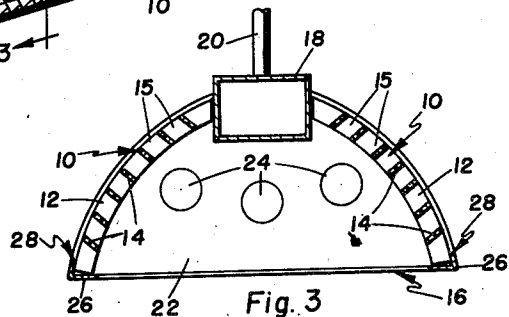


Fig. 3

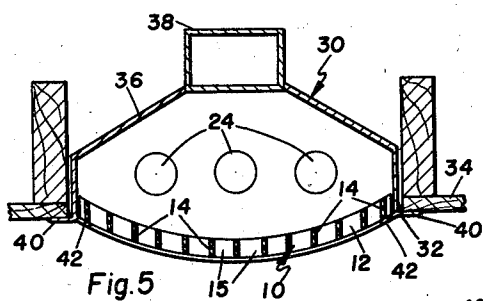


Fig. 4

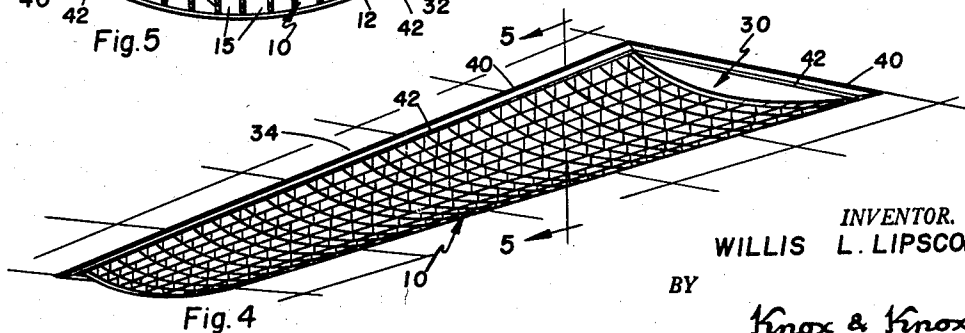


Fig. 5

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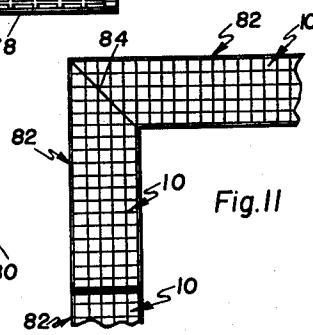
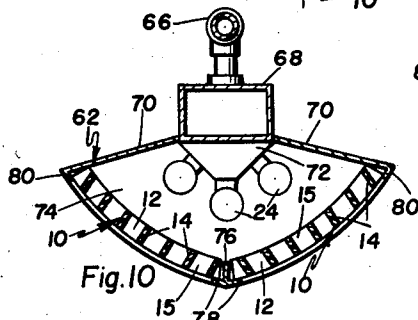
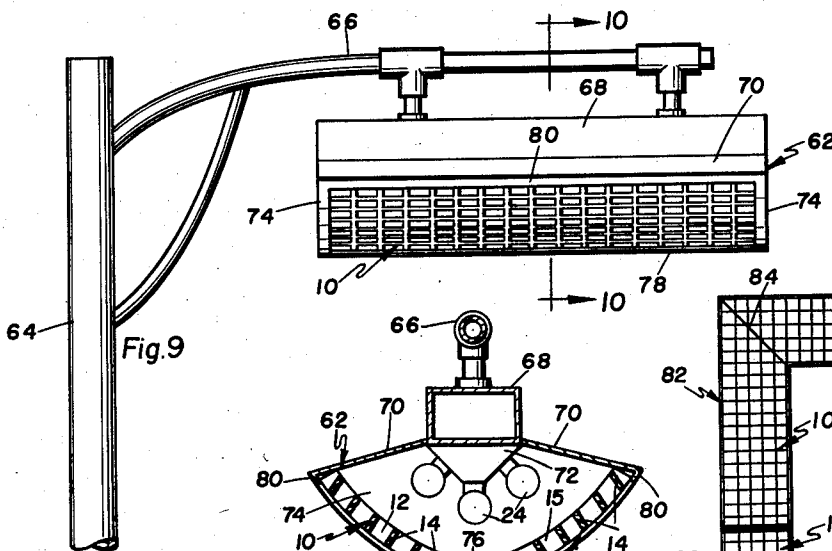
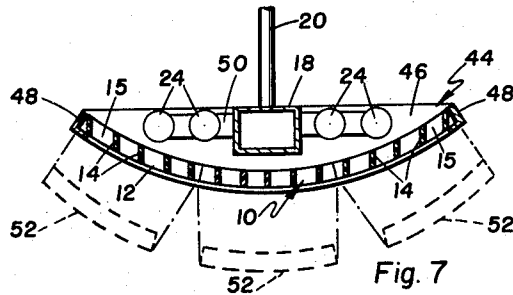
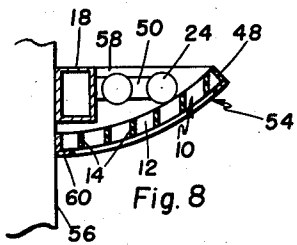
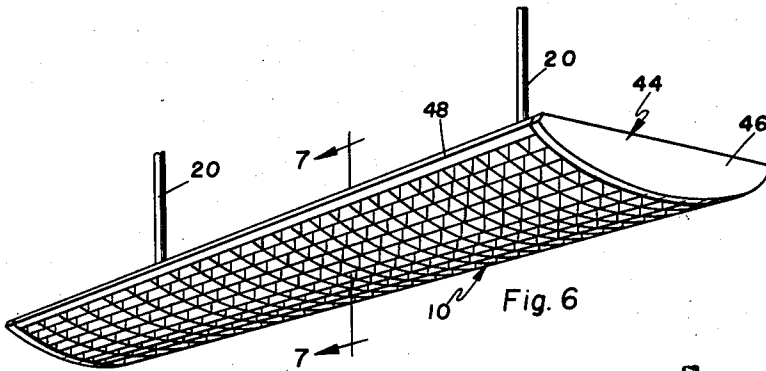
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CURVED, CELLULAR LIGHT CONTROL PANEL

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Application January 24, 1955, Serial No. 483,761

2 Claims. (Cl. 240—78)

The present invention relates generally to louvered panels and more particularly to a curved, cellular light control panel.

The primary object of this invention is to provide a cellular panel which is curved in cross sectional shape in one direction and in which all of the cells are oriented in a common direction, so that the panel can be used as an efficient combination light director and shield where a curved panel is necessary or desirable, the versatility being obvious, particularly in the lighting fixture field where a curved panel greatly facilitates achievement of simple yet very attractive fixture design.

Another object of this invention is to provide a curved, cellular panel which is made of translucent material to diffuse a portion of the light passing therethrough.

Another object of this invention is to provide a curved cellular light control panel which can be used with many types of lighting fixtures.

Another object of this invention is to provide a curved cellular light control panel which is adapted for fabrication from many different materials, so that the choice of material can be according to the dictates of availability and price considerations, the exact sizes and proportions being matters easily determined to suit particular conditions and needs.

Another object of this invention is to provide a curved cellular light control panel which is inexpensive and practicable to manufacture.

With these and other objects definitely in view, this invention consists in the novel construction, combination and arrangement of elements and portions, as will be hereinafter fully described in the specification, particularly pointed out in the claims, and illustrated in the drawings which form a material part of this disclosure and wherein similar characters of reference indicate similar or identical elements and portions throughout the specification and throughout the views of the drawings, and in which:

Fig. 1 is a perspective view of the panel.

Fig. 2 is a perspective view, from below, of a fixture incorporating the curved panels.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view, from below, of a flush type ceiling fixture fitted with the curved panel.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a perspective view, from below, of a further type of ceiling fixture using the curved panels.

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 6.

Fig. 8 is a sectional view, similar to Fig. 7, showing the curved panel used in a wall mounted cove fixture.

Fig. 9 is a side elevation view of a street lighting fixture utilizing the curved panels.

Fig. 10 is an enlarged sectional view taken on the line 10—10 of Fig. 9.

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Fig. 11 is a diagrammatic bottom plan view of several interconnected lighting fixtures, showing the method of joining the curved panels.

Referring now to Fig. 1 of the drawings, the panel 10 itself comprises a plurality of spaced, parallel wall elements 12 of constant width which are curved along their length so that their upper and lower edges are concave and convex, respectively. These curved wall elements 12 are interconnected by a plurality of flat, straight wall elements 14, also of constant width, which intersect them substantially at right angles to define a plurality of individual open ended cells 15. The straight wall elements 14 and curved wall elements 12 are all flat plates and are perpendicular to a common plane, so that all of the cells 15 are oriented in the same direction. The entire panel is preferably constructed of translucent material, such as plastic or the like, so that light passing through the panel is partially diffused. The primary field of use for the panel 10 is in luminaires. The panel is combined with similar panels and other elements in lighting fixtures or luminaires.

One use of the panel is shown in Figs. 2 and 3 which illustrate a ceiling hung fluorescent luminaire. This luminaire 16 comprises an elongated box member 18 to which the support hangers 20 are attached, said box member having substantially semi-circular vertical end plates 22 in which are mounted the necessary sockets to receive the terminals of tubular lamps 24. The wiring and suspension means of such a luminaire is well known to those versed in the art and need not be described in detail. The lower outer corners of the opposite end plates 22 are interconnected by longitudinally flanged rails 26, the end plates 22 having similar edge structure, to constitute an open frame 28 on each side of the luminaire. Each open frame 28 is fitted with a panel 10 of suitable size, which may either be constructed as a unit or may be assembled from several panel portions suitably secured together such as by adhesion or thermal bonding. The panels 10 are supported at their lower edges in the flanged rails 26 while their upper edges rest against the sides of the box member 18. A portion of the light from the lamps 24 is thus directed upwardly and outwardly through the cells 14, while the diffusion through the translucent material causes the panels 10 to glow and present a pleasing appearance. Ventilation of the lamps 24 is facilitated by the open cells 14.

In Figs. 4 and 5, the panel 10 is shown fitted to a flush type luminaire 30 which is mounted in an opening 32 in the ceiling 34. The luminaire 30 comprises a housing 36, the lower end of which is open and on which is a box member 38, the lamps 24 being mounted within said housing. Around the lower edge of the housing 36 is a peripheral flange 40 which provides a means for securing the luminaire to the ceiling, the flange also extending inwardly as at 42 and providing marginal support for the panel 10. A portion of the light is thus directed downwardly through the cells 14 while the remainder is diffused through the panel structure.

A further use of the panel 10 is shown in Figs. 6 and 7 in a ceiling hung luminaire 44 comprising a box member 18 suspended on support hangers 20. At each end of the box member 18 is an arcuate end plate 46, the outer corners of the opposed end plates being joined by flanged rails 48 which support the panel 10 at its longitudinal sides. Mounted on the box member 18 are socket members 50 carrying lamps 24. The panel 10 may be unitary or may be composed of several panel units 52, which are shown separated in dotted line in Fig. 7 by way of illustration.

A cove type luminaire 54 is shown in Fig. 8, the structure being generally similar to that of the luminaire 44.

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In this luminaire 54, the box member 18 is mounted on a wall 56, or the like, and has half end plates 58 which have their lower edges arcuately shaped to fit the panel 10. The end plates 58 are joined at their outer corners by a flanged rail 48 and at their inner lower corners by a further flanged rail 60 to support the panel 10.

The luminaire 62 shown in Figs. 9 and 10 is suitable for street lighting and is mounted on a post 64, or the like, by a suitable support member 66. The luminaire 62 comprises a box member 68 on which are outwardly extending reflector panels 70 to deflect downwardly the light from lamps 24, which are mounted beneath said box member in socket members 72. At each end of the luminaire 62 is an end plate 74 having a generally arcuate lower edge, the end plates being joined by a central longitudinal support rail 76 having opposed, outwardly extending flanges 78. The outer longitudinal edges of the reflector panels 70 have downwardly and inwardly turned flanges 80 which, together with the flanges 78, provide marginal supports for a pair of panels 10.

The panel may be constructed with all the wall elements curved. In other words, the elements 14 may be curved, in which case the curvature of the elements 12 will vary throughout the panel and the shape of the panel will approach that of a section of a sphere.

The panel 10 is adaptable to construction of continuous or multiple luminaires for area lighting. Such an arrangement is shown fragmentarily in Fig. 11 in which a plurality of luminaires 82 are abutted end to end in a row, each having a panel 10 therein. At the end of the row, a further luminaire may be fitted at right angles thereto simply by cutting each panel 10 at an angle to form a mitered joint, as indicated at 84, each wall element cut being secured to the corresponding wall element of the next panel. It will thus be evident that composite luminaires may be arranged to light particular areas in desired patterns, the cellular panels 10 being easily cut and fitted to suit.

The individual cells are not necessarily limited to the square shape as illustrated, but may be made octagonal,

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round, or in other shapes by filleting the corners at the intersections of wall elements. Such shaping can be incorporated directly into the mold if the honeycomb structure is formed as a unit and the various shapes can be selected to suit the surroundings of the lighting fixtures.

The use of the curved cellular panel is, of course, not limited to luminaires. The panel may be used to control and partially diffuse daylight or sunlight in applications where the curved configuration is desirable.

I claim:

1. An elongated, rectangular, cellular, light control diffusion panel of concavo-convex configuration transverse the width thereof, comprising a plurality of spaced, parallel, elongated, translucent, rectangular strips of light reflective nature and having upper and lower straight edges extending the length of said panel and a plurality of spaced, parallel, curved, elongated, translucent strips of light reflective nature and having one concave edge and the opposed edge convex, all of said curved strips being curved in the same direction, said straight edged strips intersecting at substantially right angles with said curved strips, thereby forming a plurality of cells oriented in a common direction, said intersecting strips between their respective straight and curved edges forming the walls of each of said respective cells.

2. The elongated, rectangular, cellular light control concavo-convex diffusion panel of claim 1, wherein the said crossed strips are parallel and planar and said cells formed by the strips are rectangular in shape.

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