

[54] **METHOD OF MAKING A DECORATIVE BUILDING PANEL OF LUMBER PLANKS AND LAMINATED VENEER PLIES**
 [76] Inventor: **Roland Etzold**, 487A Thompson Ave., Mountain View, Calif. 94040
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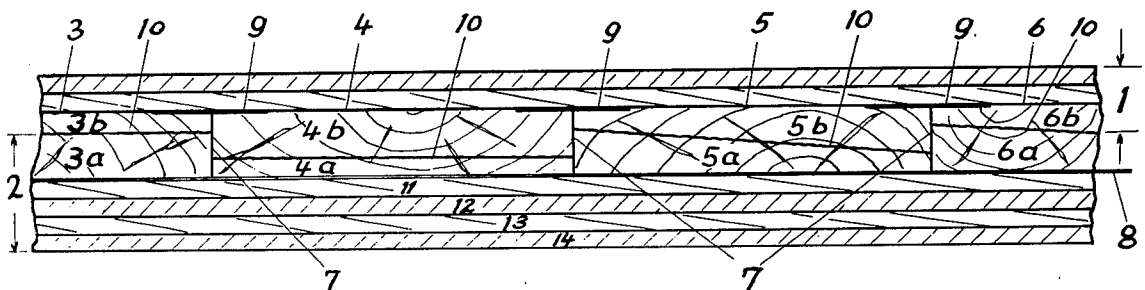
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Primary Examiner—Philip Dier
 Attorney, Agent, or Firm—Limbach, Limbach & Sutton

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[57] **ABSTRACT**
 This invention relates to a decorative building panel and the method of making the same. The panel consists in part of laminated veneer plies, with an outer layer of individual lumber planks; the surface of the planks being not necessarily in the same plane from plank to plank or within a plank.

9 Claims, 5 Drawing Figures



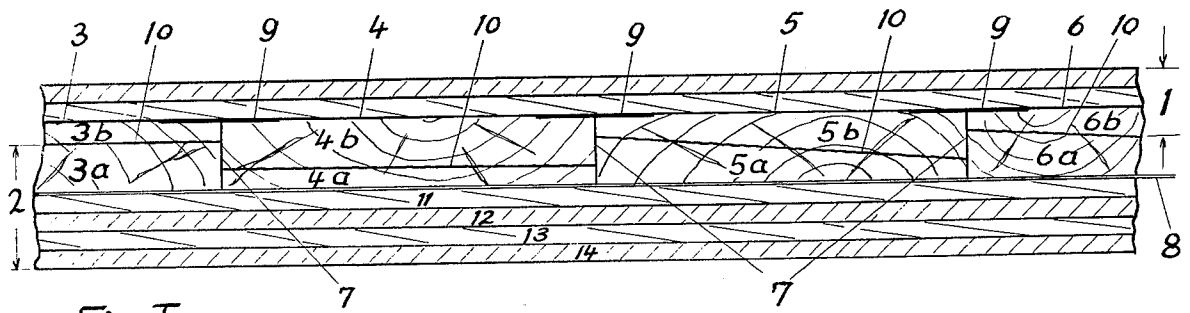


Fig. I

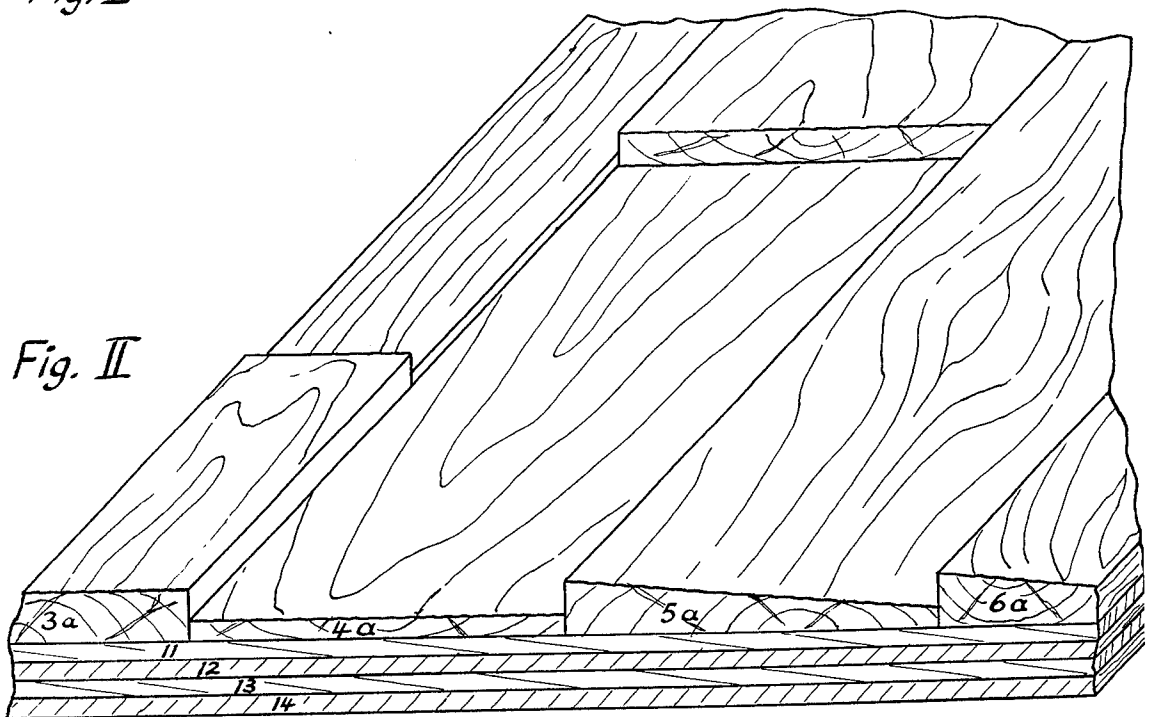


Fig. II

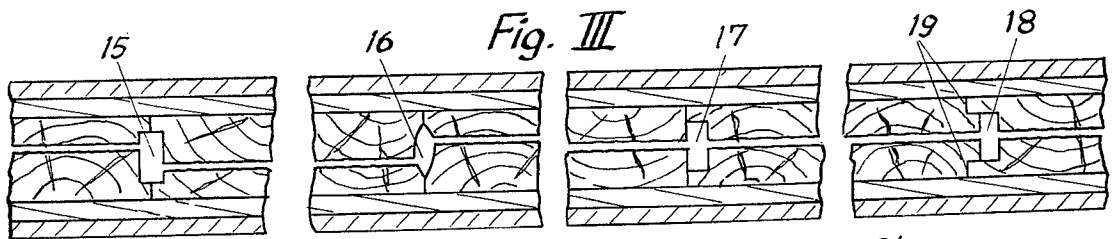


Fig. III

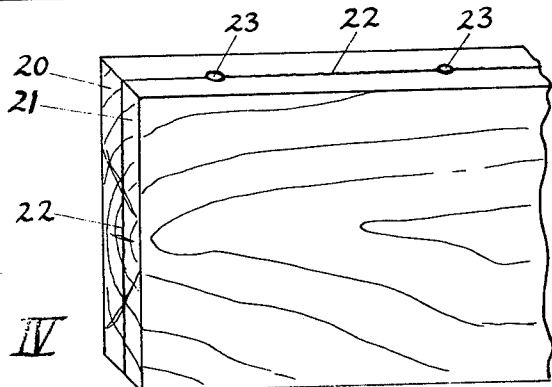


Fig. IV

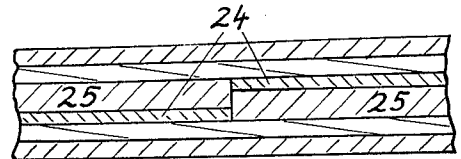


Fig. V

INVENTOR.

ROLAND ETZOLD

BY

Lumbach, Lumbach & Suttor

METHOD OF MAKING A DECORATIVE BUILDING PANEL OF LUMBER PLANKS AND LAMINATED VENEER PLIES

BACKGROUND OF THE INVENTION

Wood has been used in the construction of houses for many thousands of years. This has been mostly in the form of logs, beams and planks, and only in more recent history, but on an enormous scale in the form of plywood panels. The construction of buildings with individual planks has become exceedingly expensive, due to high labor rates and less efficient utilization of the raw material wood. Plywood on the other hand, which in most cases is made of rotary cut veneer, does not have the traditional appeal as individual planks.

Many methods have been devised to enhance the appearance of plywood made with rotary cut veneer faces. This is very often done by cutting various grooves parallel to the face grain, in order to simulate individual planks. Another, presently very popular treatment is the rough sawing of softwood plywood, thereby muting out the typical rotary figure of the veneer and providing a rough surface, similar to the one of unfinished lumber. Often a combination of both treatments is used. However, while the grooves may separate the veneer into individual strips, the grain of the wood continuing from one strip to the other, defeats partially this result. To avoid this, individual veneer strips, not related to each other, have been used adjacent to each other as a face veneer. This is an improvement, yet it still shows a tangential cut, unless strips of sliced veneer are used, and when subsequently treated to provide a rough sawn effect, the rough saw marks continue from one veneer strip to the next across the whole width of the panel.

One object of this invention is to combine the advantages of a laminated panel product with the appeal of a surface consisting of individual planks. The product comprises a plywood body with individual planks glued to its surface. It is not imperative that the thickness of the planks is the same from plank to plank or within a given plank, indeed there can be a considerable variation, thereby giving a third dimension to the panel's surface.

The saw marks from each plank fastened to the plywood body are separate from those of adjacent planks. A variety of grooves can be incorporated between individual planks. To utilize short pieces of lumber, planks can be butted end to end, until the full length of the panel is reached. Those joints, if randomly distributed over the panel's surface, rather enhance than depreciate the beauty of the product. A wide variety of lumber can be used. Short ends and low grades containing knots and decay may often be more appealing than clear uniform lumber. Softwood, as well as hardwood, lends itself for this product, which may not only be used as a decorative interior or exterior wall paneling, but also under proper condition as a textured concrete form lining.

To produce the product of this invention, planks of uniform thickness are resawn parallel to their surface and the two pieces reassembled into their original position. The separate resawn planks may not be of equal thickness from plank to plank and within a given plank. If pressed and glued onto a plywood body separately, it would result in areas of high pressure, where the wood would be crushed and in areas of no pressure,

where the bond to the adjacent veneer and the bond of the veneers to each other would be poor. If however, the resawn planks are reassembled into their original position and placed edge to edge between a number of glue coated veneer plies, the pressure throughout the assembly will be equal and after gluing the planks to the adjacent veneers and the veneers to each other, the assembly can be separated along the resawn surfaces of the planks resulting in two panels, each showing half of the original planks as its surface.

Instead of using planks of uniform thickness and resawing them into pairs, planks or veneer strips of different thicknesses may be assembled into pairs of equal thickness. These pairs placed edge to edge between glue coated veneer plies and bonded to them, will separate after removal from the press and result in two panels, where the surfaces of the individual planks or veneer strips do not lie in a common plane.

To facilitate lay-up, the pairs of planks or reassembled resawn planks could be attached to each other with tapes, glass fiber strings or hot melt adhesive, to form a unit as big as the future panel will be. To hold the separate resawn planks in their original position together, small drops of hot melt adhesive could be applied at the edge, covering the sawcut. This will not interfere with the separation of the assembly after pressing, provided it will take place, while the panels are still hot. The product of this invention and the method of making the same will become more apparent as it is explained in conjunction with the drawings I to V.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. I is an elevational sectional view of one embodiment of the present invention, showing an assembly before separating it into two panels.

FIG. II is a perspective view of one part of FIG. I.

FIG. III is an elevational sectional view of another embodiment of the present invention, showing four different plank joints with the assembly partially separated.

FIG. IV is a perspective view of a plank section, cut parallel to its surface and reassembled into its original position.

FIG. V is an elevational sectional view of a further embodiment of the present invention, showing the use of veneer strips instead of lumber planks.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. I shows a portion of a cross section of an assembly before separating it into two panels. The planks 3, 4, 5 and 6 may be bonded to two plies, as shown in panel 1 or to four plies, as shown in panel 2 or to any number, which will result in a commercially flat panel. The planks 3 to 6 are cut more or less parallel to their surfaces into the pieces 3a and 3b to 6a and 6b. A barrier 8 such as for example a paper glue line, will prevent liquid glue from squeezing through the joints 7 during hot pressing between the hot plates of a hot press. This is important, since otherwise the assembly will not separate into two panels or the surface of the two panels may become glue spotted and unsightly, requiring a further cleaning step, such as planing, sanding, sand blasting or wire brushing, which may not be desirable in many cases. Other means to prevent the glue from striking through the joints 7 may be used, such as pre-drying the glue coat on the veneer or taping the joints

with narrow tapes 9, thereby simultaneously connecting the individual planks to a unit of the size of the final panel. After gluing, the assembly will separate along line 10, resulting in two panels, of which one is shown in part in FIG. II.

FIG. II is a perspective view of a portion of the panel 2, seen in a cross section of FIG. I. The veneer plies 11 to 14 are glued to each other and to the lumber planks 3a to 6a. The grain of the planks and the grain of the plies 12 and 14 are parallel to each other, while the grain of ply 11 and ply 13 run perpendicular. Planks 3a and 4a illustrate end to end butting, which will permit the use of short or irregular long lumber and add to the aesthetical appeal of the finished product. FIG. II also illustrates the differences in thickness from plank to plank and within a plank. The thickness differences may have any degree from zero to more than one inch. For example, alternating thin and thick planks may be used.

FIG. III shows different joints with grooves, which may be used between planks instead of a square butt joint as seen in FIG. I. Rounded or square channels of various shapes and sizes may be cut along the full length of one or both edges of the planks prior to cutting them parallel to their surface. This will result, after finishing the product, in gaps between adjacent planks, which do not continue for the full thickness of the planks and therefore will not expose the underlying veneer ply to view. It also permits the planks to expand more freely when moistened, thereby reducing possible stresses, which in turn result in a flatter panel. If lumber planks with a large difference in thickness from plank to plank are used, subsequent separation of the panels is facilitated by those grooves. Grooves 15 and 16 result from channels, cut along both edges of the planks. Groove 17 is the result of a channel, cut along only on one edge of the plank. Joint 18 is a ship lap joint, which resulted from a tongue and groove pattern, cut along the edges of the planks prior to cutting them parallel to their surfaces. This pattern permits edge gluing of the planks at the surface 19, without subsequently exposing the glue or making the separation of the assembly impossible.

FIG. IV shows a plank cut parallel to its surface into two sections namely 20 and 21 along line 22. To facilitate the lay-up, the reassembled pieces may be held together with a few small drops of hot melt adhesive 23 covering the cut 22.

FIG. V shows veneer strips in place of the lumber planks. Thin strips 24 are combined with thick strips 25 to pairs of equal thickness.

While this invention has been described to some extent, it is understood that many variations and modifications are possible, without departing from the scope of this invention.

I claim:

1. The method of producing a decorative building panel, comprising the steps of
 assembling individual lumber planks at least certain of which are of uneven thickness into pairs, so that the resulting pairs have the same thickness throughout their length and from pair to pair,
 compiling an assembly by placing said pairs of planks edge to edge between a plurality of veneer plies coated with glue,
 placing a paper glue line between the layer of lumber planks and the adjacent veneer plies, which will

stick to both surfaces and prevent glue from striking through joints between the planks,
 pressing the assembly in a press until the glue has set and the veneers are bonded to each other and to the planks, and

removing the assembly from the press and separating it into two panels, thereby also separating the plank pairs, each panel showing one-half of each plank pair as part of its face.

2. The method of claim 1, further characterized by the step of
 selecting veneer strips for at least certain of said individual planks.

3. The method of producing a decorative building panel, comprising the steps of

selecting lumber planks of even thickness,
 cutting channels along the edges of the lumber planks the full length thereof, the channels being located toward the center of the edge permitting planks to fit tightly in edge to edge relationship without exposing the channels to view,

cutting the lumber planks into two planks substantially parallel to their surfaces and through the previously formed channels, at least certain of the planks variable in thickness from plank to plank and at least certain of the planks variable in thickness within a plank,

reassembling the separated two planks into their original position,

compiling an assembly by placing the reassembled plank pairs edge to edge between a plurality of veneer plies coated with glue,

pressing the whole assembly between hot plates, thereby bonding the veneers to each other and to the lumber planks, and

removing the assembly from the press and separating it into two panels, each panel showing one-half of the original lumber planks as its surface and exposing the cut channels at the edges of adjacent lumber planks to view while not exposing the glue coated veneer plies.

4. The method of producing a decorative building panel comprising the steps of

assembling and mechanically fastening together pairs of individual planks with the assembled pairs all substantially the same thickness with a mechanical fastening means,

compiling an assembly by placing said assembled pairs of planks edge to edge between at least a pair of veneer plies coated with glue,

pressing the assembly in a hot press until the glue has set and the veneers are bonded to the abutting planks, and

removing the assembly from the hot press and separating it into two panels, thereby also separating the plank pairs, each panel showing one-half of each plank pair as part of its face.

5. The method of claim 4 characterized further by selecting veneer strips for at least certain of said individual planks.

6. The method of claim 4 further characterized by assembling at least some of the plank pairs each from a plurality of shorter than full length plank pairs end to end and with corresponding end-to-end planks in adjacent pairs of different thicknesses.

7. The method of claim 4 further characterized by mechanically fastening plank pairs to each other in

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edge-to-edge relationship thereby forming a unit of plank pairs, placing the unit of plank pairs between at least a pair of veneer plies coated with glue while maintaining the mating position of the planks and the edge-to-edge relationship of the plank pairs.

8. The method of claim 1 further characterized by assembling and mechanically fastening together pairs of individual planks with the assembled pairs all substantially the same thickness.

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9. The method of claim 8 further characterized by mechanically fastening the fastened plank pairs to each other in edge-to-edge relationship thereby forming a unit of plank pairs, placing the unit of plank pairs between a plurality of veneer plies coated with glue while maintaining the mating position of the planks and the edge-to-edge relationship of the plank pairs.

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