Jan. 21, 1930. I. R. SWANSON 1,744,345

EMBOSSED STEEL VENEERED PANEL AND PROCESS OF MAKING THE SAME

Filed June 29, 1927

Fig. 1.

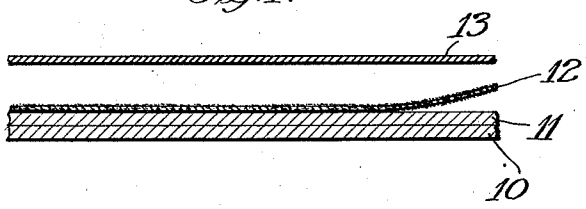


Fig. 2.

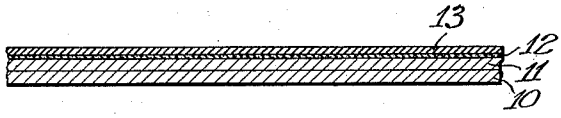


Fig. 3.

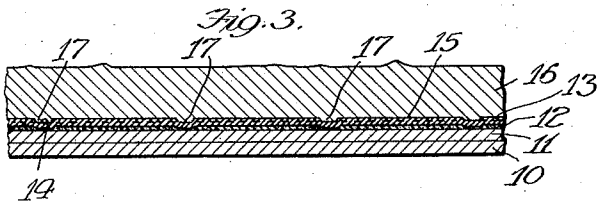


Fig. 4.

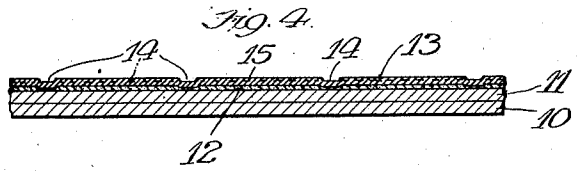


Fig. 5.

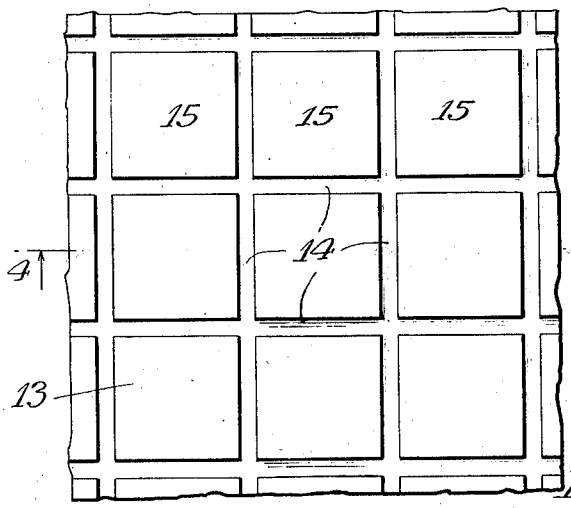
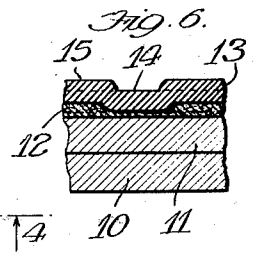


Fig. 6.



Witness
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UNITED STATES PATENT OFFICE

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EMBOSSED STEEL-VENEERED PANEL AND PROCESS OF MAKING THE SAME

Application filed June 29, 1927. Serial No. 202,173.

This invention relates to improvements in embossed steel veneered panels and process of making the same.

An object of the invention is to produce an article of manufacture comprising a composite panel, made up of a body portion of fibrous material with an outer metallic veneer, between which is interposed a layer of fabric of a character having a nap or pile, and wherein the metallic veneer is stamped or embossed to simulate tiling or other ornamentation, said layer of fabric, the metallic veneer, and the body portion being rigidly secured together by bonding material such as glue, and the embossments formed in the steel veneer being imbedded within the body portion of the panel to form the complete construction.

Another object of the invention is to provide a process of making a panel of the character referred to wherein a fabric sheet having a pile or nap is placed upon a flat body portion, and the steel sheet or veneer is placed on top of the fabric, the fabric being glued to the body portion and to the metallic veneer, and the panel then subjected to suitable dies which, under pressure, bear thereon and form embossments in the metallic veneer, which are imbedded into the body portion of the panel, so that the metallic veneer and body portion of the panel are permanently bonded together and the outer steel surface, forming a unitary part of the panel presents a surface simulating tiling.

In the drawing forming a part of this specification, Figure 1 is a fragmentary, sectional view through the body portion of the panel, and through the fabric sheet or layer, and the metallic veneer, the view illustrating the fabric and steel veneer in position to be secured together. Figure 2 shows a fragmentary, vertical, sectional view of a panel with the various component parts thereof in assembled relation. Figure 3 is a fragmentary, vertical, sectional view of a panel similar to that shown in Figure 2, being stamped to form an embossment in the metallic veneer. Figure 4 is a fragmentary, vertical, sectional view showing the panel after the embossments have been formed in the metallic veneer, and corresponds to line 4—4 of Figure 5. Figure 5 is a fragmentary plan view of the panel showing the embossed surface of the steel veneer. And Figure 6 is an enlarged, fragmentary, vertical, sectional view of one of the embossments, the fabric layer and the remaining body portion of the panel.

Referring more particularly to Figures 4, 5 and 6 of the drawings, there is shown a composite panel made up of a plurality of fibrous layers 10 and 11, glued together and forming what is commonly known in the trade as "ply-wood." Disposed upon the outer surface of the layer 11 is a layer 12 of fabric, preferably one with a pile or nap such as flannel, and disposed upon the outer surface of the fabric layer or sheet 12 is a metallic veneer made up of sheet steel, the metallic veneer 13, the fabric 12 and the layers 10 and 11 of the ply-wood being permanently secured together by means of glue placed on opposite sides of the fabric and the adjacent surfaces of the steel veneer and ply-wood layers. The outer surface of the steel veneer 13 is provided with a plurality of intersecting embossments 14 formed therein by a suitable die under pressure, to represent squares in relief, the latter simulating a plurality of tiles 15—15. Each embossment 14 is depressed with reference to the external surfaces of the tile sections 15 as best shown in Figure 6, and is imbedded in the body portion of the panel and particularly in the fabric layer 12. As before stated, the fabric layer 12 is preferably of flannel, such material being more or less loosely woven and the surface fibers constituting the pile being free, and the body of the fabric is well adapted to yield or stretch when there is relative movement between the body portion consisting of the layers 10 and 11 of the ply-wood, and the steel veneer 13, this property of the fabric being peculiarly efficacious in compensating for the different rates of expansion and contraction of the ply-wood and metallic veneer and further, permits the formation of the embossments in the metallic veneer without danger of severing the bond between the ply-wood fabric and veneer, and

also provides a somewhat flexible layer permitting of the embossments being imbedded therein when the same are formed in accordance with the process now to be described.

The process of making the composite panel consists in providing ply-wood layers 10 and 11, placing glue upon one surface thereof, applying the sheet 12 of fabric, preferably flannel to the surface of the panel, providing the steel sheet or veneer 13, placing glue upon its under surface so that the same may be placed upon the fabric sheet 12, as best shown in Figure 1, the parts then being assembled by pressing the same together as most clearly shown in Figure 2. When the ply-wood layers forming the body portion of the panel, the fabric 12, and the veneer 13, are assembled as shown in Figure 2, the same are placed upon a suitable support, and a die 16 brought into contact with the veneer 13, and the die subjected to pressure causing the ribs 17 thereof to indent or emboss the outer surface of the veneer 13 in the manner shown in Figure 3, thereby producing the completed article as shown in Figures 4 and 5. As contemplated by the invention, it is possible to emboss the veneer 13 prior to drying out of the glue between the body portion as represented by the two layers 10 and 11 of the ply-wood, the fabric 12, and veneer 13, by applying pressure to the die, and if desired, this pressure might be maintained a sufficient length of time to permit drying out of the glue while the panel is under pressure, thereby simultaneously effecting embossing of the steel veneer and also bonding the various parts of the panel together under maintained pressure. However, in actual practice, it is desired to first assemble the various parts of the panel in the manner disclosed in Figure 2, subjecting the same to maintained pressure over the desired length of time to permit the bonding material to dry while the parts are held under pressure, and afterwards the panel may be subjected to the action of the die in forming the corrugations or embossments in the metallic veneer 13 of the panel. In either event, it is pointed out that due to the presence of the fabric layer 12 with the peculiar advantages which flow from the presence of the nap or pile thereon, a relatively yieldable substance is provided which permits the formation of the corrugations or embossments without any danger of serving the bond between the metallic sheet 13, and the fabric and body portion of the panel. If desired, the corrugations or embossments 14 might be made deeper than illustrated and in this event the embossments, in addition to being imbedded in the fabric 12, will also be slightly imbedded into the body portion as made up by the layers 10 and 11 of the ply-wood.

While I have herein shown and described what I now consider the preferred manner of carrying out my invention, the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a process of making composite panels comprising the following steps: providing a main thin body portion of large area and an exterior exposed steel sheet of an area to cover said body portion and a fabric, the latter having a pile or nap, and interposing said fabric sheet between said steel sheet and said main body portion and permanently bonding said sheet, fabric and body portion together by the interposition of adhesive substance uniformly between the entire broad surfaces thereof, and subsequently simultaneously forming intersecting embossments in said steel sheet by die-pressing the metal substantially at right angles to the main plane of the metal, to depress the metal below the surface of said steel sheet and into the fabric, while the steel sheet is in permanently bonded relation with reference to said fabric sheet and said body portion, said embossments defining figures in relief upon the exposed metal surface of the steel sheet between said embossments, simulating tiling, the pile or nap of said fabric compensating for movement of the metal with reference to the body portion during the pressing operation and preventing severance of the permanent bond between the steel sheet, the fabric sheet, and the body portion.

2. As an article of manufacture, a thin composite panel of large area comprising a plurality of laminations of metal including a wood body portion and an outside layer of sheet steel of a size to cover the broad surface of said body portion, there being a layer of fabric having a pile or nap extending continuously between said body portion and steel sheet, adhesive being uniformly provided throughout the entire extents of the broad surfaces of said body portion, fabric layer and steel sheet and forming the securing means between the broad faces of said members, said outer steel sheet having integrally formed therein intersecting depressions extending below the main broad surface of the steel sheet, said intersecting depressions defining in the remaining surface of said sheet, figures in relief simulating tiling.

In witness that I claim the foregoing I have hereunto subscribed my name this 25th day of June, 1927.

IVAR R. SWANSON.