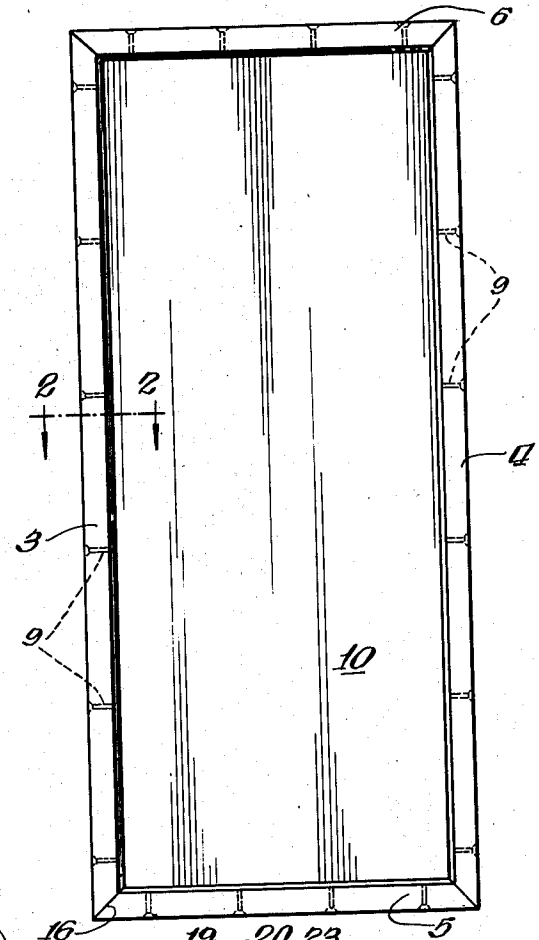
April 7, 1953 C. B. HUIZENGA 2,633,946

FABRICATED FLUSH DOOR

Filed Dec. 29, 1949

Fig. 1



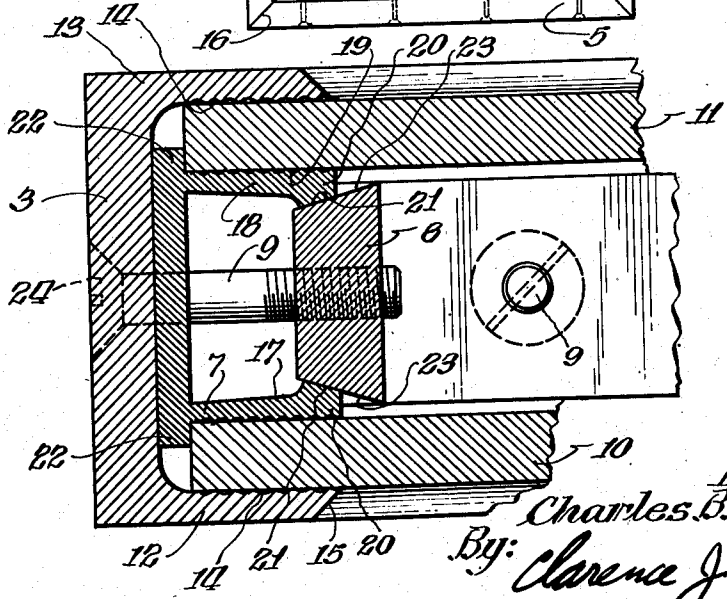


Fig. 2

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FABRICATED FLUSH DOOR

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2 Claims. (Cl. 189—53)

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This invention relates to the form and method of assembling fabricated panel units for use in building construction, more particularly units in the form of panel doors.

Panel units, particularly doors, as they are presently made require the employment of fairly skilled artisans to cut and assemble the several parts which enter into the construction of the unit. The materials, especially the panels, have to conform to specific measurements within very close tolerances. The assembly of the several parts has to be made by or under the close supervision of persons with considerable experience. Moreover, it requires a considerable expenditure of time to insure the proper fitting of the frame around the panel and the securing of the parts together by whatever means is provided for that purpose.

The main objects of this invention, therefore, are to provide an improved form of and method of assembling the several parts for a panel unit suitable for use in building construction; to provide an improved form of and method of fabricating a panel unit particularly suitable for use as a closure for a building opening such as a doorway, hatch, or window; to provide an improved construction of members for forming a frame around the panels; to provide an improved means for seating and sealing the frame members on the panel; to provide a panel unit of this kind which may be constructed from a wide range of materials and which may have applied thereto almost any kind of a finish; and to provide an improved panel unit of this kind which may be assembled by workmen possessing no highly developed skills or requiring experienced supervision, which will permanently retain its alignment without the use of special struts or braces, and wherein the fastening means are visible only at the edges of the unit.

In the particular embodiment shown in the accompanying drawings:

Figure 1 is a front elevation of a panel unit constructed in accordance with this invention and suitable for use particularly as a door; and

Figure 2 is an enlarged, fragmentary, cross-sectional view taken on the line 2—2 of Figure 1.

The herein shown form of panel unit for use as a door, constructed in accordance with this invention, comprises opposed pairs of members 3 and 4, and 5 and 6, on each of which member is a pair of relatively shiftable wedge elements 7 and 8 supported on and actuated by screws 9 for clamping the members to and around the perimeters of panels 10 and 11.

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The pairs of members 3 and 4 and 5 and 6 are channel shaped metal bars with the inner faces of the flanges 12 and 13 serrated, as shown at 14, and with the inner edges of the flanges bevelled, as shown at 15. The ends of the members are mitered, as indicated at 16, so that when assembled around the panels 10 and 11, the members 3, 4, 5 and 6 form a rectangular frame, the mitered ends 16 abutting, as indicated in Figure 1. The base of each of these members 3, 4, 5 and 6 has a plurality of counter-sunk holes formed therein to receive the wedge supporting and adjusting machine screws 9.

A pair of relatively adjustable wedge elements 7 and 8 is nested within each of the frame members 3, 4, 5 and 6, being supported in place by the screws 9.

The wedge element or core 7 is a channel shaped metal bar, its flanges 17 and 18 serrated as indicated at 19 and enlarged at their outer ends, as shown at 20. The opposed faces of these enlarged end portions are inclined, as indicated at 21, converging outwardly toward the base of the respective frame members 3, 4, 5 and 6. The base of the wedge element 7 extends beyond the flanges 17 and 18 so as to provide rims 22 along the lateral edges of the element.

The wedge element 7 is held in nested relationship with the respective frame member with the serrated faces 19 of the flanges 17 and 18 opposed to and spaced from the serrated faces 14 of the flanges 12 and 13 of the respective frame members 3, 4, 5 and 6.

The wedge element or block 8 has its opposite faces convergingly inclined, as shown at 23, so as to interfit with the inclined faces 21 on the wedge element flanges 17 and 18. The wedge block 8 has the machine screw 9 threaded therein so that tightening the screw 9 serves to draw the wedge block 8 toward the base of the wedge element 7. This serves to spring the flanges 17 and 18 outwardly sufficiently to clamp the perimetrical portions of the panels 10 and 11 between the serrated faces 14 and 19.

The screw 9, of which there would be several arranged along each of the members 3, 4, 5 and 6, are a standard type of machine screw with a frusto-conical head 24, which is seated in the counter-sunk holes in the bases of the members 3, 4, 5 and 6, so that the slotted head of the screw is flush with the face of the base of the respective members 3, 4, 5 or 6.

The panels 10 and 11 may be of any suitable material. Their perimetrical portions extend into the spaces between the serrated faces of the

opposed flanges 12 and 17 and 13 and 18, respectively, with the edges of the panels abutting or slightly spaced from the rims 22 on the several wedge elements 7.

All of these parts can be made of stock material, can be conveniently produced on a mass basis, and stocked for later use. None of the parts have to be cut to precise measurements by specially skilled workmen.

The unit is fabricated by first assembling the wedge elements 7 and 8 on the screws 9 for the respective members 3, 4, 5 and 6. These members are then placed around the sides of the two panels 10 and 11, with the perimetrical portions of the panels set in the spaces between the opposed serrated flanges 12 and 17 and 13 and 18 respectively. Ordinarily, one top edge and one side edge of each of the panels is placed in abutting relation with the rims 22, so that the opposite edges lies in spaced relationship with the rims. It is thus unnecessary to maintain exact dimensional tolerances in cutting the panels, since dimensional variations in the panels are not reflected in the finished size of the door.

After the parts are assembled, the screws 9 are tightened to press the wedge element flanges 17 and 18 outwardly to clamp the frame members 3, 4, 5 and 6 to the panels 10 and 11. Before final set of the screws 9, the frame members can be tapped to shift them a bit if needed to insure the proper abutting of the miter ends 16. The final set of the screws 9 secures the several parts in firm contact with each other, and provides a rigid unit that will retain its form without the necessity of any interval struts or braces.

If desired, the frame members may be welded at the miter joints to further insure the rigidity of the unit.

Variations and modifications in the details of the structure and arrangement of the parts may be resorted to within the spirit and coverage of the appended claims.

I claim:

1. A panel unit comprising, opposed pairs of channel shaped members adapted to be assembled to form an open rectangular frame, a channel shaped core element nested within each of said frame members with the flanges of said core elements and members substantially parallel, converging faces formed on the outer end portions of said element flanges, the base part of each of said core elements being extended beyond the respective flanges to form laterally disposed rims, panels set with their perimeters interposed between said core element flanges and said member flanges and with the edges of said panels abutting said rims, wedge elements interposed between and in contact with the ends of said core element flanges, and machine screws set in the basis of said members and threaded in said wedge elements so as to draw said wedge elements against said members to force said core element flanges to clamp the perimeter of said panels between said core element flanges and said member flanges.

2. A panel unit comprising, opposed pairs of channel shaped members with their ends mitered and adapted to be assembled to form an open rectangular frame, a channel shaped core element nested within each of said frame members with the flanges of said core elements and members substantially parallel, converging faces formed on the outer end portions of said element flanges, the base part of each of said core elements being extended beyond the respective flanges to form laterally disposed rims, panels set with their perimeters interposed between said core element flanges and said member flanges and with the edges of said panels abutting said rims, wedge elements interposed between and in contact with the ends of said core element flanges, and machine screws set in the bases of said members and threaded in said wedge elements so as to draw said wedge elements against said members to force said core element flanges to clamp the perimeter of said panels between said core element flanges and said member flanges and hold the mitered ends of said frame members in abutting contact.

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