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 METHOD OF MAKING LONG PLY WOOD PANELS.
 APPLICATION FILED NOV. 13, 1920. RENEWED SEPT. 23, 1921.

1,396,971.

Patented Nov. 15, 1921.

Fig. 1.

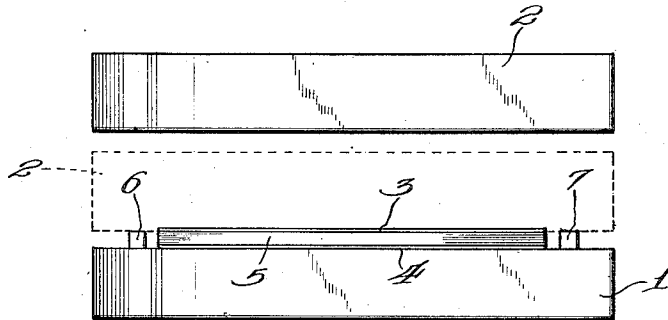


Fig. 2.

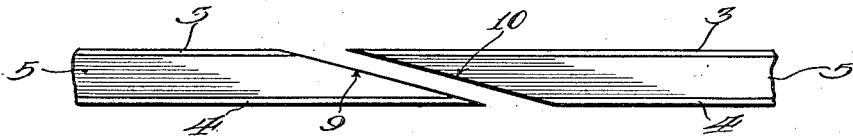
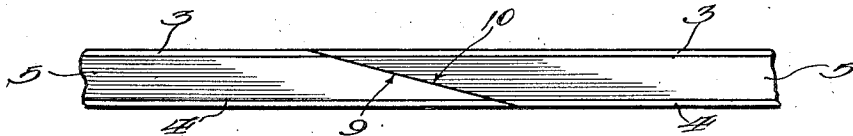


Fig. 3.



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METHOD OF MAKING LONG PLY-WOOD PANELS.

1,396,971.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE R. MEYERCORD, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Methods of Making Long Ply-Wood Panels, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

For some purposes as, for example in the construction of motor boats and aircraft in which ply-wood sheets are used, it is desirable that the ply-wood be in panels sufficiently long to eliminate the necessity of making joints and thus insure long continuous smooth surfaces. If it be desired that the grain in the exposed surface of the panel run lengthwise of the panel, then the limit of length is reached with the longest pieces of veneering that can be successfully handled. Unusually long panels can be made by splicing the cores and laying the surface veneer in strips having the grain running transversely of the panels although, in most instances, this disposition of the grain at the exposed surface is objectionable. In any event, it is difficult to handle the panels while they are being built up in the manner last mentioned; it is almost impossible to prevent the panels from becoming marred or injured during the building-up process; and the panels, when completed, are so costly that there is very little commercial use for them. The most desirable method of making these long panels would naturally be one involving the splicing together of preformed complete short panels. Under such a method the relatively small panels would possess the advantage of having been made by usual practices which would insure that they were properly made, material could be taken directly from the manufacturer's stock of panels instead of requiring each long panel to be built completely for the purpose of filling an order and, because the splicing would be done between completed panels, the gluing opera-

tions would be confined to a few joints so that the work would be simple and the product would not be in danger of being marred or injured during the process of making a long panel.

It has been attempted to splice completed panels by means of long scarf joints which, if properly made, will give the requisite mechanical strength to the completed structure, but difficulties have been encountered which have heretofore rendered this process impracticable. The product of the usual gluing presses, while uniform enough for all ordinary purposes, is found to be sufficiently irregular, particularly after the usual sanding operations have been performed, to render it almost impossible to secure perfect scarf joints and make a product in which each layer or ply of one piece registers accurately with the corresponding layer or ply of the next piece. This irregularity results from the fact that it is almost impossible to prevent one corner or another of a panel in the glue press from receiving a somewhat greater pressure than the remainder of the panel, making that portion somewhat thinner than other portions; and also from the fact that it is practically impossible always to maintain such an accurate relation between the pressure, the resistance offered by the panels, and the thickness of the piles of plies throughout a series of panels to insure absolute uniformity of thickness throughout the panels of a series even though each panel may be uniformly thick throughout. It will be seen that a slight difference in thickness between two pieces scarfed together will not only prevent a satisfactory distribution of pressure when it is attempted to glue the joint, but a cross section through the joint of the finished product will not be the same as a cross section through either of the two pieces beyond the joint.

The object of the present invention is to produce a simple and novel process or series of steps which will permit perfect long ply-wood panels to be made at a low cost out of shorter panels joined together.

I have found that the ordinary core and veneering layers or plies usually are or

can be made sufficiently uniform in thickness to avoid any objections on that account. At any rate, starting with plies or layers sufficiently uniform, I glue them into
5 panels in the usual way except that I place in the press beside the panels non-compressible blocks or bars, preferably of metal, such blocks or bars being of exactly the thickness to which the panels are to be
10 compressed. Therefore the press will always close to a predetermined point and no portion of the panel can be compressed to a thickness less than the thickness of the blocks or bars. In ply-wood of the kind
15 with which I am particularly concerned, the veneer layers are usually of hard wood and comparatively thin while the core is usually of soft wood and comparatively thick. Therefore during the gluing process
20 any initial irregularity in the panel will be overcome, the major portion of the compression at any high spots being borne by the softer core so that the ultimate thickness of the outer plies or layers will not vary
25 materially throughout these layers or plies.

Then, without first sanding, the comparatively short panels are scarfed and glued together, the plies registering accurately at the joint. If desired, two applications of
30 glue may be applied to the beveled ends of the pieces to be joined, the first application serving largely as a filler. The glue in the joints is caused to set in a press, strips of paper being laid over the joints or portions thereof, if desired, for the purpose of insuring that the pressure will come upon the joints and not upon portions of the panels beyond the joint.

In the accompanying drawing I have
40 illustrated my invention diagrammatically. Referring to the drawing,

Figure 1 represents a veneer press containing the panel to be glued, together with the spacing blocks or bars; the upper member of the press being shown open in full
45 lines and closed in dotted lines;

Fig. 2 is an edge view of two panels the beveled ends of which are adapted to be engaged with each other to make a scarf
50 joint; and

Fig. 3 is a view similar to Fig. 2, showing the joint completed.

Referring to the drawing, 1 and 2 represent the two halves of any usual or suitable veneer press. Within the press is a
55 rudimentary panel made up of upper and lower thin layers, 3 and 4, respectively of veneer, preferably of hard wood and an intermediate thick core layer, 5, preferably of soft wood. The superimposed layers,
60 with glue between them, are placed in the press in the usual way and then, at two or more sides, are placed spacing blocks or bars, 6 and 7, having exactly the thickness

which it is desired to give to the panel when
65 complete. The blocks or bars could of course be attached to or form part of the press. When the press closes on the work its closing movement is arrested by the spacing blocks or bars. When panels made
70 in this way are to be joined together to form a long panel, each is beveled at its ends as indicated at 9 and 10 in Fig. 2, the beveled portions being made of considerable
75 length. The beveled surfaces at the meeting ends of two panels are then coated with glue and are laid upon each other in such positions that when pressure is applied in a press such as shown in Fig. 1 the joint
80 will be reduced to exactly the same thickness as the body portions of the panels. After the desired number of short panels have been joined together, the resulting long panel may be sanded and otherwise
85 finished.

I claim:

1. The method of producing spliced plywood panels which consists in pressing sheets or panels in presses with spacers interposed to cause the panels to be accurately
90 uniform in thickness, beveling the ends of two panels, applying glue to the beveled ends, and pressing the beveled ends together to set the glue.

2. The method of producing spliced plywood panels in which the plies in one section register accurately with the corresponding plies in the adjacent section, which consists in pressing individual sections having
95 relatively thick and relatively soft core plies and relatively thin and relatively hard facing plies in presses having spacers interposed, whereby accurately uniform thickness of panel is obtained and reduction of thickness is secured mainly by compression
100 of the core plies without materially affecting the facing plies, beveling the ends of two panels, applying glue to the beveled ends, and pressing the beveled ends together to set the glue.
110

3. The method of producing plywood panels of uniform thickness throughout, which consists in pressing them in a press having non-compressible spacing devices interposed between the members thereof to
115 limit its closing movement.

4. The method of producing plywood panels having thin facing plies so as to secure uniform thickness throughout without material diminution in the thickness of
120 the facing plies, which consists in building up the panels with core plies of a material softer than the facing plies and pressing the panels in a press having non-compressible spacing devices interposed between the
125 members thereof to limit its closing movements.

5. The method of producing plywood

panels having thin facing plies so as to secure uniform thickness throughout without material diminution in the thickness of the facing plies, which consists in building up the panels with core plies of a material softer and much thicker than the facing plies and pressing the panels in a press having non-compressible spacing devices interposed between the members thereof to limit its closing movements. 10

In testimony whereof, I sign this specification.

GEORGE R. MEYERCORD.