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METHOD FOR PRODUCING PLYWOOD WITH A PAPER-FACED PLATEN

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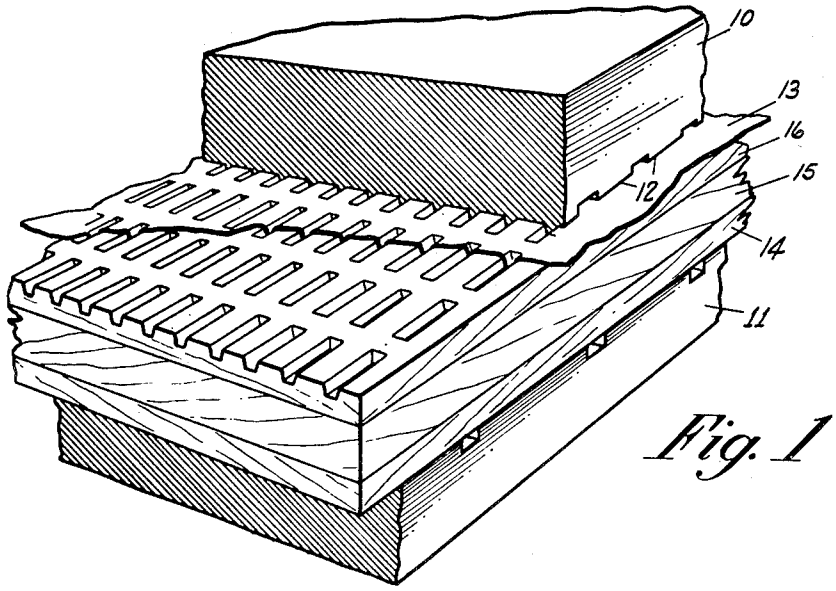


Fig. 1

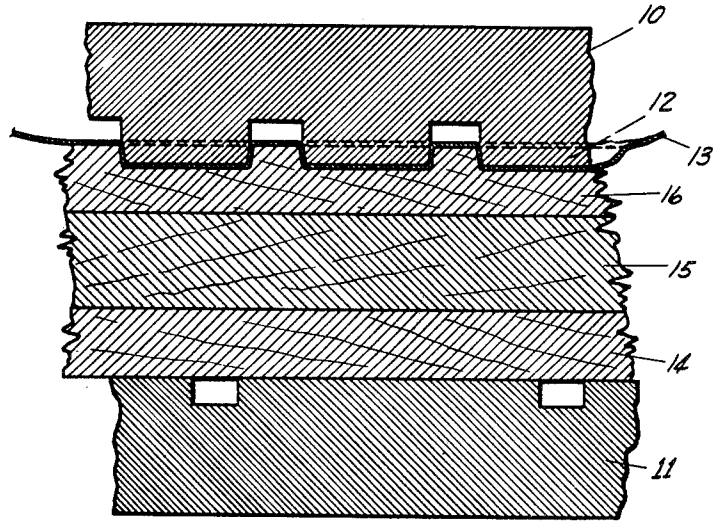


Fig. 2

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METHOD FOR PRODUCING PLYWOOD WITH A PAPER-FACED PLATEN

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4 Claims. (Cl. 154—106)

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The present invention relates to the formation of plywood panels. It is especially useful in methods of forming plywood panels as described in my prior copending applications, Serial Nos. 82,103 and 98,464, filed respectively March 18, 1949, and June 11, 1949, but it is not restricted to use with this particular disclosure.

My above identified prior inventions have proven to be very effective to prevent and obscure cracking or splitting of the exterior veneer on the core panel after compounding the same into final form. However, when using wet veneer, as explained in my prior applications, there are usually secretions of sap and the like from the wood and these secretions, when brought to the exterior surface of the outer layer of veneer, cause objectionable discoloration of the exposed or exterior veneer. This discoloration should be removed as it is desirable to have the plywood with a perfectly clear and clean exterior surface before it is salable in a competitive market.

Heretofore, it has been necessary to surface treat the exterior surface of the plywood by treatments such as sanding (blasting), washing or coating to remove or obscure any discolorations resulting from the secretions brought to the exterior surface of the veneer during the formation of the plywood panels.

As object of the present invention is to prevent the formation of the discoloring layer on the surface of the outer ply in the wet veneer process and to leave a clear and clean exterior surface of the plywood, and thereby eliminate any need for further treatment.

Another object is to provide a porous sheet of material between the presser means used for uniting the constituent layers of the plywood and the exterior surface of the veneer layers thereof, whereby the discoloration and secretions are transferred from the exterior veneer surfaces to the said porous material.

A further object is to provide a porous sheet for absorbing the secretions from the wet veneer, which porous sheet is tough, flexible and substantially fracture-proof under the usual conditions of heat and pressures developed during the plywood manufacture.

Still another object is to provide an absorbent cleaning system for exterior plywood veneer surfaces combined with a process for press forming plywood panels, comprising a sheet of wood pulp paper absorbent, such as kraft paper, positioned between a heated presser platen and the exterior veneer surface of the plywood panels, whereby

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discoloring secretions brought to the exterior surface of the veneer during the plywood pressing, heating and gluing steps are drawn by absorption and heat pressures through the pores of the absorbent paper so that such discoloring secretions or the like collect on the exterior surface of the paper, thereby leaving the exterior veneer surface clean and clear of discolorations.

Apparatus whereby this method of making and producing a clear, clean surfaced plywood as practiced is illustrated in the accompanying drawing in which:

Figure 1 is an isometric view of a portion of the pressure platens and a sheet of absorbent paper or the like between the exterior of the upper ply veneer sheet and the upper platen or caul plate.

Figure 2 is a cross sectional view on an enlarged scale of the platens, veneer sheets, core and absorbent sheet.

Referring to the drawing in detail, the apparatus used in the present process includes a pair of opposed suitably heated presser elements, platens 10 and 11. The upper platen 10 may be a patterned caul plate with flat faced, tooth-like projections 12 distributed over its surface, such as is shown in more detail in my above referred to prior applications. Between the platens 10 and 11 are positioned the layers or plies which are to be united to form the panel and at least one sheet of porous absorbent material 13, preferably a very tough, tear-resistant wood pulp paper, such as kraft paper.

The composite plywood panel comprises a lower sheet of wood veneer 14, a layer or coating of glue, a core sheet 15, a second coating of thermo-setting glue, and an upper layer of wood veneer 16. The upper veneer layer 16 is the facing sheet of the panel, which facing sheet is to be kept clean and free of discolorations by the porous sheet 13. Over this facing sheet 16 is spread the porous sheet 13, for example, a sheet of kraft paper.

With the several glue coated layers of the plywood and the kraft paper 13 thus superimposed, they are positioned between the upper and lower platens 10 and 11 and are united by heat and pressure from the platens. As the pressure is applied to the several layers, any secretions expressed from within the body of the veneer layer 16 to the exterior surface thereof is absorbed by the kraft paper 13. As the paper is flexible and deformable it is pressed into the veneer surface by the projections on the caul plate or upper platen 16, and it absorbs all secretions entrained

in the steam or vapors developed from the heated platens and driven to the exterior surface of the veneer.

Usually the heated platens are kept in pressing engagement with the plywood and the kraft absorber sheet for a predetermined time sufficient to permit complete absorption of the expressed secretions from the wet veener layer 16. These secretions pass through the absorbent sheet or layer and form a discoloring layer on the outer face thereof. The kraft paper as shown in Figure 2 extends only partially into the spaces between the caul plate teeth 12 and remains pressed onto the veneer pattern. After the proper time has elapsed the platens are moved apart leaving the plywood layers combined as a unit and the absorbent sheet is then stripped off. Unless the product is allowed to remain in the press long enough to remove moisture to approximately 8 per cent, the kraft paper 13 tends to adhere to the veneer surface and to the platen. Also, time must be allowed for absorption of secretions from the veener surface.

The porous sheet 13 must be strong enough to be stripped from the platen or from the veneer without tearing. Also, when used in connection with a patterned caul plate it must be deformable to an extent to permit it to conform to the tooth shapes without rupture and must retain sufficient strength to be stripped from the plate and veneer without tearing. It must be sufficiently absorbent to take up all the sap secretions which appear at the outer surface of the veneer. I have found that a long-fiber paper, such as kraft paper, has all the necessary characteristics, and I have obtained excellent results using untreated 5 point kraft paper which remains strong and tough after use.

Many forms of porous sheets have been tried in place of tougher tear-resistance kraft paper, but for use with a patterned caul plate, soft paper, felting and the like lack strength at the stripping operation and light cotton canvas, while effective, is too expensive. For example, such light cotton canvas costs more than kraft paper, is too expensive to throw away after each use, requires washing when used over and wrinkles and creeps while laying for the pressing operation. On the other hand plain kraft paper is relatively inexpensive and may be discarded after each use, does not wrinkle, and is sufficiently rough to prevent creeping while laying for the pressing operation.

Kraft paper is made from a specially treated wood pulp, wherein the fibers are loosened, and reduction to pulp takes place in the edge runner instead of the beating machine as is known in the art. By this means the fibers are drawn out, not cut up, and very tough papers can be made. Therefore after the bonding cycle of forming the plywood panel, even if the paper adheres to some extent, it may be removed without rupture or tearing from the platen or from the exterior veneer surface very readily.

Without further description it is believed the present invention should be clearly understandable by others desiring to practice the same and it is to be understood that various changes are possible within the scope of the invention as defined in the appended claims.

What I claim is:

1. In the manufacture of plywood having at least one facing sheet free from discolorations by the wet veneer method using a press having heated caul plates provided wtih spaced teeth, the process which comprises assembling a plurality of sheets of wood including at least one facing sheet of wet veneer with layers of glue between the sheets, placing a loose thin disposable sheet of kraft paper over the said facing sheet, pressing the resulting assembly under pressure sufficient to press the caul teeth into the veneer while heating the plates, and continuing the application of heat and pressure until the plies are united and the moisture content of the wet veneer has been reduced to an amount not substantially exceeding 8 per cent by weight and the secretions derived from the wet veneer have passed through the kraft sheet, then stripping off the kraft sheet leaving the facing sheet clean and free from secretions.

2. In the manufacture of plywood having at least one facing sheet free from discolorations by the wet veneer method using a press having heated caul plates provided with spaced teeth, the process which comprises assembling a plurality of sheets of wood including at least one facing sheet of wet veneer with layers of glue between the sheets, placing a loose thin disposable sheet of rough tear-resistant long-fiber absorbent material over said facing sheet, pressing the resulting assembly under pressure sufficient to press the caul teeth into the veneer while heating the plates, and continuing the application of heat and pressure until the plies are united and the moisture content of the wet veneer has been reduced to the point at which the sheet of fibrous material can be readily stripped off and the secretions derived from the wet veneer have passed through the fibrous sheet, then stripping off the fibrous sheet leaving the facing sheet clean and free from secretions.

3. The method of claim 2 wherein heat and pressure is applied in the pressing operation until the moisture content of the veneer is reduced to approximately 8 per cent by weight.

4. In the manufacture of plywood having at least one facing sheet free from discolorations by the wet veneer method using a press equipped with heated presser elements and with at least one presser element having spaced projections, the process which comprises assembling a plurality of sheets of wood including at least one facing sheet of wet veneer with layers of glue between the sheets, placing a loose, thin, disposable sheet of rough tear-resistant long-fiber absorbent material between the said facing sheet and the presser element having spaced projections, pressing the resulting assembly under pressure sufficient to press the spaced projections into the veneer while applying heat and continuing the application of heat and pressure until the plies are united and the moisture content of the wet veener has ben reduced to an amount not substantially exceeding 8 per cent by weight so that the sheet of absorbent material can be readily stripped from the wet veneer and the secretions derived from the wet veneer have passed through the absorbent sheet, then stripping off the absorbent sheet leaving the facing sheet of veneer clean and free from secretions.

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