ABSTRACT OF THE DISCLOSURE

A system is disclosed for producing a mock, lead-joined, stained-glass window structure from a pane of ordinary glass. Pre-formed lead pattern members, including closed pattern members, are affixed to the pane to define closed sections or areas thereon. Layers of color are adhered to one side of the pane within the closed areas to accomplish color patterns and layers of textured composition (resin) are adhered to the opposed side of the pane to provide surface textures for the individual sections.

BACKGROUND AND SUMMARY OF THE INVENTION

Stained glass has long been a medium for use in decorative and functional structures. For example, stained-glass windows have been produced for generations as functional works of art. The production of such windows requires considerable artistic, as well as technical ability and consequently work on such structures has generally been limited to a select group of artisans. Generally, the process of producing a lead-joined stained-glass window by the traditional technique included the steps of first making a plurality of individual glass members, that are glazed and formed for mating engagement in an array. The individual glass members are then joined together by a matrix that is made of channeled lead, to form a rigid structure. The beauty of such windows is considerably enhanced by the texture and surface irregularities that are developed in the individual glass pieces during the glazing and staining operation. This beauty is particularly noticeable when a traditionally-produced window is observed with reverse lighting.

Various techniques and structures have been proposed in the past for simulating lead-joined stained-glass windows produced by the traditional technique. However, in general, the degree of departure from the basic methods has been somewhat related to the lack of characteristic beauty present in the finished product. That is, compromises in the glass, the lead or the construction have generally been evident. Accordingly, a need exists for an improved system of construction for producing mock lead-joined stained-glass window structure which may be more easily accomplished and which more closely resembles the authentic and traditionally-produced structures.

In general, the present invention is directed to a system for producing mock stained-glass lead-joined structures wherein pre-formed lead members are affixed to a pane of ordinary glass to define closed surfacial areas thereon. Such areas receive coatings of light-transmissive tint or paint to accomplish the desired color patterns, while coatings of resin are applied to accomplish the textures that are characteristic of stained-glass structures that are produced by the traditional method. Accordingly, an effective and simplified mock lead-joined stained-glass structure is accomplished.

DETAILED DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENT

Referring initially to FIG. 1 there is shown a mock lead-joined stained-glass window constructed in accordance with the present invention. Although appearing as several panels, the basic structure of the window of FIG. 1 is a single pane 12 of glass which may comprise ordinary window glass. The upper surface of the pane 12 is defined into a plurality of discrete areas or panels 14, 16, 18, 20 and 22 by a centrally-positioned somewhat-circular lead pattern form 24 and a plurality of straight or linear lead pattern forms 26. The individual panels 14, 16, 18, 20 and 22 defined by the lead forms may be independently and differently colored and have textured surfaces that are characteristic of their shape to afford the appearance of traditionally-produced stained-glass.

The lead forms may take a multitude of different shapes, including various closed forms as described below; however, a somewhat-uniform cross section is generally desirable in a single window structure. Generally, an arcade or bevelled shape for the exposed sides of the lead forms has been found desirable.

The mock stained-glass window as illustrated in FIG. 1 may be produced to have a similar appearance on each side of the pane 12 by applying a mirror image of lead pattern forms to the rear surface. Specifically, as shown in FIG. 2, the lead forms 26 may be aligned in coinciding relationship with forms 26a positioned on the opposite side of the pane 12. Generally, the textured or wave surface of the panels is accomplished as illustrated in FIG. 2 by a layer or coating 28 of resin on one surface while the color is imparted by a coating 30 of light-transmissive medium on the opposite surface. The individual, pre-formed lead members are affixed to the pane 12 by layers 32 and 34 of bonding material.

The structure of FIG. 1 may now be effectively considered in greater detail by an explanation of the process utilized in production, as considered with reference to FIGS. 3, 4 and 5.

At the outset, the pane 12 should be initially cleaned preparatory to application of the various coatings. Furthermore, it is generally important to develop a conceived and sealed pattern of individual panels and colors prior to actually beginning construction. With such a plan or design, the individual lead forms 26 and 26a (FIG. 3) are secured in coinciding alignment on the opposite sides 36 and 38 of the pane 12. The application of the forms 26 and 26a, for example, may involve the placement of small quantities 40 and 42 of bonding material respectively to the flat surfaces 44 and 46 respectively of the forms 26 and 26a. The forms 26 and 26a are then pressed onto the surfaces 36 and 38 so as to lie in total alignment.

After the lead forms are in place, the coating 30 (FIG. 4) is applied as by a brush 50. The coating 30 may com-
prise any of a variety of light-transmissive glass tints or colors which impart the appearance of total color to the glass. As suggested above, each discretely-defined panel in the window may be differently colored or tinted to provide the desired artistic effect.

Subsequent to the step of coloring the individual panels, as illustrated in FIG. 2, the texturing material is applied as the layer 28 to the opposed surface 36 of the pane 12. Generally, the texture material may comprise a resin, as of the epoxy, vinyl, acrylic or polyester type, for example, which is substantially clear and which affords good adherence characteristics to glass. That is, the texture material should be compatible with glass to endure with variations of temperature and shock movements. Although various resins have been found satisfactory, methacrylate resins have been found particularly effective in this application. Specifically, for example, a copolymer of N-butyl methacrylate and methyl methacrylate, in aromatic solvents has been found quite compatible with glass in models incorporating the present invention. Of course, a variety of other methacrylate resins as well known in the chemical art, may be effectively utilized herein. Regarding the abovementioned resin, a copolymer of two methyl to one butyl has been found satisfactory.

With the application of the material in the layer 28 a rod or other tool 52 is used to provide an irregular or wavy surface. Typically the desired surface pattern is somewhat related to the shape of the panel, e.g., circular panels define circular surface irregularities. The texture material, in this FIG. 2, the texturing material viscosous to retain surface characteristics imparted by the rod 52 during the period of curing or drying to hardness. That characteristic may be considered as "uncured surface retenive".

It is to be appreciated that in various applications, it may be necessary to provide the lead forms on only one side of the panel 12. For example, if a window is to be positioned in a location in which it will invariably be viewed from only one side, then it may be desirable to affix the lead forms only to that side. It is also noteworthy that although the lead forms may take various shapes and sizes, it has generally been found desirable to use a lead alloy or composition that is very soft and accordingly is pliant to the surface upon which it is to be received.

The structure of a mock stained-glass window as depicted herein may, of course, take a wide variety of different designs expressing various artistic endeavors. However, generally it has been found desirable to utilize some closed-pattern lead forms. The use of such closed shapes, e.g., non-linear forms, affords considerable flexibility and simplification in the creation of various patterns or designs. Specifically, for example, as illustrated in FIG. 6 a simple square $S$ is a useful form as is a simple circle $O$ as illustrated in FIG. 7.

A specific structure for the lead forms that has been successfully used involves lead castings having one flat surface 60 (FIG. 2) for engaging the glass and a rounded or bevelled exposed surface 62. Casting techniques as well known in the prior art and using single non-mating molds may be effectively used to produce various shapes, linear and closed, as disclosed herein.

It is readily apparent that the structure hereof may be embodied in a wide variety of designs utilizing different colors, shapes and figures. Accordingly, it is to be appreciated that the specific invention is as defined by the elements set forth in cooperative relationship in the claims as follows:

What is claimed is:

1. A mock lead-joined stained-glass window structure, comprising:
   a pane of substantially clear glass having opposed flat-surface sides;
   a plurality of lead pattern members affixed to at least one side of said pane to divide said pane into a plurality of closed areas on each of said opposed flat-surface sides;
   a plurality of different color coatings deposited on a side of said pane in said closed areas to impart color thereto; and
   a plurality of layers of textured-surface resin adhered to the side of said pane opposed to said color coatings in said closed areas to impart an exposed-surface texture.

2. A window structure according to claim 1 wherein said lead pattern members include preformed units of closed non-linear shape and having a flat surface engaged with said flat surface of said one side.

3. A window structure according to claim 2 wherein said lead pattern members are affixed on opposed sides of said pane and are coincidental in size and position to mutually define said closed areas.

4. A process for producing a mock lead-joined stained-glass window from a pane of substantially clear glass having opposed flat-surface sides comprising the steps of:
   adhering preformed lead pattern members to at least one side of said pane to divide said pane into a plurality of closed areas on each of said opposed flat-surface sides;
   applying a plurality of different, translucent color coatings to said closed areas on a side of said pane; and
   applying a plurality of texture layers of resin to the side of said pane opposed to said color coatings to impart an exposed surface texture.

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HAROLD ANSHER, Primary Examiner
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