Nov. 20, 1962 E. R. BAUT ET AL 3,064,380

ART GLASS PANEL

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Fig. 1

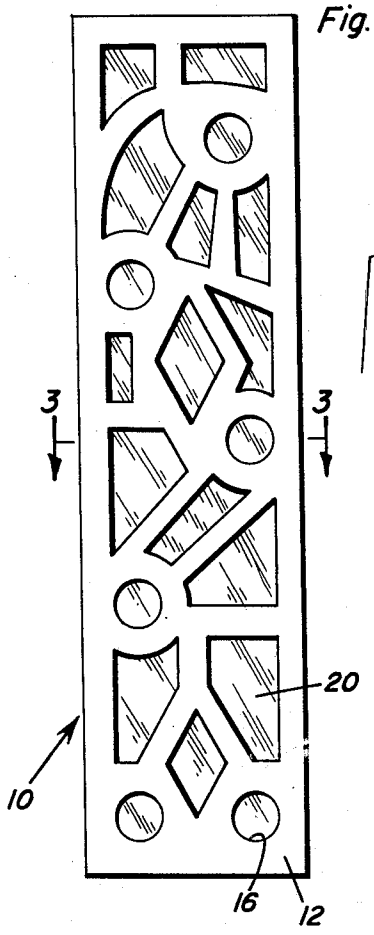


Fig. 2

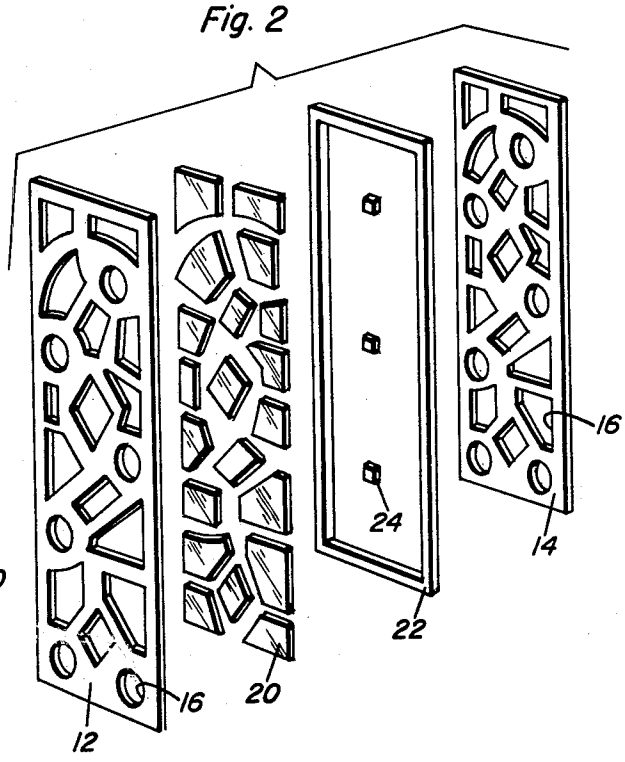


Fig. 3

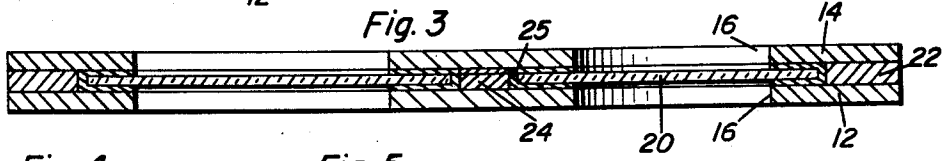


Fig. 4

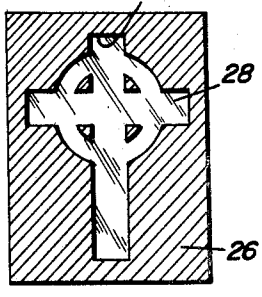
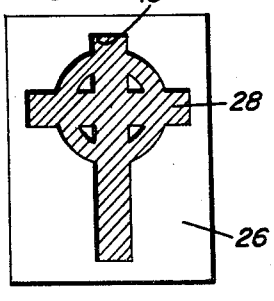


Fig. 5



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ART GLASS PANEL

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The present invention generally relates to an art glass panel construction and more particularly to a metal art glass panel and represents basically an improvement over the conventional stained glass windows.

Conventional stain glass windows are employed for producing an artistic and decorative effect when light shines through the stained glass. Such windows are used extensively in churches and the like and are attractive and function quite well when either natural light or artificial light shines through the stained glass panels. However, when no light is shining through the stained glass, then the conventional stained glass window does not function at all, that is, it does not produce the design effect that is produced when light shines through the stained glass window. Therefore, it is the primary object of the present invention to provide an art glass panel which will function to give color designs when light shines through the panel but also to give surface designs when the light is bouncing off of the window rather than passing through it. When the light bounces off the surface of a conventional stained glass window, the design in the stained glass window is not apparent and it does not function as a decorative unit. However, in the present invention, a color design pattern is provided with light coming through it so that the device functions somewhat as a stained glass unit when the light passes through it but with light bouncing off the surface of the panel, a surface design pattern is observed from either side. The surface design pattern of the art glass panel of the present invention is the result of light being reflected from metal surfaces such as aluminum, bronze, brass and the like which will produce a surface design pattern due to the reflective qualities of the metal so that the light bouncing off of the metal will produce a surface design effect.

Another object of the present invention is to provide an art glass panel which is a structually stable unit with the glass expanding and contracting independently of the metal sheets with the seals therebetween being air tight thus eliminating the necessity of exterior glass such as storm protection glass to protect it from weather conditions.

Another important feature of the present invention is to provide an art glass panel which is simple in construction, easy to assemble in a sandwiching operation, adapted for various shapes and uses, highly attractive and generally inexpensive to manufacture.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a plan view of the art glass panel of the present invention;

FIGURE 2 is an exploded group perspective view of the components which are employed to form the art glass panel;

FIGURE 3 is a transverse, sectional view, on an enlarged scale, taken substantially upon a plane passing along section line 3–3 of FIGURE 1 illustrating the details of structure of the components of the panel;

FIGURE 4 is a schematic view illustrating the color pattern with light passing through the art glass panel

in which the device acts somewhat in the nature of a stained glass window; and

FIGURE 5 is a view similar to FIGURE 4 but illustrating the surface design pattern formed when light bounces off of the metal surfaces and with no light passing through the glass panel area thereby producing an observable surface design pattern.

Referring now specifically to the drawings, the numeral 10 generally designates the art glass panel of the present invention. The art glass panel is employed somewhat in the nature of a stained glass window such as in churches and the like. The art glass panel includes two sheets of metal 12 and 14 constructed of material such as aluminum, brass, bronze or the like and the metal panels 12 and 14 are each provided with a plurality of openings 16 therein which are arranged in a particular pattern for producing a design effect such as the cross 18 illustrated in FIGURES 4 and 5. Various figures and patterns may be produced by cutting out the holes or openings 16 in a particular pattern depending up the particular desires for each individual installation. The openings 16 in the panels 12 and 14 are in registry with each other and are of the same shape and size so that an opening is produced through the art glass panel when the metal panels 12 and 14 are arranged in superimposed relation.

Sandwiched between the metal sheets or panels 12 and 14 is a plurality of pieces of glass 20 having a shape generally of the same configuration as the shapes of the opening 16 but having individually a slightly larger area so that the edges of the glass 20 will extend beyond the edges of the openings 16. In other words, the pieces of glass 20 are individually slightly larger than the opening 16 so that the periphery of the pieces of glass 20 will extend beyond the periphery of the openings 16 in the panels 12 and 14 for retaining the pieces of glass in position and enabling a complete seal to be formed peripherally of the opening 16 to provide a structurally stable unit.

Provided peripherally of the pieces of glass 20 is an annular spacer 22 which has the peripheral edge thereof generally coinciding with the peripheral edge of the panels 12 and 14 but with the inner edges thereof spaced outwardly of the periphery of the openings 16. Intermediate spacers 24 are also provided between the panels 12 and 14 for generally retaining the metal panels 12 and 14 in spaced parallel relation.

In assembling the art glass panel, the metal sheets 12 and 14 are cut-out by any suitable means with all the holes being in registry with each other. The metal spacers are slightly thicker than the maximum thickness of the glass pieces 20 and the glass pieces are cut slightly larger than the holes. The bottom plate or metal panel is placed on a flat surface and the spacers are glued in place with epoxy glue. The glass is then set at its proper elevation over the corresponding holes and a carvable type of epoxy resin is poured up to but not covering the top of the spacers. The top plate or metal panel is then put in place and weighted in such a manner as to insure flatness. The entire assembly is allowed to set. After the epoxy resin has set, the excess resin is cut out down to the glass on both sides and the panel is then ready for installation. Thus, the epoxy resin produces a seal between both surfaces of the glass pieces and the metal sheets 12 and 14 and this epoxy resin or glue is designated by numeral 25 in FIGURE 3.

FIGURES 4 and 5 have been included to illustrate the function of the art glass panel of the present invention. In FIGURE 4, light is passing through the open area which forms a cross 18 at which time the colored glass pieces or, the single colored glass piece, will produce a colored design effect somewhat in the nature of

a conventional stained glass window. However, when no light is passing through the art glass panel, such light will be reflected from the metallic surface area designed by numeral 26 which is formed by the panels 12 and 14. The light reflected by the metal surface area 26 produces a design effect on the surface since no light is passing through the glass area 28 which remains dark thereby producing a surface design effect due to the brightness of the reflective surface 26 and the darkness of the glass surface 28. Thus, with the present invention, the art glass panel not only produces the results or functions of a stained glass window but also produces a surface design effect when the light is not passing through the art glass panel but is being reflected from the metal surfaces thereof.

As illustrated, the edge of the glass pieces is surrounded by an epoxy resin which may be cut with a suitable instrument such as a knife. The epoxy prevents contact between the metal and the glass for insulation and shock absorbing purposes. This method allows for variations in the thickness of the glass pieces which occurs naturally since mouth blown glass varies considerably in thickness. This also allows for differential expansion thereby retaining the effectiveness of the seal formed by the epoxy.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An art glass panel construction comprising a first metal panel, a second metal panel, said metal panels each having openings therein with the openings being in registry, and colored glass panel forming means disposed between the metal panels and forming a closure for the openings whereby light passing throught the openings and the colored glass panel means will produce a color design, said metal panels having reflective outer surfaces whereby light being reflected from the metal surfaces will provide a surface design with the openings in the metal panels forming darkened areas for contrast with the reflective surfaces of the metal panels, said colored glass panel means including a plurality of colored glass panels each being slightly larger in area than the corresponding openings in the metal panels for sealing engagement with the panels in peripheral relation to the openings, a peripheral spacer encircling the colored glass panel means, and a plurality of intermediate spacers spacing the metal panels from each other and extending between the edges of certain of the glass pieces, said spacers being slightly thicker than the glass pieces thereby spacing the metal panels slightly from the glass pieces, and a sealing epoxy resin forming a seal between each of the glass pieces and the metal panels for providing a structurally stable and sealed unit.

2. The combination of claim 1 wherein said openings in the metal panels and the glass pieces are arranged to produce a particular pattern with the epoxy resin forming the sole means for retaining the panels in assembled relation.

3. An art glass panel construction comprising a first metal panel, a second metal panel aligned with said first panel, reflective outer surfaces on the panels, said panels each having a plurality of openings therein with the openings being in registry, a plurality of glass panes disposed between the metal panels in alignment with the openings, each glass pane being slightly larger than the corresponding openings and overlapping the two panels on all sides of the openings, spacer means slightly thicker than the glass panes, said spacer means disposed between the panels spacing the panels from each other, and a bonding material sealing the overlapping portion of each glass pane to both of the panels.

4. The method of forming an art glass panel comprising the steps of cutting out a plurality of aligned holes in a pair of metal panels, positioning a first panel on a flat surface, gluing a plurality of metal spacers on said first panel, placing a plurality of glass panels over the holes in the first panel, each of said glass panels being slightly larger than the corresponding hole and slightly thinner than the spacers, pouring an epoxy resin over the overlapping portion of the glass panels and into the spaces between the glass panels, said resin being poured up to but not covering the top of the spacers, placing the second panel over the glass panels with the holes in the second panel aligned with the glass panels and the holes in the first panel, weighting the second panel so as to insure flatness during the setting of the resin, and removing the excess resin from the surface of the glass panels.

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