

March 10, 1931.

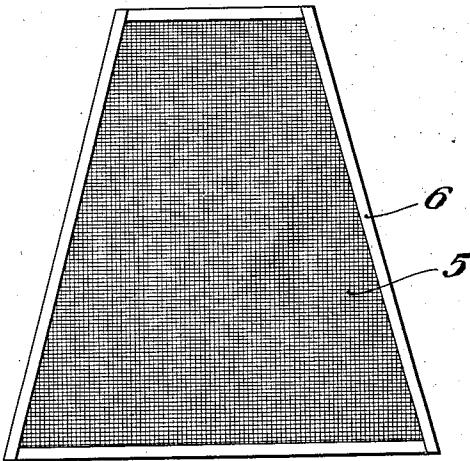
F. COLLINS

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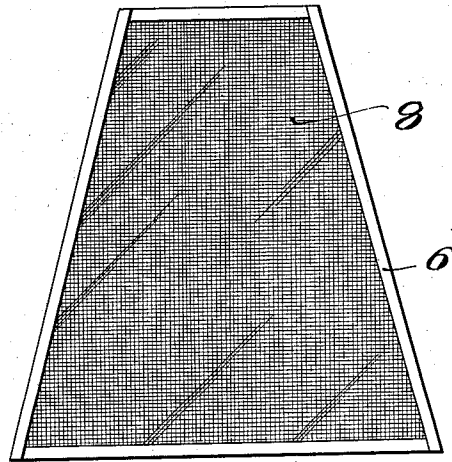
METHOD OF MAKING LIGHT DIFFUSING PANELS

Filed April 9, 1929

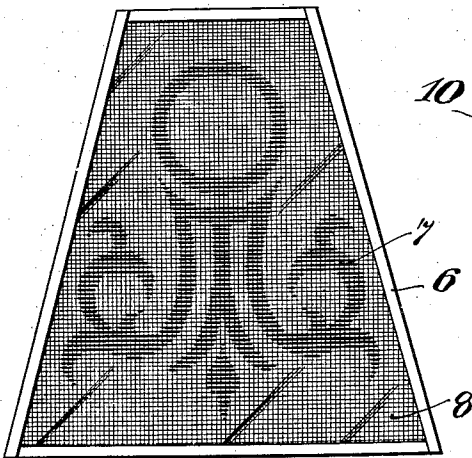
*Fig. 1.*



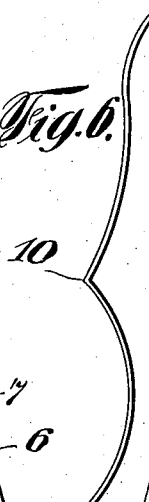
*Fig. 2.*



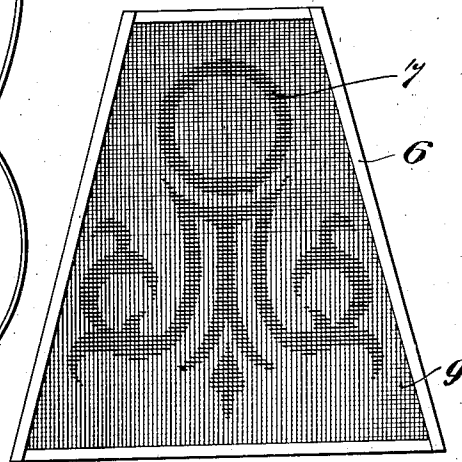
*Fig. 3.*



*Fig. 6.*



*Fig. 4.*



*Fig. 5.*



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## UNITED STATES PATENT OFFICE

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## METHOD OF MAKING LIGHT-DIFFUSING PANELS

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This invention relates to light diffusing panels and method of making the same, and has for its primary object and purpose to provide a panel for lamp shades, screens and other decorative articles to which surface ornamentation may be readily applied and which will possess maximum light diffusing qualities, great durability and will not be subject to the deteriorating effects of high temperatures or atmospheric conditions.

It is a more particular object of the invention to provide an ornamental panel particularly adaptable for use in lamp shades and preferably consisting fundamentally of a single sheet of reticulated metallic material having its interstices completely filled or closed by a clear transparent lacquer and to one side of which a translucent coloring medium is applied.

A panel of this nature especially lends itself to use in lamp shades of numerous ornamental forms, since the individual panels of which the shade consists may be readily pressed or stamped into any desired ornamental sectional form, and will retain a substantially rigid set configuration without development of cracks or minute fractures at the juncture of angularly related sections of the panel, a not uncommon occurrence when such shade panels are produced from paper, parchment and like materials.

It is another important object of the invention to provide a very simple method of making a panel as above characterized and applying surface ornamentation to one side thereof which is rendered additionally attractive by the diffusion of light, and a background of any desired selected color in contrast to the color of the applied design. I am thereby enabled to secure a softness and warmth of color-tones which is not possible in the use of glass, mica or parchment shade panels.

With the above and other objects in view, the invention consists in the improved panel and the method of making the same, as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claim.

In the drawing, wherein I have illustrated

one practical embodiment of my present improvements, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is an elevation showing the reticulated wire mesh material cut to proper size and shape and having suitably finished edges, which is the first step in the method of producing my new panel;

Fig. 2 is a similar view showing the wire mesh material after it has been immersed in the clay or gum lacquer;

Fig. 3 is an elevation showing the application of the ornamental design to one side of the panel;

Fig. 4 is an elevation illustrating the final step in the method and showing the panel after the colored translucent lacquer has been applied to the reverse side of the reticulated panel material;

Fig. 5 is an enlarged detail sectional view showing in exaggerated scale the wire mesh material with the several coatings of lacquer applied thereto, and

Fig. 6 is an edge view illustrating one of the multitudinous ornamental forms into which the metallic panel material may be stamped or pressed.

For purposes of illustration, in Fig. 1 of the drawings, I have shown a more or less conventionalized form of panel such as is generally used in the manufacture of lamp shades. It is however, to be understood as this description proceeds that in so far as the detail features of the panel structure as well as the several steps necessary in its manufacture or production are concerned, the panel may be produced in numerous other forms and sizes and employed in the manufacture of ornamental screens as well as for various other analogous purposes.

As shown in Fig. 1, I first cut a sheet of reticulated metallic material, such as ordinary wire mesh window screening indicated at 5 to the desired form and shape. In the use of the panel for the manufacture of lamp shades, I may now provide the edges of the panel sheet with the metallic binding strips indicated at 6 in the drawings. These are merely strips of sheet metal bent into U-shape form

to receive the edges of the panel material and securely clinched against the opposite sides thereof. The exposed surfaces of these binder strips may subsequently be finished in any desired color.

I now dip this sheet of metallic material in clear gum lacquer which is substantially transparent. This lacquer completely fills and closes the interstices of the reticulated wire mesh material, rendering the same impervious to the passage of air.

After the wire mesh material has thus been encased in the substantially transparent sheet of lacquer, the predetermined ornamental design is then applied to one side of the panel as indicated at 7 in Fig. 3 of the drawing. This design is applied by use of a stencil and is sprayed on in a lacquer or lacquers contrasting in color with the transparent base lacquer, shown at 8 in Fig. 5 of the drawings in which the wire mesh material 5 is encased. This colored lacquer of the design 7 is semi-transparent or translucent.

In the final step, a coloring medium visible through the transparent lacquer 8 is applied to the reverse side of the panel and supplies a background of the desired color for the design 7. This color medium is also preferably a semitransparent or translucent lacquer and is sprayed over the entire surface of the panel. This final coating of lacquer is indicated at 9 in Fig. 5 of the drawings.

The illustration of the superimposed coatings of lacquer in Fig. 5 is of course, greatly exaggerated. Visually, the interwoven wires having the lacquer coatings thereon are still discernible, and the effect as a whole is to give to the article the visual appearance of a tapestry.

It will be apparent that in carrying out the method as above described, by the selection of the contrastingly colored lacquers, very artistic design effects may be produced. When the panel is used in a lamp shade, by reason of the translucent qualities of the lacquers used, substantially the same diffusion of light is obtained as in the use of mica, paper or parchment shade panels. In such use of the new panel, the side thereof to which the design 7 is applied is the outer side, while the side having the colored background layer of lacquer 9 thereon is opposed to the light bulb.

In practice, I preferably use cellulose lacquers having a high flash point so that the panels will not be harmfully effected by high temperatures incident to the use of high powered light bulbs in the lamp.

As shown in Fig. 6 of the drawings, before applying the several lacquer applications to the wire mesh material 5, this material may be stamped or pressed into various ornamental shapes. The wire strands of said material are sufficiently thin and flexible to readily permit of the bending of adjacent portions

thereof to comparatively sharp angles as indicated at 10, without liability of breaking of the wires. When the lacquers are subsequently applied, the opposite sides of the panel present smooth continuous unbroken surfaces. This capability of bending the panel into such ornamental shapes without injury thereof, is a distinct advantage over the ordinary paper or parchment panel, in which minute cracks or fractures are developed at the juncture of the angularly related portions.

From the above, it will be seen that I have produced a very novel panel structure by a simple process of manufacture and which will possess the light diffusing qualities of glass, natural or artificial silk, or other fibrous material such as paper or parchment, while at the same time the new panel being essentially metallic in its structure, is unaffected by varying atmospheric conditions, and will not deteriorate from the effects of comparatively high temperatures. Also, it is evident that the new panel may be produced in much more artistic and ornamental designs presenting softer and warmer color tones than it is possible to obtain with parchment, mica and analogous material heretofore employed. Visually, the new panel has the appearance of a tapestry, and while I have particularly referred to its advantages when used as a lamp shade, it is nevertheless capable of advantageous application to a great variety of ornamental or decorative uses. Accordingly, it is to be understood that no unnecessary limitations are to be implied from the foregoing description, and that I reserve the privilege of resorting to all such modifications in form, size and structure as may be fairly considered within the spirit and scope of the appended claim.

I claim:

A method of making an ornamental light diffusing panel which consists in first immersing a fine gauge wire screen fabric in a clear lacquer solidifying upon exposure to the atmosphere to form a continuous transparent sheet encasing the fabric, then applying to one surface of said transparent sheet, a translucent color medium forming a predetermined design thereon, and then applying upon the entire opposite surface of said transparent sheet a translucent color medium contrasting with the color of said design and providing a color background for the design co-extensive with the panel and through which the light rays are diffused.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

FRANK COLLINS.