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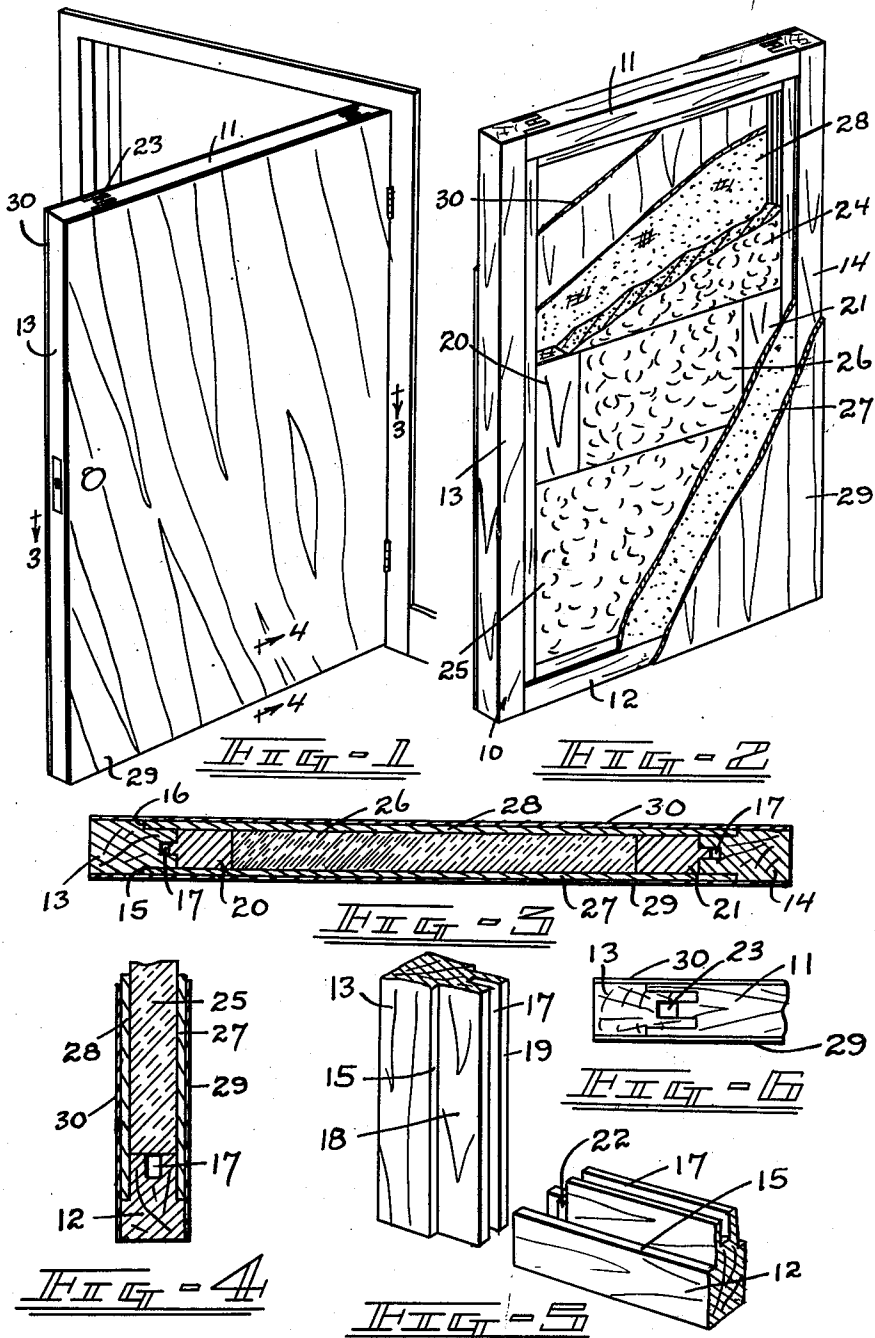
S. A. FLEET

2,620,521

FLUSH DOOR

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2 SHEETS—SHEET 1



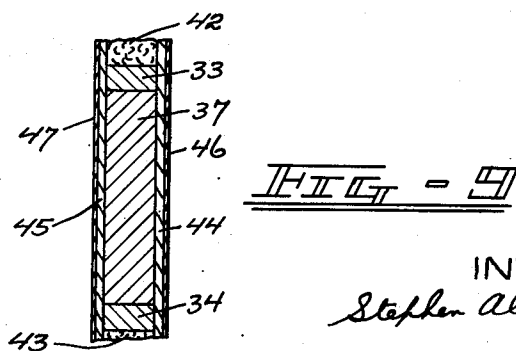
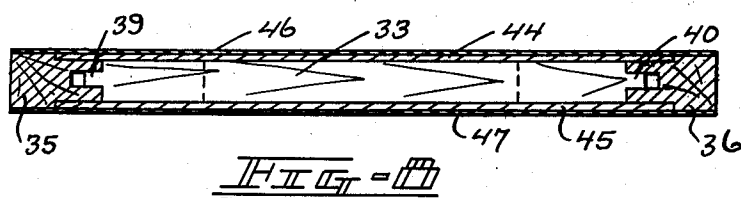
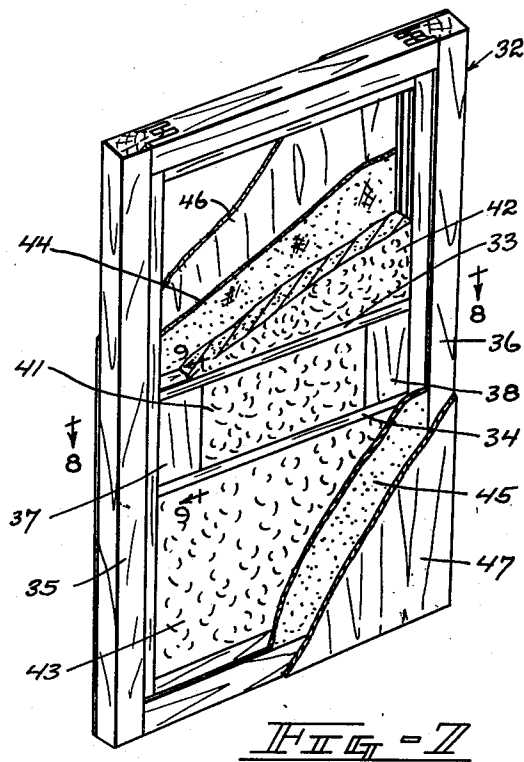
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2 SHEETS—SHEET 2



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FLUSH DOOR

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2 Claims. (Cl. 20—35)

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The invention relates to improvements in flush doors as described in the present specification and illustrated in the accompanying drawings that form a part of the same.

The invention consists essentially of the novel features in construction as pointed out broadly and specifically in the claims for novelty following a description containing an explanation in detail of acceptable forms of the invention.

The objects of the invention are to provide flush doors which will be light in weight and yet sturdy, and in which the outer surface will be substantially flat and free from waves; to make flush doors having a filler-like core and in which no visible break occurs on the outer surface thereof; to furnish flush doors which will be sound proof and particularly adapted for homes and other types of buildings where it is important to keep sounds or conversations, etc., from coming from one room to another when the doors are closed; to provide flush doors in which the acoustic characteristic of the door renders it preferable to other types of doors in many buildings; to make flush doors in which the construction thereof permits a pre-arranged plan for circulation of air therethrough; to improve flush door construction whereby the insulation properties of the same will be exceptionally superior to conventional doors; to provide flush doors which will not permanently warp when subjected to average atmospheric conditions; to construct flush doors which will be inexpensive with few and simple parts; to fabricate flush doors which will be easy to assemble and at the same time which will readily lend themselves to be trimmed down to the opening to which they are being fitted; and generally to provide flush doors which will be neat, modern in appearance and generally efficient for their use.

In the drawings:

Figure 1 is a perspective view of a flush door which is swung partly open with respect to the door opening.

Figure 2 is a perspective view of the flush door with portions of the outer panels broken away to show the inner construction of the door.

Figure 3 is a sectional plan view through the door as taken on the line 3—3 in Figure 1.

Figure 4 is a fragmentary vertical section through the bottom portion of the door as taken on the line 4—4 in Figure 1.

Figure 5 is a fragmentary perspective view showing a portion of one of the side frame members and a portion of the bottom frame member which engages therewith.

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Figure 6 is a fragmentary plan view showing a side frame member and a top frame member engaged with one another.

Figure 7 is a perspective view of a modified form of flush door.

Figure 8 is an enlarged sectional view as taken on the line 8—8 in Figure 7.

Figure 9 is an enlarged fragmentary sectional detail as taken on the line 9—9 in Figure 7.

Like numerals of reference indicate corresponding parts in the various figures.

Referring to the drawings, the flush doors each consist of a frame as indicated by the numeral 10 comprising top and bottom frame members 11 and 12 and side frame members 13 and 14, and the ends of each are appropriately cut to be fitted together and suitably secured to one another. Each of the frame members 11 to 14, inclusive, are rabbeted on both faces of the inner edge, forming ledges 15 and 16 which extend the entire length of the frame member. A groove 17 extends along the central portion of the inner edge of each of these members the entire length thereof, and the depth of groove is slightly less than the distance of the ledges from the inner edge of the frame members. The ledges 15 and 16 and the groove 17 extending along the inner edges of each of the frame members form a pair of projections 18 and 19 which are located inward from each face of the members and extend the entire length thereof. A pair of lock blocks 20 and 21 are suitably positioned in the frame 10 and abut the side frame members 13 and 14, respectively. Each of these lock blocks being dove tailed on the outer edge thereof and the tenon of the same is fitted in the groove 17 in the inner edge of the side frame members 13 and 14. The outer faces of these lock blocks are flush with the outer faces of the projections 18 and 19 on the side frame members 13 and 14.

The side frame members 13 and 14 are squared off on the ends thereof and the top and bottom frame members 11 and 12 are cut on the ends to form a projection or tenon 22 located inward an equal distance from the outer faces of same. These projections or tenons 22 engage in the grooves 17 in the side frame members 13 and 14 and are short of reaching to the full depth of the grooves 17 thereby forming vertical air passages 23 through the door towards each side thereof.

The frame 10 of the door has a solid core or fiber board filler fitted therein to provide reinforcing and sound proofing. This solid core or fiber board filler consists of upper and lower

fiber board panels 24 and 25 and a center fiber board panel 26. The fiber board panels 24, 25, and 26 may be made of a composition of pulpwood which in its finished form is of a somewhat porous nature, or any other suitable material to provide a light and sound proof filler material. These fiber board panels 24, 25, and 26 are of a suitable thickness so that the faces thereof are flush with the outer faces of the projections 13 and 19 on the frame members 11 to 14, inclusive. The upper fiber board panel 24 is fitted between the inner edge of the top frame member 11, the inner edges of the upper portion of the side frame members 13 and 14, and the lower edge of this panel abuts the upper edges of the lock blocks 20 and 21. The lower fiber board panel 25 is fitted between the inner edge of the bottom frame member 12, the inner edges of the lower portion of the side frame members 13 and 14, and the upper edge of this panel abuts the lower edges of the lock blocks 20 and 21. The center fiber board panel 26 abuts the lower edge of the upper fiber board panel 24, the upper edge of the lower fiber board panel 25 and the inner edges of the lock blocks 20 and 21.

Pressed-wood panels 27 and 28 are fitted to each side of the frame 10 and to each face of the upper, lower and center fiber board panels 24, 25, and 26 and adhered thereto by any suitable means, such as glue and the like. These pressed-wood panels 27 and 28 may be described as being in the form of a hard or pressed fiber board, and the same are of a suitable size so that the outer edges fit in the ledges 15 and 16 formed on each face of the frame members 11 to 14 inclusive.

Veneer sheets or panels 29 and 30 are suitably adhered to the outer faces of the pressed-wood panels 27 and 28 and the outer faces of the frame members 11 to 14 inclusive, which comprise the frame 10. The outer edges of these veneer sheets or panels 29 and 30 and the outer edges of the frame 10 are finished off to be perfectly flush with one another to form a flush door having no visible breaks in the outer surface.

The modified form of flush door, illustrated in Figures 7, 8 and 9, is exactly the same as that hereinabove described and illustrated, with the exception that this modified door 32 is provided with reinforcing bars or rods 33 and 34.

These reinforcing bars, which may be of any suitable material, extend the width of the frame between the vertical side members 35 and 36 of the same, and along the top and bottom edges respectively of the lock blocks 37 and 38, each of the reinforcing members having a tongue formed at each end thereof, 39 and 40, which fit into a groove in the inside face of the side member of the frame.

The center fiber board panel 41 is separated from the top fiber board panel 42 and the bottom fiber board panel 43 by these reinforcing members 33 and 34.

This door 32 is provided with like pressed-wood panels 44 and 45 and veneer sheets or panels 46 and 47, to those panels 27 and 28 and 29 and 30 previously described and illustrated in connection with Figures 1 to 6 inclusive.

It will be seen that in the use of flush doors of this type that the acoustic characteristics thereof render these doors preferable where quietness and freedom from sounds and noises are important. In view of the foregoing it will be noted that the use of the particular type of core as described in the doors has extremely high

sound-proofing qualities and the insulation qualities of the doors against heat, cold, humidity and the like make them ideal for use in buildings where air conditioning means is installed. Along with the foregoing qualities, these flush doors are also made so that they provide for a circulation of air therethrough, thus rendering the doors preferable over those of conventional construction.

It is to be understood that modifications and ramifications may be made without in any way departing from the spirit of the invention as hereinabove described and illustrated.

What I claim is:

1. In a flush door, a frame comprising a top, bottom and side frame members, each of the aforesaid frame members having ledges formed along each of the inner edges thereof, and a groove extending along a central portion of each of the inner edges of said frame members and extending parallel and equally spaced between said ledges formed therein, said groove in each of said frame members being of a lesser depth than said ledges from the inner edges of said frame members, a pair of lock blocks within opposite sides of said frame and abutting said side frame members thereof, each of said lock blocks having a tenon extending along the outer edges thereof having engagement in the respective grooves in said side frame members, said side frame members being squared off on the ends thereof and said top and bottom frame members having a tenon thereon and being located an equal distance inward from the outer faces thereof, said tenons on the ends of said top and bottom frame members being short of reaching to the full depth of the grooves in said side frame members, thereby forming vertical air passages within the door toward each side thereof, a plurality of fibre board panels being fitted within said frame, said fibre board panels consisting of an upper, center and lower panel, pressed-wood panels fitted in each side of said frame and engaging said ledges in said top, bottom and side frame members, and veneer panels adhered to each of the exposed faces of said pressed-wood panels and said frame members thus providing a flush door with no visible breaks in either the front or rear surface thereof.

2. In a flush door, a frame comprising a top, bottom and side frame members, each of the aforesaid frame members having ledges formed along each of the inner edges thereof, and a groove extending along a central portion of each of the inner edges of said frame members and extending parallel and equally spaced between said ledges formed therein, said groove in each of said frame members being of a lesser depth than said ledges from the inner edges of said frame members, a pair of lock blocks within opposite sides of said frame and abutting said side frame members thereof, each of said lock blocks having a tenon extending along the outer edges thereof having engagement in the respective grooves in said side frame members, said side frame members being squared off on the ends thereof, and said top and bottom frame members having a tenon thereon and being located an equal distance inward from the outer faces thereof, said tenons on the ends of said top and bottom frame members being short of reaching to the full depth of the grooves in said side frame members, thereby forming vertical air passages within the door toward each side thereof, a plurality of fibre board panels being fitted within

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said frame, said fibre board panels consisting of an upper, center and lower panel, said upper fibre board panel being fitted within the upper portion of said frame and abutting the upper edges of said lock blocks, said lower fibre board panel being fitted within the lower portion of said frame and abutting the lower edges of said lock blocks, and said centre fibre board panel abutting the lower edge of said upper fibre board panel, the upper edge of said lower fibre board panel and the inner vertical edges of said lock blocks, pressed-wood panels fitted within said ledges in said top, bottom and side frame members at each side thereof and being adhered adjacent the front and rear surfaces of said fibre board panels, and veneer sheets being adhered to the front and rear faces of said frame and said pressed-wood panels thus providing a finished flush door.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
937,430	Evans, Jr. -----	Oct. 19, 1909
2,128,540	Rocque -----	Aug. 30, 1938
2,173,808	Kellogg -----	Sept. 19, 1939
2,178,729	Shields -----	Nov. 7, 1939
2,214,675	Jensen -----	Sept. 10, 1940
2,243,022	Thomas -----	May 20, 1941
2,288,104	Pasquier -----	June 30, 1942

FOREIGN PATENTS

Number	Country	Date
53,675	Denmark -----	Oct. 4, 1937
106,911	Sweden -----	Mar. 23, 1943