

Dec. 24, 1968

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3,418,195

FABRICATED SHEETS OF WOOD VENEER

Original Filed Nov. 14, 1963

2 Sheets-Sheet 1

FIG. 1.

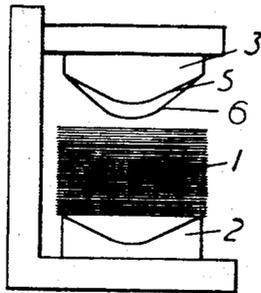


FIG. 2.

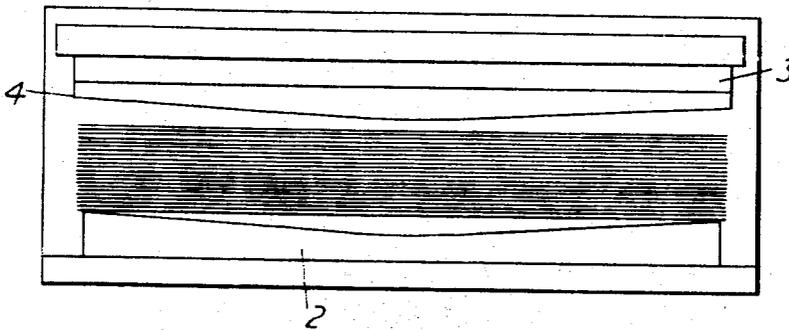
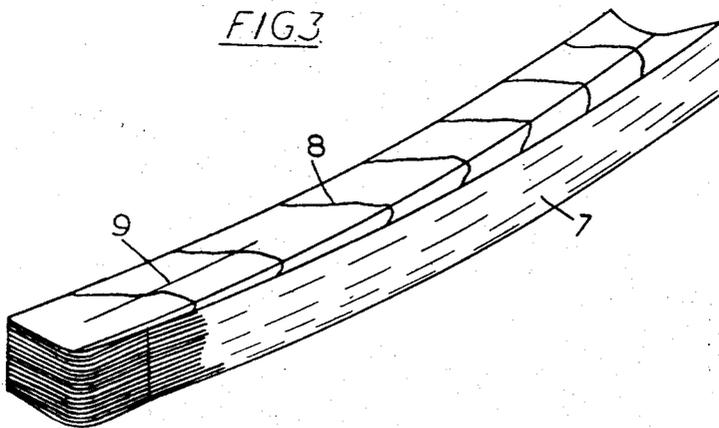


FIG. 3.



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FIG. 4.

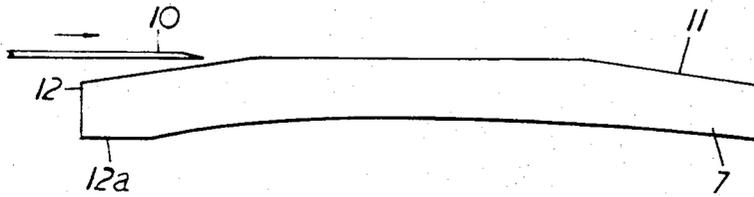


FIG. 5.

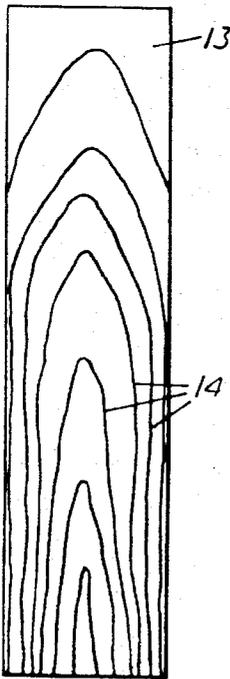


FIG. 6.

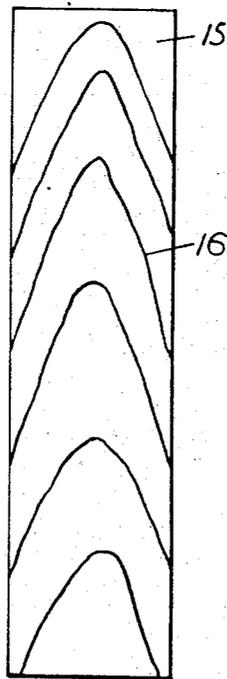
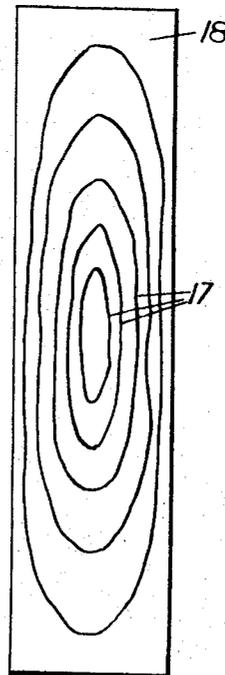


FIG. 7.



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FABRICATED SHEETS OF WOOD VENEER

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Original application Nov. 14, 1963, Ser. No. 323,745, now Patent No. 3,277,938, dated Oct. 11, 1966. Divided and this application Aug. 11, 1965, Ser. No. 478,958

3 Claims. (Cl. 161—37)

ABSTRACT OF THE DISCLOSURE

A fabricated sheet of wood veneer having a flower which simulates the flower obtained in a sheet of veneer sliced from a substantially perfect natural wood is obtained by slicing from a block of wood veneer laminations, each of which is similarly bent to have overlapping curvatures in two directions, so that each complete wood veneer lamination in the block has a domed convex surface. The appearance of the flower in the fabricated sheet of wood veneer obtained by slicing this block includes a V-shaped apex from which the arms of the V extend in a direction towards the side edges of the rectangular sheet of wood veneer and a majority of the arms then change direction to intersect an end of the rectangular sheet of wood veneer.

This invention relates to methods of producing sheets of wood veneer and to the sheets of wood veneer so produced and is an application divided from my co-pending application Ser. No. 323,745 filed Nov. 14, 1963, which has subsequently issued as Patent No. 3,277,938.

In the past, methods of manufacturing sheets of wood veneer which simulate natural veneers have been proposed. However, until comparatively recently, it has been considered impossible to obtain sheets of wood veneer which are of a high quality, that is to say of a normally acceptable quality, and which have an "artificial flower."

In U.S. Patents Nos. 3,312,582 and 3,216,468 there are proposed methods of producing fabricated sheets of veneer of high quality and having an artificial flower. Both the methods proposed in our co-pending applications have involved the formation of a block having the shape of a U or a V, and then slicing veneers from this block with a knife.

According to the present invention there is provided a method of producing a sheet of wood veneer comprising the steps of cutting a plurality of veneer laminations, forming from the veneer laminations a shaped block having all the said veneer laminations similarly bent in order to provide two intersecting concavities in one surface of the block, and slicing from the block with a knife sheets of veneer having smooth surfaces suitable for polishing.

More particularly the present invention provides a method of producing a sheet of wood veneer comprising the steps of cutting a plurality of veneer laminations, arranging the said plurality of veneer laminations in a stack with the grain of the veneer laminations in parallel, applying an adhesive between the laminations comprising the stack, forming from the stack of veneer laminations by pressing a shaped block having in one surface thereof a first concavity coextensive with the length of the block and a second concavity coextensive with the width of the block, and slicing from the block with a knife sheets of veneer having an artificial flower simulating a natural wood and having smooth surfaces suitable for polishing.

The shaped block from which the sheets of veneer are sliced according to this invention has a convex surface, formed by one bent veneer lamination, and this convex

surface may be considered as similar in nature to the double curvature surface of a lens, although in general the surface of the block would be rectangular in profile having a length several times its width. The opposed surface of the block to the convex surface will have a similar double curvature type of surface, but will be concave in shape.

It will be appreciated that the important feature of the block which is sliced by the knife is that each one of the veneer laminations comprising the block is bent to have the shaped configuration with the two concavities which is described. The profile of the block which is actually sliced is immaterial, provided that the individual laminations comprising it have the shaped configuration mentioned. Conveniently the block may be trimmed so that it is substantially rectangular before being applied to the veneer slicing machine.

Advantageously the block is sliced using the blade of a flat cutting machine, and according to this preferred aspect, therefore, the present invention provides a method of producing a sheet of wood veneer comprising the steps of cutting a plurality of veneer laminations, arranging the said plurality of veneer laminations in a stack with the grain of the veneer laminations in parallel, applying an adhesive between the laminations comprising the stack, forming from the stack of veneer laminations by pressing a shaped block having in one surface thereof a first concavity coextensive with the length of the block and symmetrically disposed in relation to the width of the block, and a second concavity coextensive with the width of the block and symmetrically disposed in relation to the length of the block, and slicing from the block with the knife of a flat-cutting machine sheets of veneer having an artificial flower simulating a natural wood and having smooth surfaces suitable for polishing.

The method according to this preferred aspect of the invention has the advantage over the method of producing fabricated sheets of wood veneer described and claimed in U.S. Patent No. 3,216,468 in that, when the main portion of the block is being sliced, the successive sheets of veneer obtained have the same dimensions of length and width, whereas the sheets of veneer obtained by the method of U.S. Patent No. 3,216,468 are successively of varying dimensions on account of the use of a rotary cutting machine. Furthermore, the veneers obtained by the method of the present invention will be rectangular in shape, whereas the method of U.S. Patent No. 3,216,468 produces sheets of veneer which are tapered from the top and the bottom of the individual fabricated veneers.

Desirably the first concavity in the surface of the shaped block which is the concavity extending along the whole length of the block, presents a substantial deformation in the surface of the block in relation to the width of the block. Such a substantial deformation may be of the order of as much as 15% to 25%, so that when a U shaped block is formed, the depth of the U may be as much as 15% to 25% of the width of the U, that is to say the distance between the extremities of the arms of the U. On the other hand, the second concavity in the surface of the block, which is the concavity which extends over the whole width of the block, desirably presents a comparatively slight deformation in the surface of the block in relation to the length of the block, and this slight deformation may, for example be of the order of 5% so that the depth of a U comprising the second concavity would be only 5% of the distance between the extremities of the arms of the U.

The concavities in the surface of a shaped block may be either U shaped or V shaped concavities, each of which concavities extends over the whole surface of the block.

Preferably the slicing of veneers from the shaped block is commenced at the convex surface of the shaped block.

The present invention also comprehends a fabricated sheet of wood veneer obtained by the method of the invention. More particularly, the present invention provides a fabricated sheet of wood veneer comprising a slice of veneer cut from a shaped block formed from a plurality of veneer laminations, all of which are similarly bent in order to provide two intersecting concavities in one surface of the block, the slice of veneer having smooth surfaces suitable for polishing.

According to another feature, the present invention comprehends for use in a method according to the invention a shaped block formed from a plurality of veneer laminations, all of which have been similarly bent, whereby the block has two intersecting concavities in one surface thereof.

The invention will be more clearly understood from the following detailed description of a preferred embodiment thereof which is made, by way of example, with reference to the accompanying diagrammatic drawings in which:

FIGURE 1 shows a side view of a glued stack of veneer laminations in a press having male and female jigs so shaped as to produce a block having two intersecting concavities in one surface thereof,

FIGURE 2 shows a front view of the glued stack of veneer laminations in the press of FIGURE 1,

FIGURE 3 shows in perspective the shaped block obtained by the use of the process of FIGURES 1 and 2,

FIGURE 4 shows a preferred method of cutting the shaped block of FIGURE 3, using a flat cutting machine operating horizontally,

FIGURE 5 shows the veneer obtained by cutting the shaped block by the method of FIGURE 4,

FIGURE 6 shows for the purpose of comparison the veneer obtained by the methods of U.S. Patents Nos. 3,312,582 and 3,216,468.

FIGURE 7 shows another veneer obtained by cutting the shaped block of FIGURE 3.

In the drawings, like reference numerals designate the same or similar parts.

Referring now to FIGURES 1 and 2 of the drawings, a glued stack of veneer laminations 1 is prepared in the usual manner, namely by stripping sheets of wood from a log, which has preferably been steamed to aid cutting, cutting the sheets of wood into laminations of a predetermined size and free from imperfections, selecting a number of veneer laminations and applying glue to the veneer laminations in the conventional manner, and placing the veneer laminations in a stack so that the grain and the flower of the wood in each veneer lamination runs in the same direction throughout the stack of veneer laminations.

Before the glue has set, the stack of veneer laminations 1 is placed on the lower female jig 2 in a press with the grain of the wood running in a direction along the length of the jig 2. The stack of veneer laminations is then compressed by applying pressure to the male jig 3, which has a surface of a shape adapted to engage exactly with the surface of the female jig 2.

Both the jigs 2 and 3 have the contours of a U in two directions at right angles, as indicated in the drawings. The effect on the contours of the jigs of the superimposition of these two U shapes is shown in the view of the male jig 3 shown in FIGURE 1. The shape of the edge 4 of the male jig 3 shown in FIGURE 2 is indicated at 5 in FIGURE 1 and this is in fact the U forming the concavity which extends along the length of the block to be formed from the laminations. The effect on the contour of the male jig 3 of the concavity which extends over the whole width of the block to be formed from the laminations is indicated at 6 in FIGURE 1. It will be appreciated that the surface of the male jig 3 is thus double curved in nature or may be considered as having a tendency to be domed in shape.

The degree of curvature present in the jigs 2 and 3 is such that a substantial curvature is imparted over the width of the jig, that is to say in the dimension shown in FIGURE 1 by reason of the concavity extending along the length of the block, whereas only a comparatively slight curvature is imparted along the length of the jig, which is the dimension shown in FIGURE 2. Conveniently in the manufacture of a block of veneer laminations, which is 8' in length and 22" in width, the depth of the U shown in FIGURE 2, that is in the length of the block, is of the order of ½" in extent, while the depth of the U shown in FIGURE 1, that is across the width of the block, is of the order of 3" to 4" in extent.

The compression of the stack of veneer laminations by the application of pressure to the male jig 3 causes the glue between the individual laminations to set. The glue used may be any suitable synthetic resin adhesive.

The shaped block 7 obtained in this manner is shown in FIGURE 3 and the natural flower and grain of the laminations comprising the block are indicated by numerals 8 and 9 respectively.

The preferred method of slicing veneers from the shaped block 7 is shown in FIGURE 4 of the accompanying drawings. The block 7 is mounted at a slight angle to the horizontal blade 10 of a flat cutting machine by trimming a lower corner of the block 7 before it is placed in the flat cutting machine. The blade 10 of the flat cutting machine is then caused to slice from the convex surface 11 of the block first. Once the blade 10 has progressed to the stage where it is slicing sheets of wood veneer from the block 7 below the level of the limit 12 of the convex surface 11 of the block, the sheets of veneer obtained will be of a uniform size. The corner of the block beneath the limit 12 is trimmed as indicated at 12a in order to present the block 7 to the blade 10 at the described angle, for example by trimming 2¼ inches from the side of the block 7.

Referring now to FIGURE 5 of the accompanying drawings, there is shown a sheet 13 of veneer produced by the method which is described. The flower of the sheet of veneer 13 is indicated at 14 in FIGURE 5. A similarly shaped sheet of veneer 15 obtained by the method of either of U.S. Patents Nos. 3,312,582 and 3,216,468 is shown in FIGURE 6 and the flower in this sheet of veneer 15 is indicated at 16. It will be noted that all the flower in the sheet of veneer 15 runs in lines which intersect the edge of the sheet of veneer, whereas in the sheet of veneer 13 manufactured according to the present invention, some of the lines of the flower 14 straighten out and tend to run substantially parallel with the edge of the sheet of veneer.

The appearance of the sheet of veneer 13 manufactured according to the present invention simulates more nearly the flower obtained in a sheet of veneer sliced from a substantially perfect natural wood, than does the flower in a sheet of veneer 15 obtained by the method according to either of the aforementioned U.S. patents.

It will be appreciated that the shaped block 7 prepared according to the present invention may also be sliced along its longitudinal side edge. Slicing of the shaped block 7 in this way will produce a veneer having the appearance of an imperfect straight line grain which gives a more natural appearance than some of the sheets of fabricated veneer having straight grain manufactured by slicing a rectangular block of substantially flat veneer laminations, as has been proposed hitherto.

Although the method of slicing the block 7 has been described above as being carried out on the block 7 when presented at a slight angle to the horizontal blade 10, in an alternative method of cutting the block 7, the block 7 is presented horizontally to the blade 10, and the veneer obtained by slicing the horizontal block 7 in this manner is shown in FIGURE 7. The flower 17 of the veneer 18 obtained is very similar to that which would be obtained by slicing from two perfect trees jointed together at an

angle at the butt, which is nearly impossible in practice owing to the difficulty in obtaining two perfect trees having flowers of the same size.

Furthermore the block 7 may be sliced by a knife in a rotary cutting machine and this method of slicing the block produces a veneer similar to that of FIGURE 5 but which has a flower in which the lines at the edge of the veneer are more narrowly spaced than those shown in FIGURE 5 although they still run substantially parallel to the sides of the veneer as shown in FIGURE 5.

The press used in the manufacture of the block described above is symmetrical about a central axis and the top and bottom jigs of the press are similar, each exhibiting a U-curve in two mutually perpendicular directions. The block obtained has even lines at the places where the veneer laminations are united. Equally, however, the block formed may have uneven, irregular or unsymmetrical lines, for example by using two jigs which are similar but not symmetrical about any axis, or by using two jigs which have different profiles, or, more simply, by using two similar and symmetrical jigs, but changing the effective contour of one of the jigs by attachments to it an extra mould having a different profile.

I claim:

1. A substantially rectangular fabricated sheet of wood veneer having a flower simulating the flower obtained in a sheet of veneer sliced from a substantially perfect natural wood, the wood veneer including a grain in a given grain direction and comprising a plurality of overlapped sections of wood veneer laminations bonded together by a glue, each complete overlapped section of wood veneer lamination having a V-shaped apex and the V-shaped apices of the complete overlapped sections of wood veneer lamination defining a general direction parallel to the length of the rectangular fabricated sheet, the arms of a majority of the complete overlapped sections extending outwardly from the V-shaped apex in a direction towards the side edges of the rectangular sheet of wood veneer and then changing direction to intersect an end of the rectangular sheet of wood veneer, the grain direction of the wood of the veneer laminations being parallel to the

general direction defined by the V-shaped apices of the complete overlapped sections and to the length of the rectangular fabricated sheet of wood veneer, and the veneer having smooth uni-planar exposed surfaces suitable for polishing.

2. For use in producing a substantially rectangular fabricated sheet of wood veneer according to claim 1, a shaped block formed from a plurality of wood veneer laminations, the grain of each wood veneer lamination being substantially parallel to the grain of all the other wood veneer laminations, and all the wood veneer laminations having been similarly bent to have overlapping curvatures in two directions so that each complete wood veneer lamination in the block has a convex surface which is substantially domed in shape.

3. A substantially rectangular fabricated sheet of wood veneer having a flower simulating the flower obtained in a sheet of wood veneer sliced from two substantially perfect trees jointed together at an angle at the butt, the wood veneer including a grain in a given grain direction and comprising a plurality of overlapped sections of wood veneer laminations bonded together by a glue, each overlapped section of wood veneer lamination forming a ring of which at least one edge approximates to an ellipse, the grain direction of the wood of the veneer laminations being parallel to the major axes of each said ellipse, and the veneer having smooth uni-planar exposed surfaces suitable for polishing.

References Cited

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U.S. Cl. X.R.

161—60, 125, 138; 144—316