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ELECTROLUMINESCENT LIGHT CONSTRUCTION

Filed June 13, 1957

2 Sheets-Sheet 1

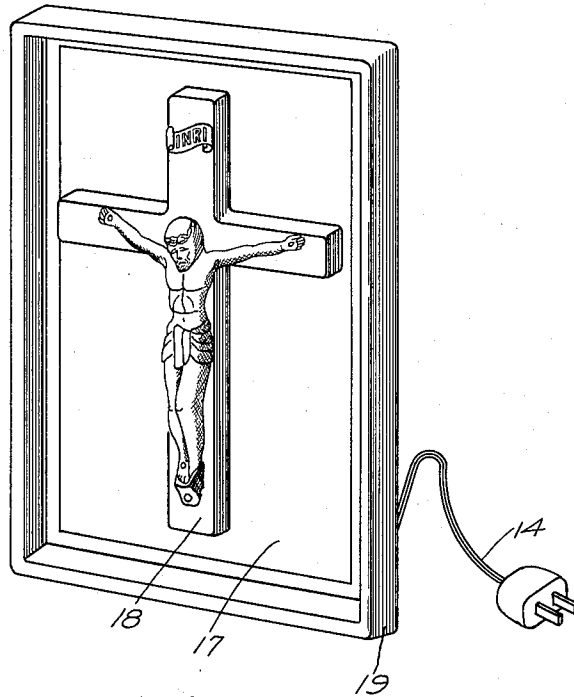


FIG. 1

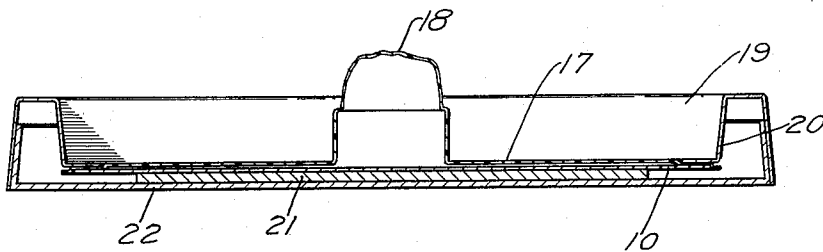


FIG. 2

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2 Sheets-Sheet 2

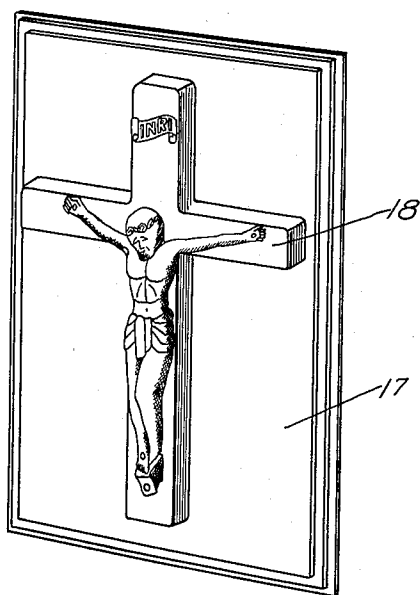


FIG. 3

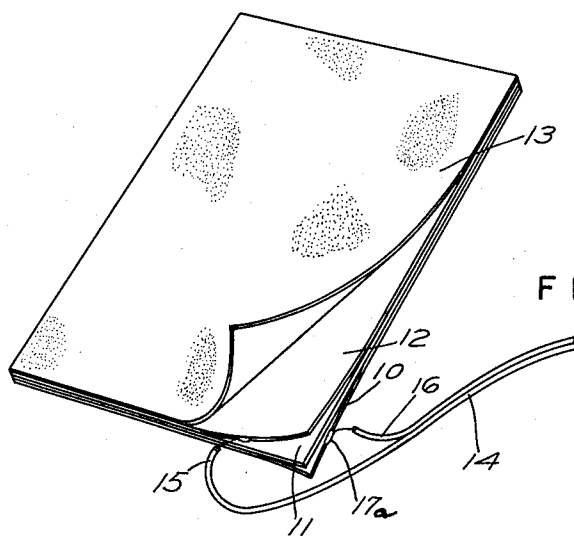


FIG. 4

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ELECTROLUMINESCENT LIGHT CONSTRUCTION

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2 Claims. (Cl. 240—10)

My present invention relates to the illumination art and more particularly to a construction utilizing an electroluminescent panel as the source of light.

The principal object of the present invention is to provide a light construction which presents certain daylight colors and configurations which will be altered or enhanced in the darkness under the influence of an electroluminescent panel.

Another object of the present invention is to provide a simple and inexpensive means of utilizing the source of light from an electroluminescent panel.

A further object of the present invention is to provide an economical method of converting an electroluminescent panel to various uses such as a night light.

With the above and other objects and advantageous features in view, my invention consists of a novel arrangement of parts more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more particularly defined in the appended claims.

In the drawings,

Fig. 1 is a perspective view of a night light embodying my invention.

Fig. 2 is a section taken on line 2—2 on Fig. 1.

Fig. 3 is a perspective view of the plastic face.

Fig. 4 is a schematic perspective view of the light panel.

It has been discovered that if alternating current is fed to electrically conducting panels or layers separated by dielectric layers containing phosphor that the panel will glow and produce light. This phenomenon is known as electroluminescence. The ordinary light bulb provides a source of light from a small spot. The fluorescent lamp provides a line of light. The electroluminescent panel provides uniform brightness over the entire surface area of the panel. The present invention is designed to utilize the characteristics of such a panel to produce certain effects.

Referring to Fig. 4, the electroluminescent panel comprises a comparatively thin metal plate 10 having a ceramic coating. On the plate 10 are one or more ceramic and dielectric layers 11 containing phosphor. Over the layer 11 is a layer 12 which is electrically conducting. The layer 12 is covered by a finishing layer 13 which is a transparent insulating finishing coating. The cord lead wire 14 is attached to a source of 120 volt 60 cycle current. At higher voltages and cycles a better light is produced. One lead wire 15 is attached to the conducting layer 12 and the other lead wire 16 is attached to the metal plate 10. A small resistance 17a may be placed in the line between the plate and the lead wire 16. The characteristics of this panel are that it will glow sufficiently to be seen in the dark. It will produce no heat and will be cold and safe to touch. It will use such a small amount of current that it will amount to only a few pennies a year. Furthermore, color can be incorporated in the layers so that the light will glow with white, yellow, blue, or green luminosity.

The applicant has found that certain desirable effects can be obtained by superimposing a thin plastic mask in front of the panel having desired configurations. For example, referring to Fig. 3, a plastic panel 17 is preferably formed by the vacuum process and for purposes of illustration shows the configurations of a crucifix 18. The panel 17 is formed over the crucifix in the conventional manner by the vacuum process. The panel 17 may have a color incorporated in it or may have a metalized coating of gold or silver paint. The panel 17 is then mounted over the luminescent panel in the manner shown in Figs. 1 and 2 to produce a framed crucifix which can be hung on the wall. Where a metalized coating is used the general effect is of a bronze plaque in a frame.

In the darkness it will be found that the overall glow of the luminescent panel will pass through the plastic panel 17 and destroy the metallic effect. The entire plastic panel will be seen to glow in the base color of the luminescent panel. Furthermore, the vacuum process of drawing the figure causes a minute variation in the thickness of the panel 17 in the area immediately surrounding the crucifix. As a result the light will glow more brightly in this area and the overall effect will be a soft high light surrounding the crucifix. If desired either the crucifix or the surrounding plastic material can be made opaque to vary the effect.

Figs. 1 and 2 illustrate one treatment of the form shown in Figs. 3 and 4. A frame 19 is provided having a ridge 20 for supporting the various parts. The plastic masking plate 17 extends towards the front showing the crucifix 18. In back of the plate 17 is the luminescent panel which may have a paper or cardboard spacer element 21 to leave room for the cord lead connection 14. A closure element 22 can then be glued or fastened to the back. The resultant structure provides a religious picture in metalized gold or silver during the day and forms an effective night light at night. The crucifix 18 is of course shown for purposes of illustration. In a small child's room Disney characters or similar characters can be substituted.

The invention has many other applications. It can be used wherever a soft light is required for reading characters without producing glare. For example, an instrument panel can be formed with the various numbers or other characters raised on the plastic by the vacuum process. The plastic can be coated or formed in a color to match the surroundings of the instrument panel. At night this color will disappear under the glow of the luminescent panel and the characters will stand out under the even overall light provided. At present an automobile instrument panel is illuminated with a bulb which is glaring and the light fades as the distance from the bulb increases. This provides an uneven illumination with dark spots on the panel. By the use of the present invention the illumination is an area illumination, the light being equal at all points. Of course, there is always the additional advantage in that the current consumption is extremely small. Thus it is never necessary to disconnect the device and it will function even though the user may be careless about turning it on.

The luminescent plate has been used with figures painted directly upon it but this application is limited. By the use of the present invention three dimensional effects are obtained and contrasting colors can be provided for daylight use when the light is not visible. Other advantages of the present invention will be readily apparent to a person skilled in the art.

I claim:

1. An electroluminescent light construction comprising an electroluminescent plate, said plate providing a light in a primary color, a translucent plastic masking plate mounted over said electroluminescent plate, said mask-

3

ing plate having a secondary metallic color different from said primary color, whereby said secondary color will be visible under an outside source of light and said primary color will become visible in the dark through said masking plate, and a three dimensional configuration extending integrally from the surface of said masking plate.

2. An electroluminescent light construction comprising an electroluminescent plate, said plate providing a light in a primary color, a translucent plastic masking plate mounted over said electroluminescent plate, said masking plate having a secondary metallic color different from said primary color, whereby said secondary color will be visible under an outside source of light and said primary color will become visible in the dark through said

4

masking plate, and a three dimensional configuration extending integrally from the surface of said masking plate, said plates being mounted in a frame.

5

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10

15