May 12, 1931. E. J. BARNARD 1,805,436

PICTURE FRAME AND METHOD OF MAKING SAME

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Fig. 1

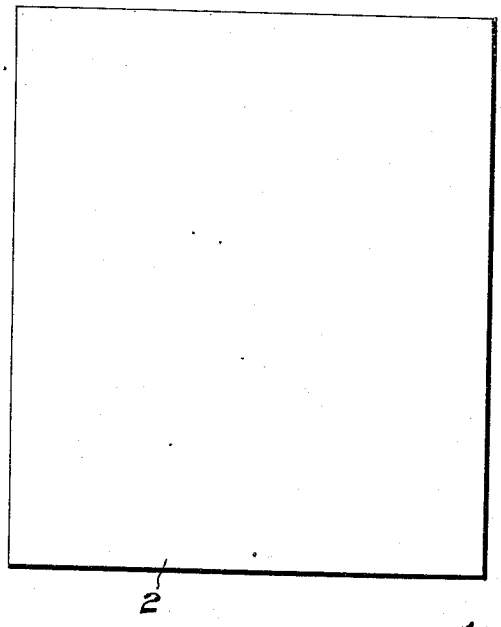
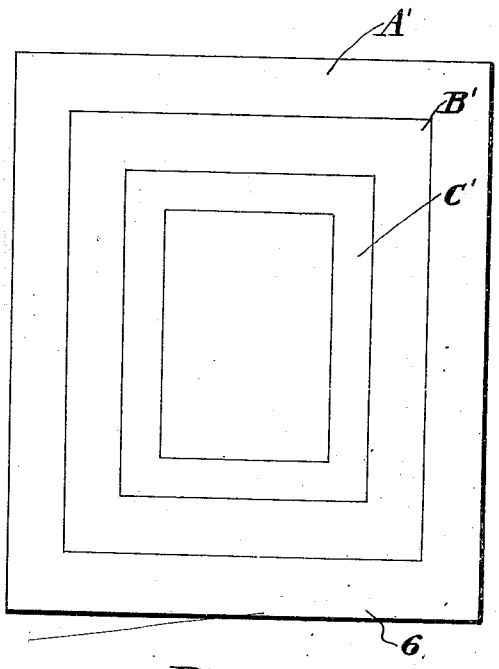


Fig. 2



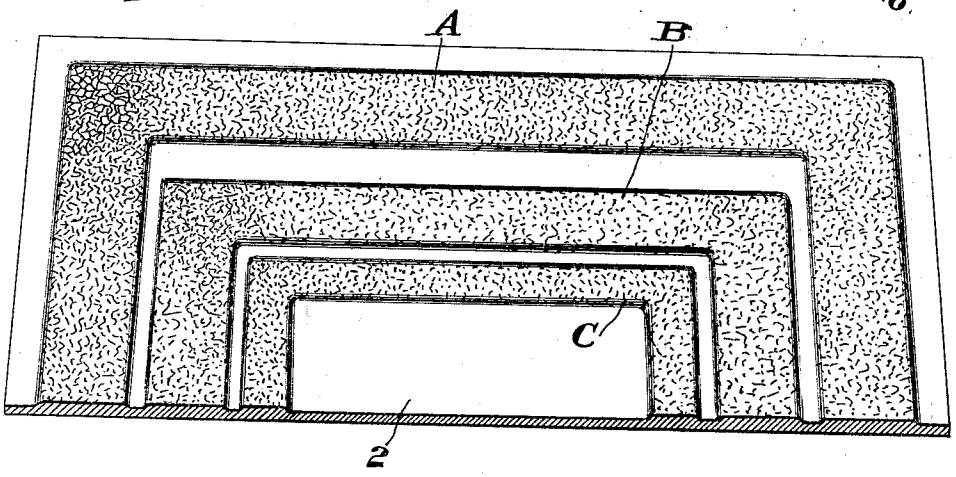


Fig. 3

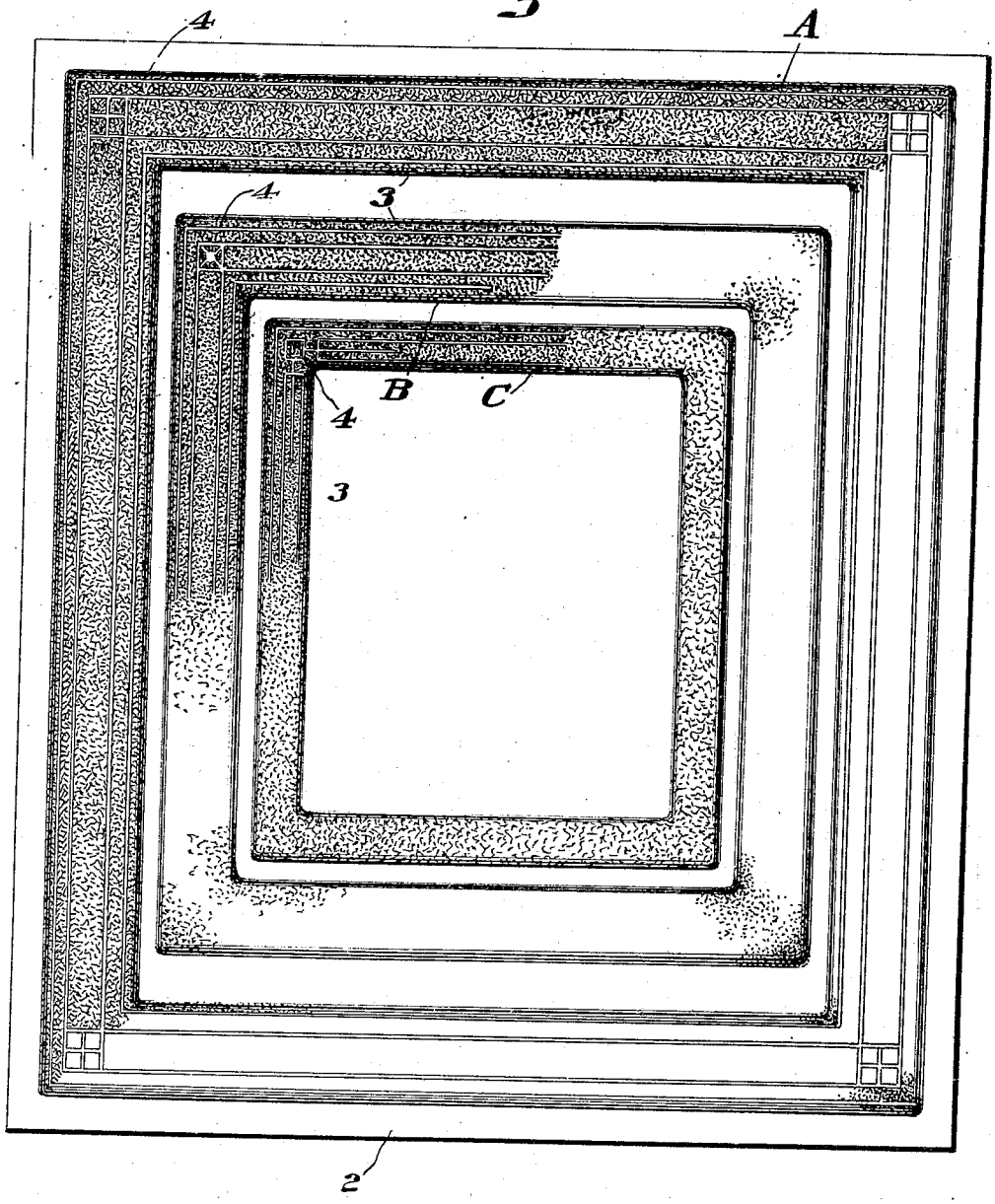
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Fig. 4



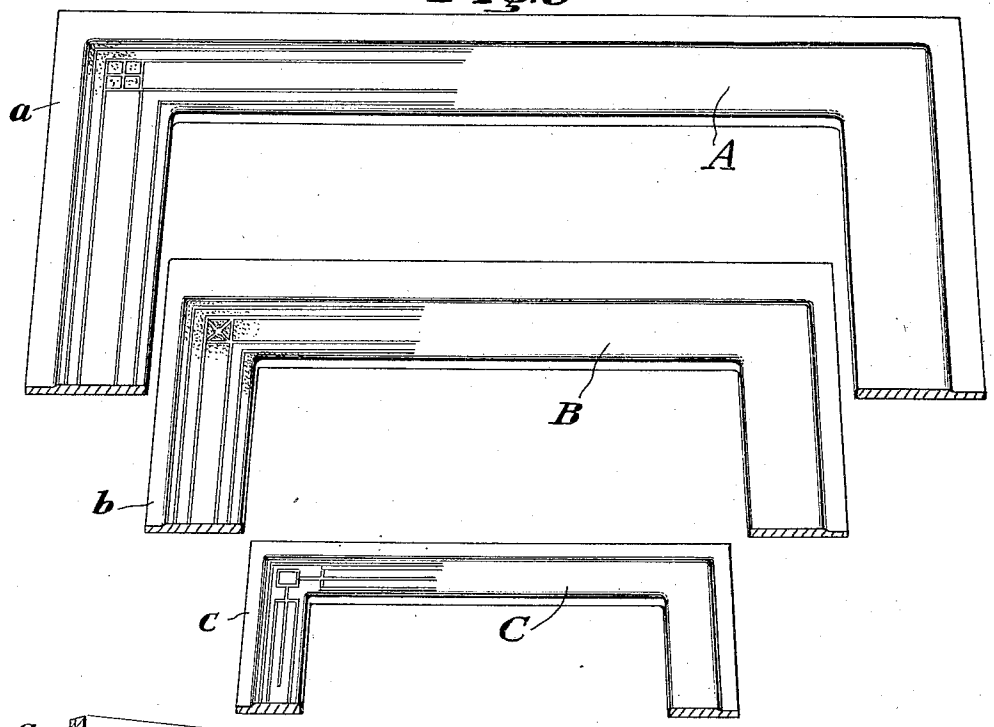
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Fig. 5



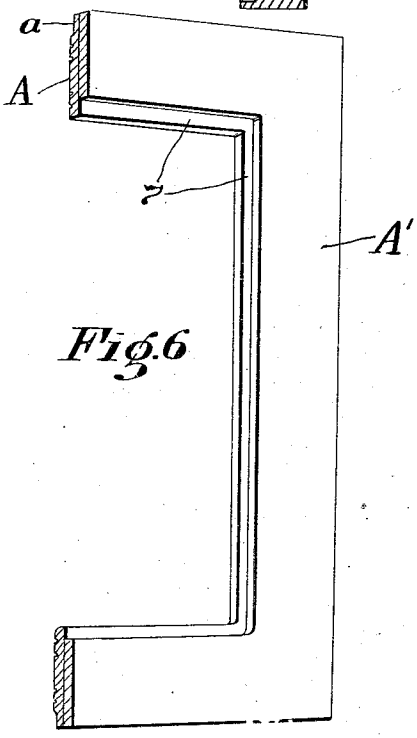


Fig. 6

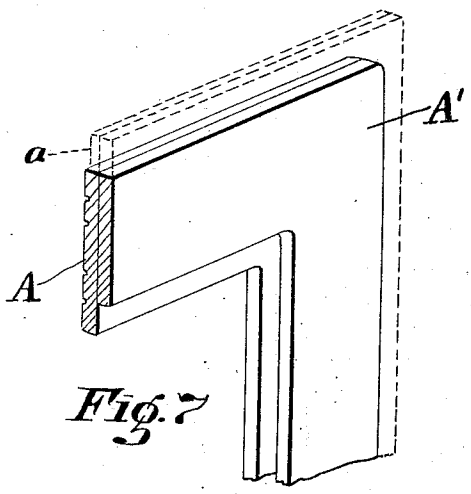


Fig. 7

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UNITED STATES PATENT OFFICE

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PICTURE FRAME AND METHOD OF MAKING SAME

Application filed February 24, 1930. Serial No. 430,661.

This invention relates to picture frames and to processes of making articles of this character.

At the present time most picture frames are made of wood. Usually the wood is ornamented in some manner, as by carving, gilding, or coloring in various ways. In some cases the wood frame is covered with leather which is embossed or tooled to produce attractive effects. Much hand labor is required in making frames by these methods, and the nature of the material used is sometimes an objectionable feature because of the tendency of the wood to shrink and swell with changes in atmospheric humidity.

The present invention aims to improve both the methods of making and also the construction of picture frames with a view to reducing the expense of manufacture of articles of this character, and more especially with the idea of producing a superior product.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claims.

In the drawings,

Figures 1 and 2 are plan views of boards of raw material which preferably are used in practicing the present invention;

Fig. 3 is a perspective view, partly in cross section, illustrating one step in the process of manufacture;

Fig. 4 is a plan view illustrating a further step in the present method;

Figs. 5 and 6 are perspective views, partly in cross section, illustrating additional steps in the method; and

Fig. 7 is a perspective view, partly in cross section, illustrating details of the finished frame.

This invention proposes to make use of certain characteristics of a grade of fibre board known commercially as "thermoplastic board." Such material is hard and firm at normal temperatures, but softens sufficiently at elevated temperatures to be moldable, as for example, from 175° to 200° F. It is readily obtainable in sheets of dimensions suitable for the manufacture of picture frames. In making frames of the common sizes used for photographs and the like, I prefer to use a board of this kind having a thickness of approximately one-eighth of an inch, or slightly more. Naturally the dimensions of the sheets used will vary with the sizes of the frames to be made.

In a typical process the first step consists in impressing the design, or features of it, for the face or front of a picture frame into the surface of the board 2, Fig. 1. Economies in production can be realized by making the frames in groups or sets so graded in size that the impressing, molding, or embossing operation can be performed simultaneously on a series or group of frame sections arranged one within another. Such a step is shown in Fig. 3, the sections for the fronts of three frames being indicated, respectively, at A, B and C, these sections being arranged in a nested relationship. The particular designs shown in this figure are intended to represent the graining of certain leathers, and these designs are impressed or embossed in the surface of the sheet 2 by a suitable die. The embossing or impressing operation can be performed in an ordinary press having provision for heating the die so that the temperature of the board will be raised sufficiently during the impressing or embossing operation to make the material take the impression properly.

In some cases the entire design may be impressed on the board in a single operation, but in making many designs it is preferable to make the ground work or some other part of the design in one step and later to impress or emboss other features of the design at a second operation. For example, in making a frame intended to imitate a leather covered frame, the nature of the graining or design probably would be such that a single impression only would be necessary to produce the desired surface structure or formation. Often, however, it is desirable to add figures or lines simulating the embossed or tooling effects which often are used on leather covered frames, and it is usually preferable to add

these effects in a second embossing or stamping operation.

Fig. 4 shows the board 2 embossed as shown in Fig. 3, but with lines 3 and figures 4 impressed into the embossed areas. These lines and figures can all be impressed simultaneously into the entire set or group of frame sections by a suitable die. This operation also may be used to impress gold leaf, either real or imitation, or metal foil of any other desired character, into the embossed surfaces along the lines 3 and figures 4. It is simply necessary for this purpose to place a sheet of gold leaf or foil over the board 2 prior to bringing the stamping die down upon it, whereupon the raised elements of the design carry the metal foil into the embossed surfaces. Due to the fact that the die is heated and the thermoplastic material becomes tacky when heated, the foil or gold leaf will adhere securely to those surfaces into which it is forced. After the die has been raised the remaining foil or leaf can be brushed off from those areas to which it has not been firmly attached during the stamping operation. It will be understood that no attempt has been made in Fig. 4 to show the complete ornamentation of the surfaces of the sections A, B and C.

At this stage of the process the board may be cut or divided in any way to separate the sections A, B and C from each other. Preferably this operation is performed in a press with a die which cuts through the board 2 along the inner edges of the sections A, B and C, respectively, trimming these edges to a finished form, but leaving the sections of excessive width. In other words, the surplus stock which separates adjacent sections A, B and C is left projecting from the outer margins of the sections after they have been separated from each other. This is clearly shown in Fig. 5 where the surplus marginal stock is indicated at *a*, *b* and *c*, respectively, on the three frame sections.

Rear frame sections to cooperate with the respective front sections preferably are cut out of another sheet 6, Fig. 2, like the sheet 2, the sheet being cut on approximately the dotted lines in this figure to form three rear frame sections A′, B′ and C′. These rear sections are designed to cooperate with the respective front sections A, B and C. Each rear section then is secured permanently to the back of its respective front section in any convenient manner, cement or glue ordinarily being employed. A book binder's glue is entirely satisfactory for this purpose.

In order to leave the usual bead or ledge 7 at the inner margin of the frame, the section A′ is cut to larger inside dimensions than the front section A so that when these parts are secured together, as shown in Fig. 6, the inner margin of the front section will project beyond the inner edge of the rear section. The same practice is followed in assembling the other frame sections.

The assembled frame members next are trimmed to their final or finished outside dimensions. The trimming operation may conveniently be performed in a press with a cutting die. This step of the process removes the marginal extension *a* from the frame and simultaneously trims the outer edges of both sections so that the finished edges of the two sections are flush and substantially continuous with each other. Because of the nature of the thermoplastic board from which the sections are made this final trimming operation tends to close the crack or seam between the two sections and make the outer edge substantially continuous. It also avoids any difficulty in registering the two sections which would be encountered if the sections were made independently to their final dimensions before being assembled.

The thermoplastic board which preferably is used in this process has a rather disagreeable black color entirely unsuitable for this particular purpose. Consequently, I prefer to apply a coating of coloring material having the desired characteristics to the embossed surface of the sheet 2 while it is in the condition shown in Fig. 3. This can be done either by dipping, spraying, brushing, or in any other convenient manner. After the sections have been trimmed, those of the same size can be stacked and the trimmed edges coated or colored. In some cases the rear surfaces of the frames are completely covered with a cloth, paper, or other backing so that it may or may not be necessary to coat these surfaces. The structural characteristics of the finished frame, so far as its essential features are concerned, will be clear from an inspection of Figs. 4 and 7.

The frames produced by this method are very strong and rigid, being entirely devoid of joints except the glued joint between the front and rear sections. Since the thermoplastic board of which these sections are made is highly waterproof, there is practically no tendency for the frame to shrink, swell, warp or check with changes in atmospheric humidity. The method of manufacture is very economical as compared with prior processes, and it lends itself readily to the production of an almost endless variety of attractive designs.

While I have herein shown and described a typical embodiment of my invention and a preferred method of practicing the invention, it will be understood that this disclosure has been made rather by way of illustration than limitation, and that the invention is susceptible of embodiment in a great variety of forms.

Having thus described my invention, what I desire to claim as new is:

1. That improvement in processes of mak-

ing picture frames which consists in impressing in a board of thermoplastic material designs for a plurality of front frame sections arranged in nested relationship, and subsequently cutting said board to form individual frame sections therefrom, each section bearing a design and each having a complete frame outline.

2. That improvement in processes of making picture frames which consists in impressing in a board of thermoplastic material designs for a plurality of front frame sections arranged in nested relationship, and subsequently cutting said board to separate said sections from each other, securing a rear frame section to the back of one of said impressed front sections, and trimming the outer edges simultaneously of both sections so secured together.

3. That improvement in processes of making picture frames which consists in impressing in a board of thermoplastic material designs for a plurality of front frame sections arranged in nested relationship, subsequently cutting said board to form individual frame sections therefrom, each section bearing a design and each having a complete frame outline, and coloring the trimmed edges of both sections.

4. That improvement in processes of making picture frames which consists in impressing in a board of thermoplastic material designs for a plurality of front frame sections arranged in nested relationship, subsequently cutting said board to separate said sections from each other, and during said cutting operation trimming the frame sections to substantially their final inside dimensions but leaving said sections of excessive overall width.

5. That improvement in processes of making picture frames which consists in impressing in a board of thermoplastic material designs for a plurality of front frame sections arranged in nested relationship, subsequently cutting said board to separate said sections from each other, during said cutting operation trimming the frame sections to subtantially their final inside dimensions but leaving said sections of excessive overall width, securing a rear frame section to one of said front sections, said rear section having inside dimensions slightly larger than the inside dimensions of the front section to which it is secured, whereby a margin of the front section is left projecting beyond the inside edge of the rear section, and subsequently trimming both sections simultaneously to the desired outside dimensions.

6. That improvement in processes of making picture frames which consists in embossing the front sections for a plurality of frames in nested relationship on a board of thermoplastic material while the material is at an elevated temperature, ornamenting the embossed surfaces so produced, and at some stage of the process cutting said board to form individual front frame sections each bearing an embossed design.

7. That improvement in processes of making picture frames which consists in embossing the front sections for a plurality of frames in nested relationship on a board of thermoplastic material while the material is at an elevated temperature, stamping design features into the embossed surfaces, and cutting said board to form individual embossed front frame sections each having a complete frame outline.

8. A picture frame having a front section of thermoplastic board embossed to give it a surface structure unlike that of the original board and having metal leaf stamped therein in lines and areas forming parts of a design, said front section having a ground work of a color different from that of the original material.

9. A picture frame comprising front and rear sections made from thermoplastic board and secured rigidly together, the outside edges of said sections being flush and substantially continuous with each other and the inside edge of the rear section being offset outwardly with reference to that of the front section, said front section having a design impressed therein and being of a color different from that of the orginal material.

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