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MAKING OF ARTICLES FROM SHEET MATERIAL

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FIG. 1

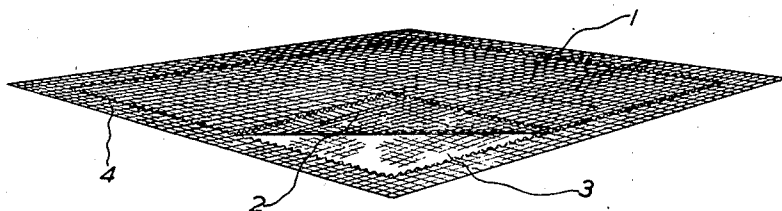


FIG. 2

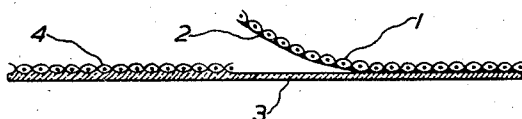


FIG. 3

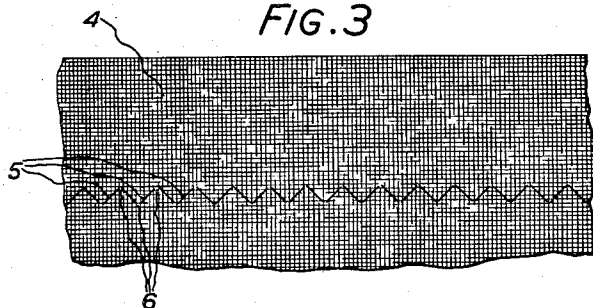
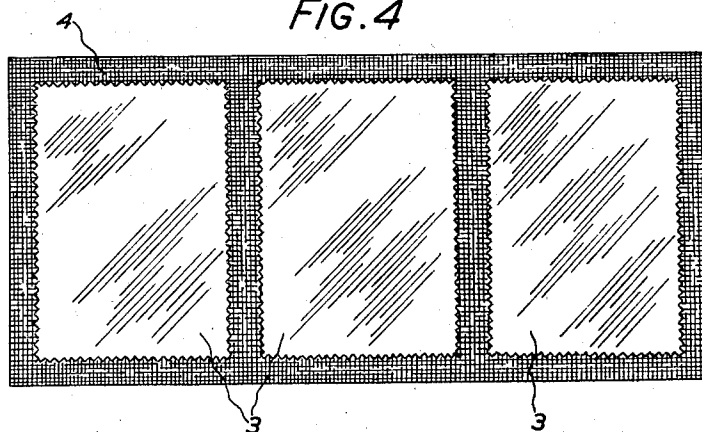


FIG. 4



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MAKING OF ARTICLES FROM SHEET MATERIAL

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5 Claims. (Cl. 18—59)

This invention relates to articles made from artificial sheet material and especially sheet material having a basis of cellulose acetate.

Artificial sheet material is at the present time finding an increasing number of applications. Sometimes, however, particularly when the material is subjected to repeated flexing, the edges of the material are broken with the result that the strength of the whole sheet is seriously impaired so that the sheet easily tears or breaks right across.

According to the present invention articles made from artificial sheet material are formed with portions reinforced by textile fabric impregnated with the substance of the sheet material. This result is obtained with the aid of what is hereinafter in the description and claims referred to as a "protective coating," the sheet material being formed by depositing a film-forming solution on a casting bed, the surface of which is formed partly of this protective coating and partly of a textile fabric to which the artificial sheet material strongly adheres. In practice the method employed may comprise first applying the protective coating to a fabric base of at least the area of the article to be made, the protective coating being provided on the greater part of the surface of the fabric base leaving uncoated only those portions, e. g. the edges, where it is desired to reinforce the artificial sheet material, then forming the artificial sheet material upon the whole surface of the fabric and stripping from the assembly the portion or portions of the fabric provided with the protective coating.

The protective coating employed is one to which the composition forming the artificial sheet material does not strongly adhere. Waxes and gelatine are of general application in this connection but with artificial sheet material having a basis of cellulose acetate it has been found most advantageous to use a protective coating of ethyl cellulose. The appearance of the artificial sheet material can be varied somewhat according to the thickness of the protective coating applied to the fabric base; for instance, with only a thin protective coating the artificial sheet material will to a certain extent be given the appearance of the fabric upon one side while with a thicker protective coating the artificial sheet material will be smooth on both sides.

An important application of the invention is the manufacture of transparent sun-blinds such as may be employed outside shop windows to protect articles displayed in the shop from the

effect of strong sun-light. In producing such a sun-blind a sheet of strong fabric, e. g. canvas, of the size and shape of the sun-blind which is to be produced, or slightly larger to provide for subsequent trimming, is employed as base. The centre of this sheet of fabric is coated with a solution of ethyl cellulose, a margin being left uncoated at each edge of the sheet. For instance, in producing a sun-blind 6 ft. square the area provided with the protective coating may be some 5 ft. to 5 ft. 6 ins. square so as to leave a margin of 3-6 ins. uncoated; when a larger blind is to be made the margin may be wider and strips running across the fabric may be left uncoated so as to produce a base having two or more panels carrying the protective coating.

Upon the whole surface of the fabric thus prepared a film-forming solution, e. g., a solution of cellulose acetate, is spread to form a sheet by evaporation of volatile solvent from the solution. Preferably there is employed a solution which flows freely so that a smooth uniform layer is formed with little or no use of spreading devices. It is sometimes preferable, particularly when a large sheet is to be produced, to spray the film-forming solution on to the base to form a film by evaporation of volatile solvent from the solution and to repeat the operation until a sheet of the desired thickness has been built up. The film-forming solution is, of course, coloured, e. g., yellow, orange or green, in view of the intended use as a sun-blind of the article to be produced.

After the sheet of cellulose acetate has hardened upon the fabric base the centre portion or portions of the fabric, i. e. the portion or portions originally provided with the protective coating, are stripped from the assembly to leave a transparent sheet of cellulose acetate supported by reinforcing strips of fabric impregnated with cellulose acetate. In this connection it is to be noted that before the application of the cellulose acetate coating, and if desired before the application of the protective coating, the boundaries of the portion or portions of the fabric to be removed subsequently may be, and preferably are, weakened, e. g., by perforation.

The production of a sun-blind in the manner described above is illustrated in the accompanying drawing in which—

Fig. 1 shows a perspective view of the sun-blind during the course of its production;

Fig. 2 shows a section of the same; and

Fig. 3 an enlarged view of a portion of the canvas reinforcing fabric employed; while

Fig. 4 shows a modified form of sun-blind.

Figs. 1 and 2 of the drawing show the centre portion 1 of a canvas reinforcing fabric with its adherent layer 2 of protective coating being stripped from the layer 3 of a composition having a basis of cellulose acetate, leaving a reinforcing strip 4 of canvas impregnated with the substance of and strongly adhering to the sheet of cellulose acetate composition 3. As the drawing shows, the centre portion 1 of the canvas sheet and the reinforcing strip 4 have serrated edges, the canvas having been perforated before the application of the protective coating by a succession of cuts 5 (see Fig. 3), successive cuts being separated slightly at the peaks 6 of the serrations formed by the cuts, so that the centre portion 1 of the canvas adheres to the reinforcing strip 4 until it is torn therefrom after formation of the sheet of cellulose acetate composition on the canvas.

In the sun-blind shown in Fig. 4 the reinforcing strip 4, besides surrounding the sheet of cellulose acetate composition 3, also forms two strips across the width of this sheet, thus dividing it into three panels.

Having described my invention, what I desire to secure by Letters Patent is:

1. Method of producing an article composed of artificial sheet material and having portions of its area reinforced by a textile fabric, which comprises first applying a protective coating to a textile fabric of at least the area of the article to be made, the protective coating being provided on the greater part of the surface of the textile fabric, leaving uncoated only those portions where it is desired to reinforce the artificial sheet material, then depositing a coating of artificial sheet material of uniform thickness upon the whole surface of the fabric and stripping from the assembly the portion or portions of the fabric provided with the protective coating.

2. Method of producing an article composed of cellulose acetate sheet material and having portions of its area reinforced by a textile fabric, which comprises first applying a protective coating to a textile fabric of at least the area of the article to be made, the protective coating being provided on the greater part of the surface of the textile fabric, leaving uncoated only those portions where it is desired to reinforce the cellulose acetate sheet material, then depositing a coating of cellulose acetate sheet material of uniform thickness upon the whole surface of the

fabric and stripping from the assembly the portion or portions of the fabric provided with the protective coating.

3. Method of producing an article composed of cellulose acetate sheet material and having portions of its area reinforced by a textile fabric, which comprises first applying a coating of ethyl cellulose to a textile fabric of at least the area of the article to be made, the coating of ethyl cellulose being provided on the greater part of the surface of the textile fabric, leaving uncoated only those portions where it is desired to reinforce the cellulose acetate sheet material, then depositing a coating of cellulose acetate sheet material of uniform thickness upon the whole surface of the fabric and stripping from the assembly the portion or portions of the fabric provided with the coating of ethyl cellulose.

4. Method of producing an article composed of cellulose acetate sheet material and having a portion of its area reinforced by a textile fabric, which comprises first applying a coating of ethyl cellulose to a textile fabric of at least the area of the article to be made, the coating of ethyl cellulose being provided on the greater part of the surface of the textile fabric, leaving uncoated only those portions where it is desired to reinforce the cellulose acetate sheet material, the textile fabric being perforated at the junction of the coated and uncoated portions, then depositing a coating of cellulose acetate sheet material of uniform thickness upon the whole surface of the fabric and stripping from the assembly the portion or portions of the fabric provided with the coating of ethyl cellulose.

5. Method of producing a sun-blind composed of cellulose acetate sheet material and having portions of its area reinforced by canvas, which comprises first applying a coating of ethyl cellulose to a piece of canvas of at least the area of the article to be made, the coating of ethyl cellulose being provided on the greater part of the surface of the canvas, leaving uncoated only those portions where it is desired to reinforce the cellulose acetate sheet material, then depositing a coating of cellulose acetate sheet material of uniform thickness upon the whole surface of the canvas and stripping from the assembly the portion or portions of the canvas provided with the protective coating.

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