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WOOD PANEL
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# UNITED STATES PATENT OFFICE <br> 2,220,606 <br> WOOD PANEL 

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1 Claim.

This invention relates to wood panels and the like, and more particularly to that class of wood panels having a plane or flush surface. The invention is commonly used in the manufacture of

## be cut, such panels being referred to as "cup-

 board door stock."It is an object of the invention to provide a panel which may be made without horizontal
10 frame members or rails, and which may be cut to any desired length without impairing the rigidity of the panel.
It is a further object of the invention to provide a panel without rails or horizontal frame 15 members in which provision is made to greatly minimize splitting of the panel.

Other objects and advantages of the invention will become apparent from a careful study of the following description, wherein the significance of
20 the reference characters in the accompanying drawing and the details of construction of a wood panel embodying the invention, as well as the particular advantages thereof, are fully explained.

In the drawing,
1 is a perspective view of a wood pane embodying the present invention, the parts thereof being shown as separated one from another to illustrate their respective positions in a finished panel.
Figure 2 is a front or side elevation of a panel, the positions of the splines and grooves being illustrated in dotted lines.
Figure 3 is a fragmentary end view of a panel illustrating a spline and groove construction in

Figure 4 is a fragmentary end view of a panel illustrating a spline and groove construction in a panel having a solid core.

Figure 5 is a fragmentary end view of a panel
40 illustrating a construction in which the face sheets include cross-grain plies to prevent splitting of the panel.

Figure 6 is a fragmentary end view of a panel which has split along the tongue and groove

The drawing illustrates a panel consisting of upright frame members or stiles 1-1, a core member generally indicated by the numeral 2 , and face sheets or veneers 3-3. The construcdoes not embody horizontal frame members usually referred to as ralls, an advantage of the invention being that doors of any desired length may be cut from such panels, up to the length of the panel, without impairing the rigidity of the door.

Preferably, the core member 2 is of laminated construction, and is made up of veneers in which the grain of the middle ply 4 is disposed at a right angle to the grain of the two outer plies 5-5. The stiles 1-1 are placed at the respective edges of the panel for the purpose of receiving the screws or nails by which hinges 6 and latches 1 and the like are secured to the edges of a door. In applicants' construction the stiles $\mid-1$ are preferably not less than three inches in width, and fully half of each stile may be trimmed away to reduce the width of the panel without destroying the usefulness of the stile. Thus a panel 14 inches wide may be reduced to 11 inches in width by trimming $11 / 2$ inches from each edge thereof without impairing the stiles. By this construction panels may be stocked in no more than four standard widths, namely, $14^{\prime \prime}, 18^{\prime \prime}, 22^{\prime \prime}$ and $26^{\prime \prime}$ which panels may be trimmed to produce doors of any desired width from 11 to 26 inches.
It will be appreciated that in a panel embodying such construction the weakest point in the panel is at the joint between the core member and the stiles, and particularly between the core member and the stile to which hinges are secured. Ordinarily the grain in the face sheets or veneers 3-3 parallels the grain in the stiles and core member, and in the event of any degree of failure of the glue bond the panel will split along the joint between the core member and the stile. In doors and panels employing the commonly used tongue and groove joint between the stiles and the core member, a partial failure of the glue bond often results in the panel splitting in the manner illustrated in Figure 6. It should be remembered, however, that this problem is present only in panels which do not employ rails, since the presence of rails or other horizontal frame members overcome the weakness of the panel at the joint between the stiles and core member, and obviate the necessity for any other or further means for strengthening the panel at this point.

Applicants' panels do not employ horizontal rails, and applicants have provided splines 8-8 which engage with aligned grooves 9-9 milled in the abutting opposed edges of the stiles 1-1 and the core member 2. The splines 8 - 8 are of laminated wood, wherein the grain of one ply is disposed at a right angle to the grain of the adjacent plies. When the panel is assembled glue is applied to the surfaces and edges of the splines 8-8 and to the opposed edges of the core member and stiles, and the splines are pressed into the grooves $9-9$ as the edges of the core member and stiles are brought together to hold
the stiles and core member in rigid engagement. Because the splines partake of nelther the character of the stiles nor the core member, the splines will not permit the panel to split at the

## 6

 the grooves.The stiles and core member, which together constitute the framework of the panel, are of he sam e indmess, ant are berala mila sheets or veneers 3-8 to make a panel having plane or "flush" surfaces. Ordinarily the face sheets consist of one ply of wood veneer, and in preferred practice the grain of the veneer is disposed lengthwise of the panel. Figure 5 illustrates an alternative construction, in which each of the face sheets comprises two plies of wood veneer, the grain of one ply of each face sheet being disposed across the panel, normal to the grain of the wood constituting the stiles and core member. This construction obviates the necessity for a laminated spline as a foining member for the stiles and core member, the cross plles of the face sheets preventing splitting of the panel

Having now described our invention and in what manner the same may be used, what we claim as new and desire to protect by Letters Patent is:

A wood panel and the like comprising a pair of stiles of substantial width, a plywood core member of equal thickness with said stiles and positioned therebetween and having at least one ply with grain normal to said stiles, all component 8 parts of said core member extending the full length and breadth of sald panel between said stiles whereby said core member constitutes both a core member and end rails for said panel, aligned grooves in opposed abutting edges of the 10 core member and stiles, a spline closely fitting said grooves to maintain the core member and stiles in rigid engagement and for preventing splitting of the panel at the joint therebetween, said spline being made of plywood wherein the 1 grain of at least one ply is normal to the abutting edges of the stile and core, and a face veneer overlying said core member and stiles and presenting a plane surface, whereby a door of any desired length, up to the length of said panel, 20 and of substantially reduced width, may be cut from said panel without sacrificing any of the structural features thereof.

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