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WOOD DOOR CONSTRUCTION

Filed Nov. 18, 1926

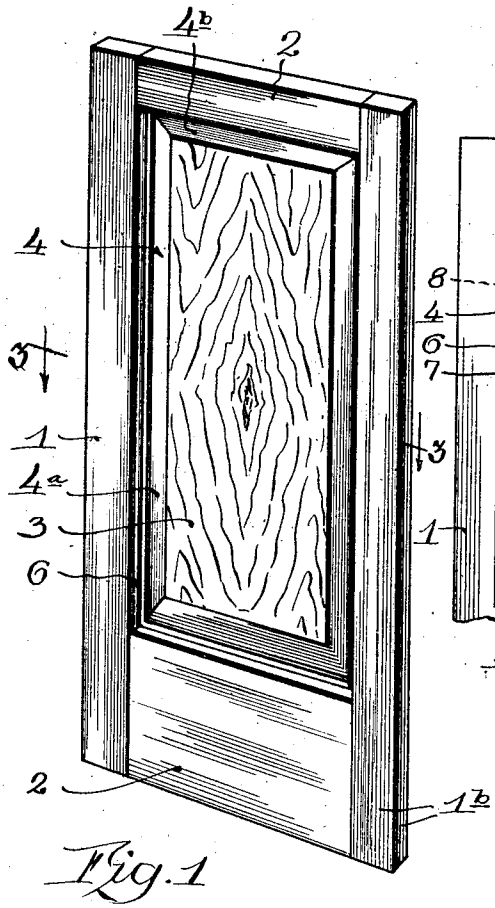


Fig. 1

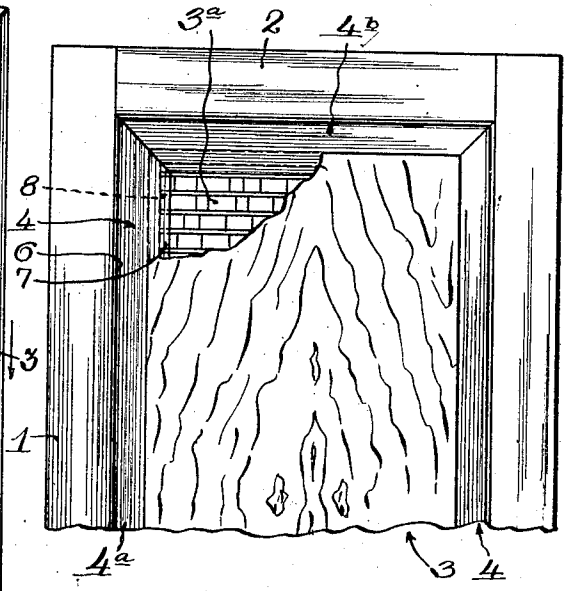
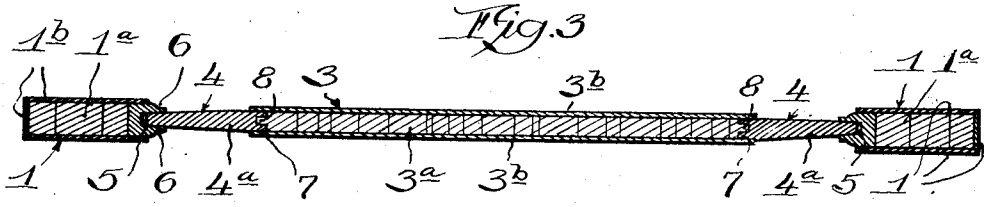


Fig. 2

Fig. 3



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UNITED STATES PATENT OFFICE.

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WOOD-DOOR CONSTRUCTION.

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This invention relates to improvements in wood doors and more particularly to a new and useful construction for wood doors of the wood panel type for general use, and especially used for entrances for residents, hotel and office suites, and the like, where a substantial construction is desired.

The object of the invention is to provide a novel and practical construction for doors of the character described, whereby the desired qualities of strength and permanency found in solid hard woods may be reproduced at a greatly reduced cost of manufacture, by utilizing veneered material in such a manner that increased weight and a more massive construction is obtained throughout the door.

A preferred embodiment of the invention is disclosed in the accompanying drawings, in which

Figure 1 is a perspective view of the door,

Figure 2 is a view in elevation of a portion of the door with portions broken away to show the construction, and

Figure 3 is an enlarged view in cross-section as taken on line 3—3 of Figure 1.

The door consists in general of an outer frame made up of vertical members or stiles 1—1, extending the full height of the door and cross members or rails 2—2 at top and bottom, a central rectangular panel 3, and an intermediate beveled panel frame 4 extending around the central panel and within the outer frame of stiles and rails.

The stiles 1 and rails 2 of the door are preferably of veneered lumber although they may be of solid wood if desired, and the cost is not prohibitive. In the event veneered lumber is used, the stiles for example are comprised of a soft wood or pine core 1^a, covered with thin slabs or strips 1^b of hard wood. However, where veneered lumber is used, I prefer to make the core of a multitude of small blocks of waste lumber, and in accordance with the method described in my prior Patent No. 1,594,889, dated August 3, 1926. However, the exact nature of the material used for the stiles or rails is not an essential part of the invention.

Inwardly from the stiles 1 and rails 2, which are joined at their ends in any suitable manner, is the panel frame 4, consisting of vertical and transverse pieces or sections 4^a and 4^b respectively, of a solid wood, and of any desired width, although preferably less than the width of the stiles 1. These pieces or sections 4 are cut and milled with the grain of the wood extending lengthwise and are mitered together at their ends to form a complete frame surrounding the central panel with the grain extending longitudinally throughout, namely, transversely of the door at top and bottom and vertically at the sides.

In cross sectional contour these panel frame members are tapered or beveled from one edge toward the other, the base or thicker edge in this case being innermost. In the average door of say, two inches in thickness, the frame members would be say 1½ inches thick at the inner edge and taper to ¾ inch at the outer edge.

The panel frame members 4^a and 4^b are fixed to the stiles and rails by cutting grooves or rabbets 5, along their inner edges into which the thinner edges of the panel frame members are fitted and glued, said edges of the stiles and rails being milled to provide a moulding as at 6—6.

The single central panel 3, surrounded by the panel frame 4, is a rectangular section of wood veneered material of substantially the same thickness as the stiles and rails. In general, the panel is made up of a soft wood or pine core 3^a having thin slabs 3^b of hard wood applied to the faces of the core, these slabs being about $\frac{3}{16}$ of an inch or less in thickness. The core is preferably of a composite construction, the same method disclosed in my said prior patent being used, for the reason that it is possible thereby to manufacture a panel of any desired thickness at a relatively low cost, inasmuch as the core is made up of a multiplicity of small blocks of waste lumber glued together. As shown in Figure 2, the core is virtually a composite plank, with the individual blocks so arranged that the grain of the core runs crosswise or transversely of the panel. The slabs 3^b or outer layers of veneer on the

other hand are applied with the grain extending lengthwise or longitudinally of the panel, so that the result is a panel structure which will not warp or swell under changing temperature or atmospheric conditions.

The central panel 3 is preferably provided about its edges with a combination of groove and tongue, the groove 7 being equal in width to the thickness of the core and formed by extending the edges of the layers of veneer 3^b beyond the edges of the core 3^a, whereas the tongue 8 is formed at the base of the groove and along the edges of the core. The panel frame members 4^a and 4^b are grooved along their inner edges to fit the tongues 8, so that the central panel and panel frame are joined together by fitting the edges tightly together, the joint between the central panel and the panel frame being concealed by the overlapping edges of the veneering 3^b.

The parts of the door thus described would be assembled in the usual manner, glue being used at the joints, as is customary in the fabrication of mill work.

One of the advantages of the door construction herein disclosed, is the fact that the central panel can be made of greater thickness than has heretofore been practical in the usual panel door construction, particularly where a single large panel is used. In fact, the central panel may be of the same thickness as the stiles, without encountering the difficulties usually experienced in doors in which the single central panel is made either of a thin slab of wood or several plies with grain running in the same direction, namely, the tendency to swell due to the absorption of moisture and the resulting warping and pressure at the joints which cause them to open. These defects in the ordinary door do not develop in the present construction, due to the composite construction of the panel core and the opposite graining of the veneering, which obviates both warping and swelling. Moreover, the mitered panel frame with its beveled members surrounding the central panel and securely fitted at its edges to both the panel and stiles or rails, affords an exceedingly solid and permanent construction. Again, the thick veneered panel permits of inlaying, either for ornamentation or for utilitarian purposes, as for instance the inlaying of names or numbers.

Aside from the structural advantages of the door herein disclosed, it permits also of certain treatment of the materials so as to improve the appearance by taking advantage of the natural grain of the wood. Thus the members forming the panel frame 4 are arranged so that the grain runs lengthwise about the central panel, thus giving a striking effect in contrast to the vertical graining of the central panel.

Having described the door construction and the advantages thereof, I claim:

1. A wood door comprising an outer frame, an inner panel frame within said outer frame consisting of panel frame members mitered together at their ends, a central panel surrounded by said panel frame and consisting of a core of substantially the same thickness as the inner edge portions of said panel frame members and outer layers of veneer projecting beyond the edges of said core, and lying flush along the inner marginal portions of said panel frame.

2. A wood door comprising an outer frame, a panel frame within said outer frame consisting of beveled frame members mitered together at their ends, and a central panel consisting of a core of substantially the same thickness as the inner edge portions of said panel frame and having tongue and groove connection therewith and layers of veneer applied to the faces of said core and extending at their edges to overlie the joints between said core and said panel frame members.

3. A wood door comprising an outer frame, a panel frame consisting of frame members mitered together at their ends and beveled to relatively thin outer and thick inner edges, and a central panel within said panel frame and consisting of a relatively thick core joined in edgewise abutting contact with the inner edges of said frame members and outer layers of thin veneer, having their edges projecting beyond the joints between said core and said panel frame members.

4. A wood door comprising an outer frame, a panel frame within said outer frame and consisting of frame members mitered together at their ends and beveled to form relatively thick inner edges, and a central panel consisting of a relatively thick core having the grain thereof extending in one direction and outer layers of thin veneer having the grain thereof extending crosswise of the grain of said core, and having tongue and groove connection at its edges with the inner edges of said panel frame members, said layers of veneer extending beyond and covering the joints between said core and panel frame members.

5. A wood door comprising an outer frame, a panel frame consisting of frame members mitered together at their ends and beveled on both faces to provide relatively thin outer edges having tongue and groove connection with the inner edges of said outer frame and relatively thick inner edges, and a central panel consisting of a relatively thick core joined at its edges flush with the inner edges of said panel frame and thin layers of veneer extending over said core and overlying the inner marginal portions of said panel frame, the grain of said core and veneer extending at right angles.

6. A wood door comprising an outer frame, a panel frame of solid frame members mitered together at their ends and beveled on both faces to provide relatively thin outer edges fitting in grooves formed in the inner edges of said outer frame and relatively thick inner edges, and a central panel consisting of a core of the same thickness as the inner edge portions of said panel frame and having edgewise tongue and groove connection therewith and outer layers of thin veneer extending beyond the edges of said core and lying flush over the marginal portions of said panel frame.

Signed at Dubuque this 15 day of Nov., 1926.

EMIL C. LOETSCHER.