May 20, 1958 C. E. WEBB 2,834,997

PANEL CONSTRUCTION

Filed April 27, 1954

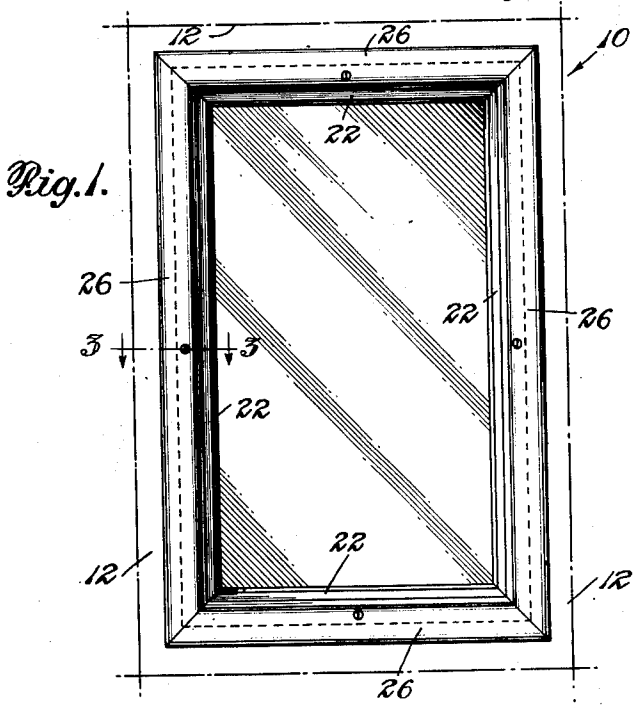


Fig. 1.

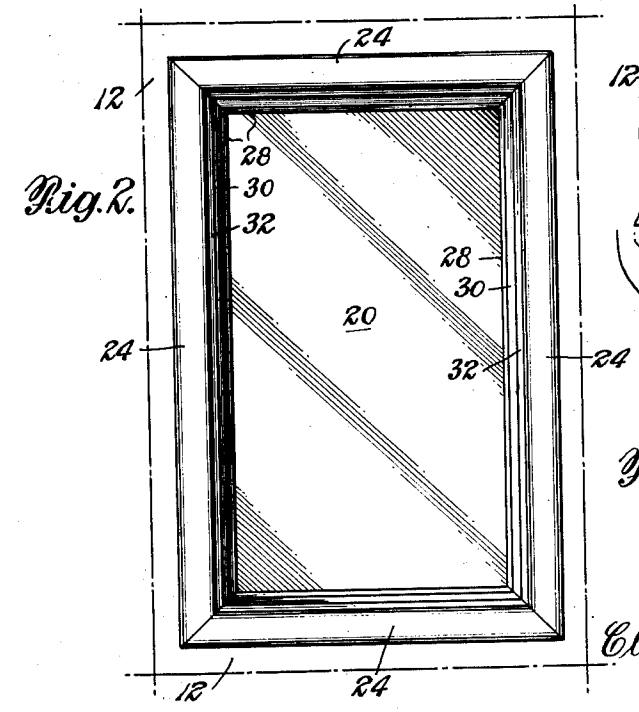


Fig. 2.

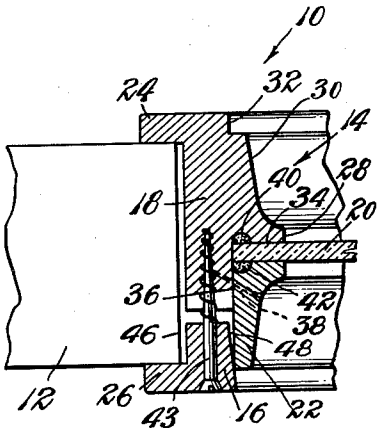


Fig. 3.

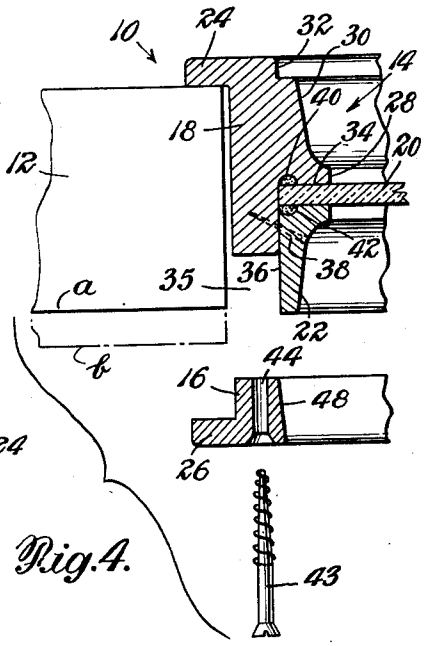


Fig. 4.

INVENTOR

Cleitus E. Webb

BY KARL W. FLOCKS

ATTORNEY

United States Patent Office

2,834,997

Patented May 20, 1958

2,834,997

PANEL CONSTRUCTION

Cleitus E. Webb, Memphis, Tenn.

Application April 27, 1954, Serial No. 425,831

7 Claims. (Cl. 20—36)

The present invention relates to a panel construction. More particularly, the present invention relates to a panel construction including doors, walls, partitions, bulkheads, and the like, wherein a prefabricated window unit is adapted to be secured in a suitable opening formed therein.

In the construction of modern buildings, the flush-type door or paneling has been utilized in many instances, particularly since this type of door is relatively simple to make, presents a clean cut appearance, and the cost is relatively lower than other constructions. It is for this type of door that the present invention is particularly designed. It is understood, of course, that the flush doors or panels embodied herein may be made of wood and are formed with a solid or hollow core. The latter type door is also referred to in the building trade as a honeycomb core and both styles of doors are generally finished with a laminted veneer face, the veneer face having any desired ornamental design.

Prior to the instant invention in the construction of the flush-type door having windows formed therein, it was generally necessary to insert the glass panel in the window opening and then secure molding strips around the frame of the window to engage the glass panel and hold it in place in the opening. The construction of these heretofore known flush doors, wherein the glass panels were individually installed, was necessarily a laborious task and accordingly the cost of the door was prohibitively increased. It is therefore an object of the present invention to provide a flush-type door construction which includes a window unit that is prefabricated complete with a glass panel positioned therein and is adapted to be inserted into a suitable opening formed in the door.

Another object of the present invention is to provide a window unit for a door that is economical, simple to construct, and easy to install.

Still another object of the present invention is to provide a flush-type door which includes a preformed window unit, the window unit comprising frame-like elements which are inserted in an opening formed in the door and thereafter secured together.

Still another object of the present invention is to provide a prefabricated window unit wherein a glass panel is centrally located therein so that when the window unit is positioned in a flush door, the glass panel is automatically centrally located with respect to the cross-section of the door.

Still another object of the present invention is to provide a window unit that is formed of three basic frame members, the members cooperating to secure a glass panel centrally of the door and to securely hold the window unit in position in the door opening.

Still another object of the present invention is to provide a window unit that may be installed in wall paneling, partitions, bulkheads, doors and the like, and not only has the functional purpose of providing visibility, but is attractive and ornamental.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is an elevational view of the window unit embodied in the present invention as it is positioned in a flush-type door, fastening screws being shown for securing the window unit in place;

Fig. 2 is an elevational view of the opposite side of the window unit shown in Fig. 1;

Fig. 3 is a sectional view taken along lines 3—3 of Fig. 1; and

Fig. 4 is a view corresponding to Fig. 3 showing the primary window unit frame members in exploded relation.

Generally, the window unit embodied in the present invention is adapted to be inserted into a preshaped opening formed in a flush-type door and includes frame members that are formed with oppositely disposed flanges. The frame member flanges engage the outer surfaces of the door body and are thereafter drawn into tight engagement with the door body to secure the window unit in place. More specifically, the window unit comprises a base frame member that is formed with a centrally disposed recess into which a glass panel is inserted. An insert frame member is mounted in the recess in engagement with the glass panel, the insert frame member being secured to the base frame member and thereby firmly positioning the glass panel therein. The base frame assembly which has a flange formed along one edge thereof is inserted into the door opening, the flange engaging the body of the door. A clamping frame member is inserted through the opposite side of the door opening and also includes a flange which abuts against the body of the door. The base frame assembly and the clamping member, which are adjustable to compensate for different width doors, are then secured together by suitable means and the window unit is thereby installed complete with the glass panel in the door. Since the glass panel is mounted centrally of the window unit, it is disposed centrally of the door when the window unit is secured in place.

Referring now to the drawings, the window unit embodied herein is generally indicated at **10** and is described hereinafter in connection with a door assembly. However, it is understood that the window unit can be incorporated in wall paneling, partitions, bulkheads, and the like. It is further understood that the glass panel included in the window unit may be replaced by a non-transparent material if it is so desired, without departing from the spirit of the invention. For the purposes of the description of the present invention, a door of the flush-type is utilized, a portion of which is indicated at **12** in Figs. 3 and 4. The door **12** is formed with a routing hole or opening of an arbitrary dimension, depending upon the size window desired. The window unit **10**, which includes a preassembled glass panel, is adapted to be inserted into the door opening and is locked in place by securing the window unit elements together, as will hereinafter be described. The window unit **10** in the position in which it is mounted in the door opening comprises two primary elements that are provided with outwardly extending flanges for abutting against the surfaces of the door. The window unit primary elements comprise a base frame assembly generally indicated at **14** and a clamping frame member **16** which are joined together by any suitable securing means. The base frame assembly **14**, which is the main portion of the window unit, actually comprises three basic component parts, a base

frame member 18, a glass panel 20 and an insert frame member 22. The base frame member 18, insert frame member 22 and clamping frame member 16, are all formed of four separate elements which are mitered at the corners and suitably secured together to form a rectangular configuration, as shown particularly in Figs. 1 and 2. It is understood that any window configuration such as hexagonal or octagonal figures, could be formed as desired. In order to securely retain the window unit 10 in the door opening, the base frame member 18 and clamping frame member 16 are formed with outwardly extending flanges 24 and 26, respectively. Thus, the outwardly extending flanges 24 and 26 limit the inner movement of the primary elements 14 and 16 and are also adjustable to the width of the door, as will be more fully described hereinafter.

Normal window construction known heretofore must necessarily incorporate molding strips along the edges of the glass panel in order to secure the glass panel in position. These molding strips are usually rabbeted to effect a pleasing and ornamental exterior appearance and, accordingly, the inner surface of the base frame member 18 is rabbeted to form the surfaces 28, 30 and 32 to thereby simulate the contour of a molding strip. In order to mount the glass panel 20 in the base frame assembly 14, the inner edge of the base frame member 18 adjacent the rabbeted portion, is recessed to form the shoulder 34 and side wall 36, the inner edges of the glass panel 20 thus being retained in position by the shoulder 34. The glass panel 20 is firmly secured in the base frame assembly 14 by the insert frame member 22 which extends into the base frame recess, the inner edge of the insert frame member 22 contacting a portion of the surface of the glass panel 20. It will be observed that by securing the glass panel 20 in the base frame assembly 14 as described above, calking or puttying or other means normally employed for preventing the glass panel from rattling is eliminated. The upper portion of the insert frame member 22 extends above the base frame member 18 and thereby defines with the door 12 a space 35 (Fig. 4) for receiving the clamping frame member 16. The insert frame member 22 is suitably secured to the base frame member 18 by small screws or nails 38, or by an adhesive material whichever is more convenient and is formed in a strip having an outer contour similar to the conventional molding strip. As shown in Figs. 3 and 4, the insert frame member 22 has a dimension approximately equal to that of the surfaces 28 and 30 of the base frame member 18 and thus, in effect, centrally positions the glass panel 20 in the window unit. When the clamping frame member 16 is assembled with the base frame assembly 14, the outer edge of the clamping frame member cooperates with the insert frame member 22 to simulate a molding strip identical to that formed on the inner surface of the base frame.

In order to provide an effective seal around the inner edges of the glass panel 20, grooves 40 and 42 are formed in the shoulder 34 and in the lower edge of the insert frame member 18, respectively. A suitable sealing compound is embedded in the grooves 40, 42 and a tight seal is thereby formed for preventing the infiltration of dust, cold and moisture. As illustrated in Fig. 4, the clamping frame member 16 is adapted to be secured to the frame assembly 14 after the frame assembly has been inserted into the opening formed in the door 12. The flange 24 limits the inner movement of the frame assembly 14 and fits flush against the surface of the door to effect an ornamental appearance. Since the outer portion of the insert frame member 22 and the door body define the space 35 for receiving the clamping frame member 16, a sliding fit is provided for the clamping frame member between the insert frame member and the door body, the inner movement of the clamping frame member 16 being limited by the flange 26. In order to tightly fasten the clamping frame member 16 to the frame assembly 14, a plurality of fastening screws 43 are provided for engaging the base frame member 18 and extend through suitable countersunk openings formed in the clamping frame member 16, one of the openings being indicated at 44 in Fig. 4.

The window unit embodied herein is adapted for particular use for the flush-type door since this type of door is more practical, economical and more in keeping with modern building design. However, the thickness of the flush-type door may vary and thus it is important that some adjustment be provided in order that the window unit may compensate for the different size doors installed in various types of dwellings. Since the window unit is composed of two primary elements, the frame assembly 14 and the clamping frame member 16, the primary elements may be moved with respect to each other in accordance with the size of the door. In other words, sufficient clearance is provided between the clamping frame member 16 and frame assembly 14 to compensate for the more commonly known sizes of flush doors, the sizes varying, for example, from 1⅝" in thickness to 1⅞". Two different door thicknesses are indicated at *a* and *b* in Fig. 4. It is apparent that the thickness of the glass panel 20 may also be varied, if desired, without destroying the symmetry of the window unit. If a different size glass panel is to be utilized, this glass panel may be quickly assembled with the base frame member 18 and insert frame member 22, all of which are combined to form the complete primary element or base assembly 14.

It is contemplated also to provide for slight differences in size of the base frame member 18 and clamping frame member 16 with respect to the opening in the door 12. A tolerance indicated at 46 in Fig. 3 may, therefore, be provided which would compensate for any differences resulting from routing of the opening or machining of the window unit frame members. In order to provide a snug fit of the clamping frame member 16 as it extends between the door body and the insert frame member 22, the side of the clamping frame member engaging the insert frame member may be bevelled. The bevelled edge which is indicated at 43 in Fig. 3 thereby provides for a force fit of the clamping frame member 16 as it is inserted in the space between the insert frame member 22 and the door body. Cracks and voids which are normally present when one member meets another member are thereby avoided.

In assembling the window unit 10, the base frame assembly 14 is first inserted into the opening that has been cut or routed in the door. The flange 24 limiting the inner movement of the frame assembly. The clamping frame member 16 is then positioned in the opposite side of the door opening extending between the insert frame member 22 and the body of the door, and the flange 26 abuts against the door body to limit the inner movement of the clamping frame member. Differences in door thickness are automatically compensated for by the arrangement of the two primary window unit elements 14 and 16, the glass panel 20 which is preassembled with the base frame assembly 14 being automatically positioned centrally of the door body. The assembly is completed by securing the clamping frame member 16 to the base frame assembly 14 by the wood screws 43. In practice, the window unit assembly is accomplished in a matter of a few minutes and thereby eliminates the time-consuming procedure of installing each individual glass panel in a window opening and then securing the glass panel in place with the conventional molding strips.

It may be seen that the window unit described above may be assembled on doors of varying thickness, the space between the two primary elements automatically providing for a secure fit that is not only waterproof but, in addition, eliminates the necessity of additional assembly or adjustments to the individual elements of the unit.

It will be obvious to those skilled in the art that

various changes may be made without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. In a panel construction, a body portion having an opening formed therein, a window unit mounted in said opening, said window unit including a base frame member having a flange formed on the outer edge thereof and engaging said body portion and a recess formed on the inner edge thereof receiving a glass panel therein, an insert frame member positioned in said recess and engaging said glass panel to secure said glass panel in said window unit, said insert frame extending beyond the upper edge of said base frame member and defining a space with said body portion, a clamping frame member extending into the space and having a flange formed thereon for engaging said body portion, and means for securing said clamping frame member to said base frame member for moving said flanges into tight engagement with said body portion, thereby firmly positioning said window unit in said door opening.

2. In a door construction, a door body having an opening formed therein, a window unit mounted in said opening and including an assembly unit and a clamping member, said assembly unit comprising a first frame member having a flange formed thereon engaging said body, a glass panel positioned in said first frame member, and a second frame member positioned within said first frame member and engaging said glass panel for securing said glass panel in said window unit, said assembly unit being preassembled prior to being inserted into said opening, and a third frame member engaging said second frame member and having a flange engaging said door body, said third frame member being secured to said first frame member for securely mounting said window unit in the door opening.

3. In a door construction, a door body having an opening formed therein, a window unit mounted in said opening and including two primary elements, said primary elements comprising a preassembled base frame assembly and a clamping frame member extending into said opening, said base frame assembly including a base frame member, an insert frame secured to said base frame member and adapted to position a glass panel therein, said base frame member and insert frame defining a space, said clamping frame member extending into said space into engagement with said insert frame and being secured to said base frame member, thereby cooperating with said base frame assembly to rigidly hold said window unit in position in the door opening.

4. In a door construction, a window unit including a base frame member and a clamping frame member secured to said base frame member, a glass panel positioned in said base frame member, an insert frame member engaging said glass panel for securing said glass panel

in said base panel member, said clamping frame member engaging said insert frame member and secured to said base frame member for securing said window unit in said door construction, said base frame member, glass panel and insert frame member being preassembled as a unit prior to the positioning of said clamping frame member in engagement with said insert frame member and in securing relation with said base frame member.

5. In a door construction as set forth in claim 4, wherein said base frame assembly and insert frame are formed with grooves adjacent said glass panel, said grooves having sealing compound embedded therein for providing a tight seal around said glass panel.

6. In a door construction, a door body having an opening formed therein, a window unit mounted in said opening, said window unit comprising a base frame assembly and a clamping member, said base frame assembly being assembled prior to insertion into said opening and including a base frame member having a flange formed thereon, a glass panel engaging said base frame member and an insert frame member secured to said base frame member and engaging said glass panel for locking said glass panel in said base frame assembly, said glass panel being adapted to be positioned centrally of said door opening, said insert frame member and said door opening defining a space, said clamping member extending into said space and having a flange formed thereon, said base frame member flange and clamping member flange abutting opposite sides of said door body, and fastening means extending through said clamping member and engaging said base frame member for securing together said base frame assembly and clamping member, said flanges thereby being drawn into tight engagement against said door body.

7. In a door construction, a door body having an opening formed therein, a window unit mounted in said opening, said window unit comprising a base frame assembly and a clamping member, said base frame assembly including a base frame member, a glass panel engaging said base frame member and an insert frame member secured to said base frame member and engaging said glass panel for locking said glass panel in said base frame assembly, said base frame assembly being preassembled and inserted into said opening as a unit, said clamping member extending into said opening and engaging said insert member, and fastening means extending through said clamping member and engaging said base frame member for securing said base frame assembly and clamping member in said opening in said door body.

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