

Dec. 19, 1933.

S. MADSEN

1,939,999

DOOR STRUCTURE

Filed Sept. 15, 1930

3 Sheets-Sheet 1

Fig. 1.

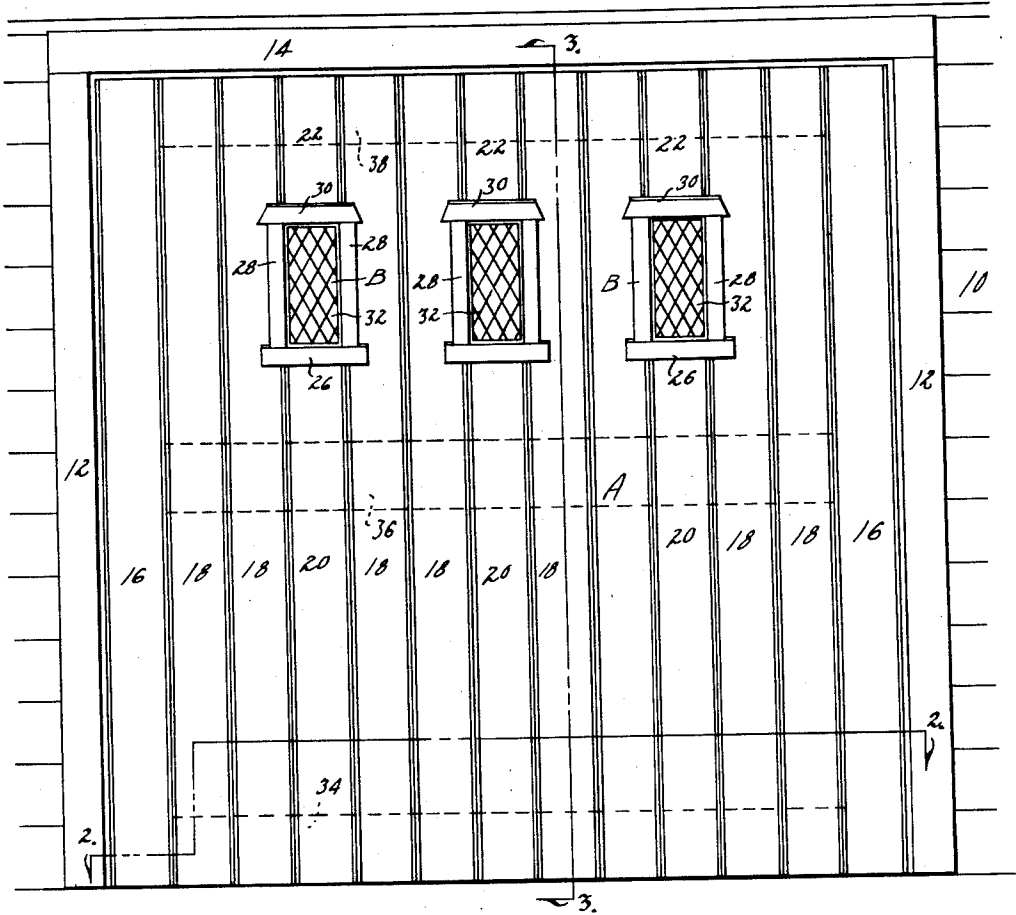
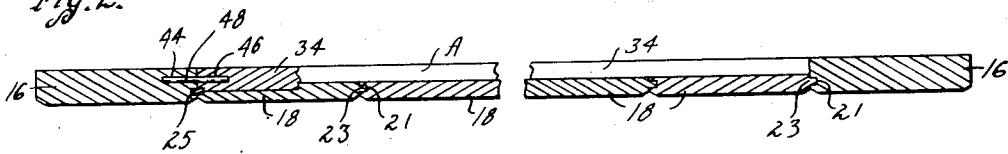


Fig. 2.



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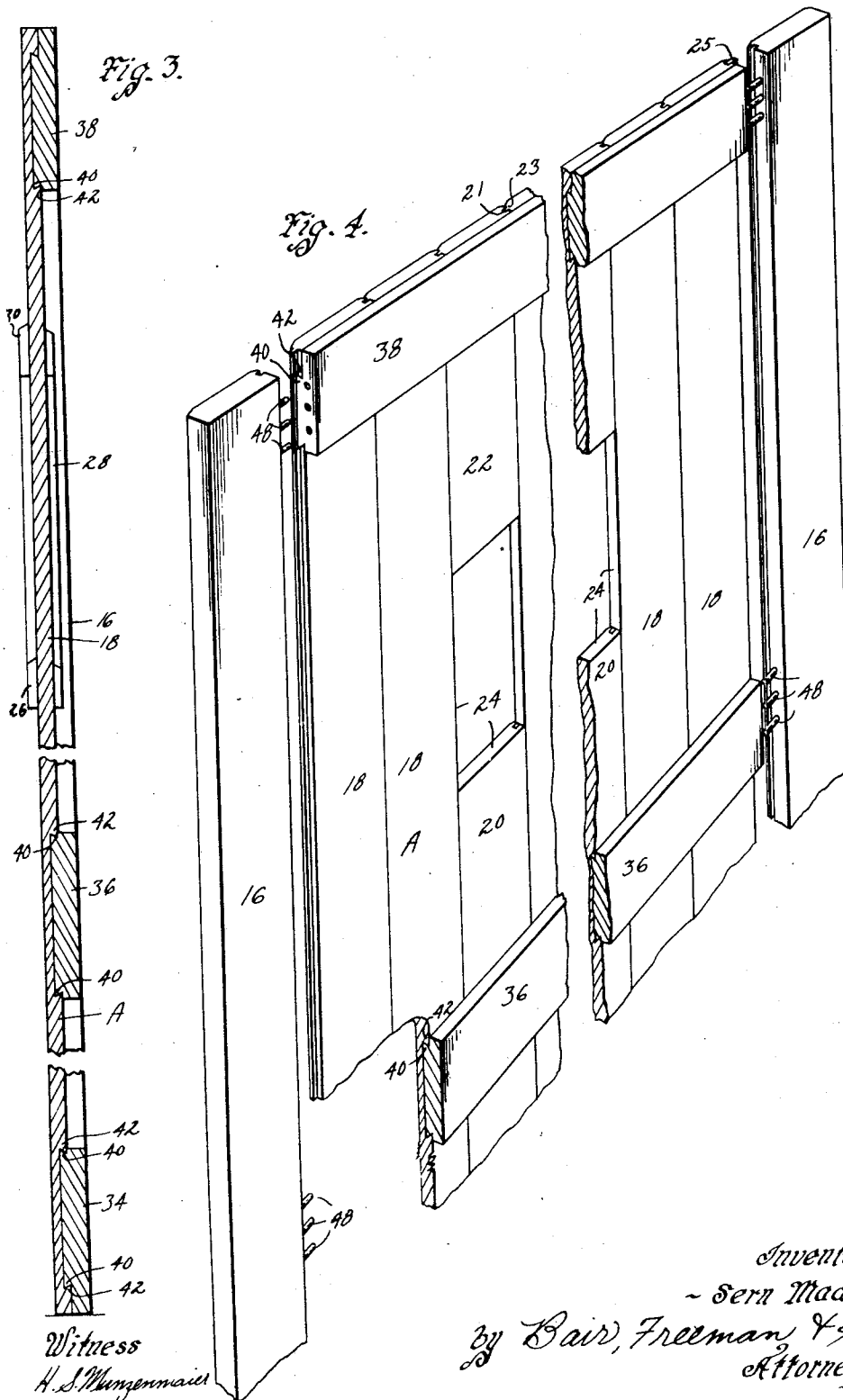
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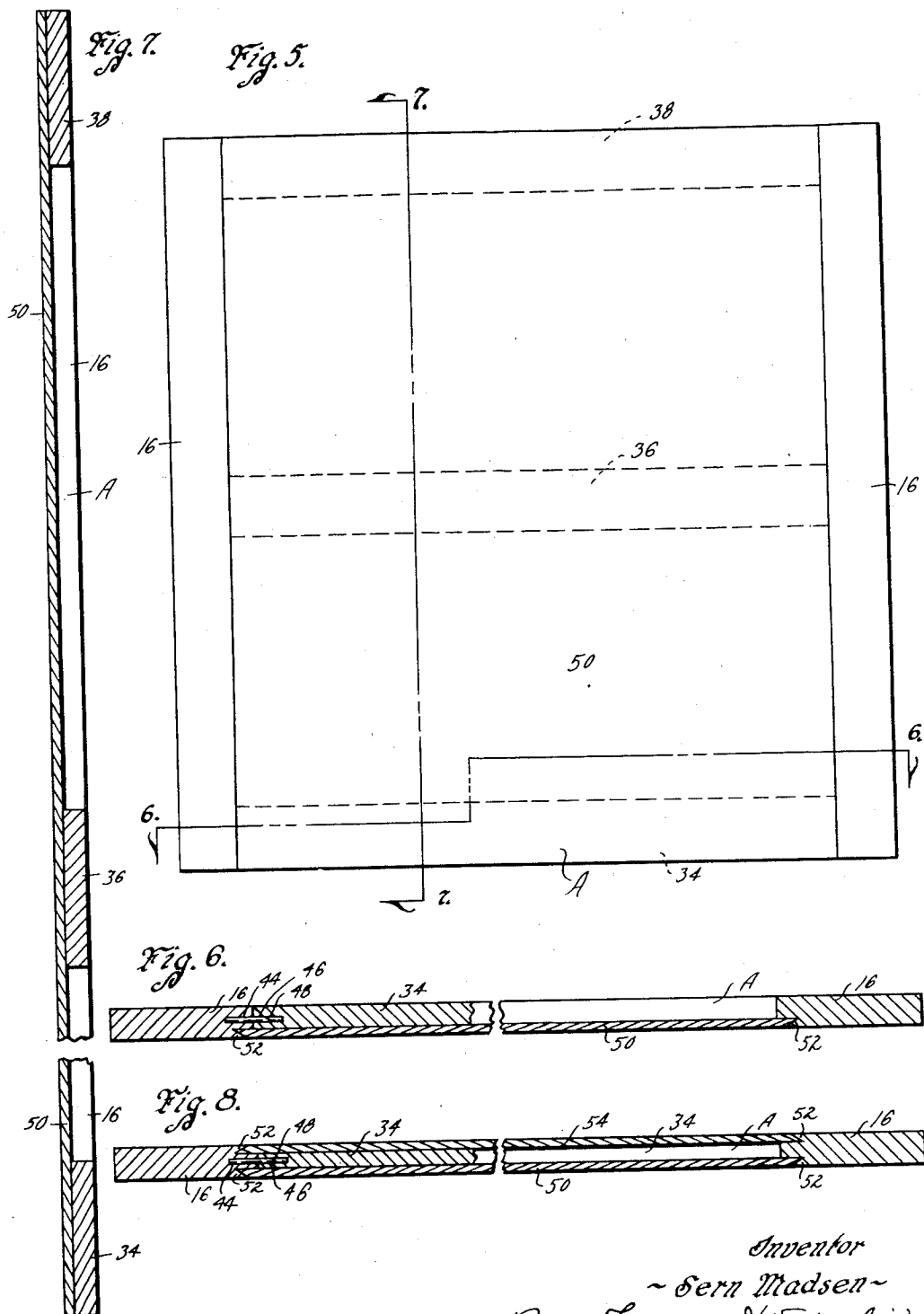
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DOOR STRUCTURE

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UNITED STATES PATENT OFFICE

1,939,999

DOOR STRUCTURE

Sern Madsen, Clinton, Iowa, assignor to Curtis
Companies, Inc., Clinton, IowaApplication September 15, 1930
Serial No. 481,992

2 Claims. (Cl. 20-35)

An object of my invention is to provide a door structure in which there is a plank type door having a smooth face (or one with V grooves in it if desired) without any sunken panels or the like so that the door has the appearance of being made entirely of similar boards or planks.

A further object is to provide a suitable reinforcing frame for the door and a practical method for securing the frame together and for also securing the facing boards to the frame in such a way that the appearance of the door, as already referred to, will not be altered by the assembly of the frame and facing boards.

A further object is to provide a door structure that offers maximum resistance against the entrance of rain and is devoid of grooves or pockets into which water may enter and start decay.

A further object of my present invention is to provide a means for holding or locking the facing boards and framework securely together without the use of screws, nails or the like.

A further object is to provide in a door having dowel or tenon and mortise joints, a means to prevent entrance of water to these joints, thus avoiding decay in them.

Another object is to provide a door structure that is pleasing in design and that is rigid and lasting.

Another object is to provide a modified form of construction in which only one facing board is used between the stiles of the door frame whereby to provide a door having the appearance of vertical stiles and a panel.

A further object is to provide a door construction in which the single facing board may be glued or otherwise secured to the rails of the door instead of providing dovetailed rib and dado joints.

Another object is to provide still another modified form of door construction in which a single facing board or panel is applied to each side of the door whereby the sides appear similar and the rails of the door frame are concealed between the facing boards.

With these and other objects in view my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings. Although the invention is susceptible of a variety of embodiments, it is unnecessary to fully describe and illustrate more than one in order to give a full understanding of the invention both from its structural and

functional standpoints. Accordingly, I have illustrated a preferred and desirable embodiment of the invention in the accompanying drawings in which:

Figure 1 is an outside elevation of a door embodying my invention showing it mounted in a doorway of a wall.

Figure 2 is a broken away sectional view on the line 2-2 of Figure 1 showing the door only taken on an enlarged scale.

Figure 3 is an enlarged broken away vertical sectional view.

Figure 4 is a perspective view of the door partly assembled showing the constructional characteristics thereof.

Figure 5 is an outside elevation of a door showing a modified form of construction having a single rather than a plurality of facing boards.

Figure 6 is a horizontal sectional view on the line 6-6 of Figure 5 taken on an enlarged scale.

Figure 7 is a vertical sectional view on the line 7-7 of Figure 5 on an enlarged scale and

Figure 8 is a horizontal sectional view similar to Figure 6 showing another modified form of construction with facing boards on both sides of the door.

On the accompanying drawings I have used the reference numeral 10 to indicate generally a wall such, for instance, as a garage wall. A doorway is defined by side casings 12 and a lintel 14. The door embodying my invention is indicated generally by the reference character A.

The door A comprises a plurality of members 16, 18, 20 and 22 which have similar appearing faces as will be obvious from inspection of Figure 1. The members 18 and 20 are actually similar with the exception of their lengths as is obvious from Figure 4.

The members 20 and 22 are shortened to form an opening 24 in which a window B may be set. The window B consists of a sill 26, side jambs 28, head jamb 30 and pane of glass 32. The construction of the window B is fully disclosed in my co-pending application, Serial No. 444,190, filed April 14, 1930.

Although the faces appear similar, the members 16 and 18 are of different relative thicknesses as best disclosed in Figure 2 of the drawings. The members 16, which I have termed as stiles, are somewhat thicker in order to act as part of a framework for the door structure and project backwardly with respect to the inner faces of the boards 18, 20 and 22 which I will term facing boards, but are flush on their outer faces.

The facing boards 18, 20 and 22 are connected

together at their edges by grooves 21 and tongues 23. The right hand stile 16 also has a groove 21 for a tongue 23 of one of the facing boards 18. A spline 25 may be used for connecting the left hand stile 16 with the adjacent facing board 18 as shown in Figure 2.

In conjunction with the stiles 16, rails 34, 36 and 38 are utilized for completing a rigid framework for the door A. As best shown in Figure 3, the rails 34, 36 and 38 are provided with dovetailed tongues 40 which fit in transverse dovetailed dadoes 42 formed in the rear or inner faces of the facing boards 18, 20 and 22. The relative positions of the rails 34, 36 and 38 are shown by dotted lines in Figure 1 of the drawings.

The ends of the rails 34, 36 and 38 may be connected with the inner edges of the stiles 16 which project back of the inner faces of the facing boards 16, 18 and 22 by means of dowels 48, for instance, which fit in dowel openings 44 and 46 in the stiles 16 and the rails 34, 36 and 38 respectively. This construction is best shown in Figures 2 and 4 of the drawings and other suitable fastening arrangements can be substituted such, for instance, as mortise and tenon joints, not shown. In order to fit the dovetailed tongues 40 tightly in the dovetailed dadoes 42, the rails 34, 36 and 38 after being machined are preferably dried to cause them to shrink whereupon the facing boards 18, 20 and 22 are threaded on the dovetailed tongues so that when the rails again absorb a normal amount of moisture, they will swell and tightly fit within the dadoes 42.

After the ends of the rails are secured to the stiles 16 by means of dowels, tenons or the like, the door is completely assembled and gives the appearance of the entire face being made of similar boards and yet a rigid framework is provided for the door construction without visible fastening means on the face of the door for securing the facing boards to the frame consisting of the members 16, 34, 36 and 38.

In Figures 5, 6 and 7 I have shown a modified form of construction in which a single facing board 50 is used instead of a plurality of facing boards as shown in Figure 1. The facing board 50 may be made of laminated wood usually provided for panels and may be merely glued or otherwise secured to the rails 34, 36 and 38 instead of having a dovetailed rib and dado connection therewith.

Instead of having a tongue and groove connection with the stiles 16, the edges of the facing

board or panel 50 may be beveled to coact with beveled or dovetailed grooves 52 formed along the inner edges of the stiles 16. The thickness of the rails and panel together is equal to the thickness of the stiles 16 so that the outer faces of the stiles and panel are flush and the inner faces of the rails and stiles are also flush.

As shown in Figure 8, a second panel 54 may be provided on the inner side of the door A so that both sides of the door appear identical and in such a construction either the rails are made thinner or the stiles are made thicker than in Figure 6 so that the aggregate thickness of the two panels 50 and 54 and the rails is equal to the thickness of the stiles.

The stiles and one or more facing boards all present a flush face appearance for making an attractive door without sunken panels as in many types of doors and without the consequent evil of horizontal groove connections into which water may run and cause decay.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. A door structure comprising rails, stiles and facing boards, said rails being thinner than said stiles and having longitudinal dovetailed ribs, said facing boards having dovetailed transverse dadoes to fit said ribs, said stiles and facing boards being assembled in substantial flush face relationship and the combined thickness of said rails and said facing boards being substantially equal to the thickness of said stiles when they are all in assembled position.

2. A door structure comprising rail members, stile members and facing boards, one of said members being thinner than the other of said members and having longitudinal dovetailed ribs, said facing boards having dovetailed transverse dadoes to fit said ribs, said other members and said facing boards being assembled in substantially flush relationship and the combined thickness of said first mentioned members and said facing boards being substantially equal to the thickness of said other members when they are all in assembled position.

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