Aug. 23, 1949. P. O. DE RAGON 2,479,819

WALL AND PANEL CONSTRUCTION

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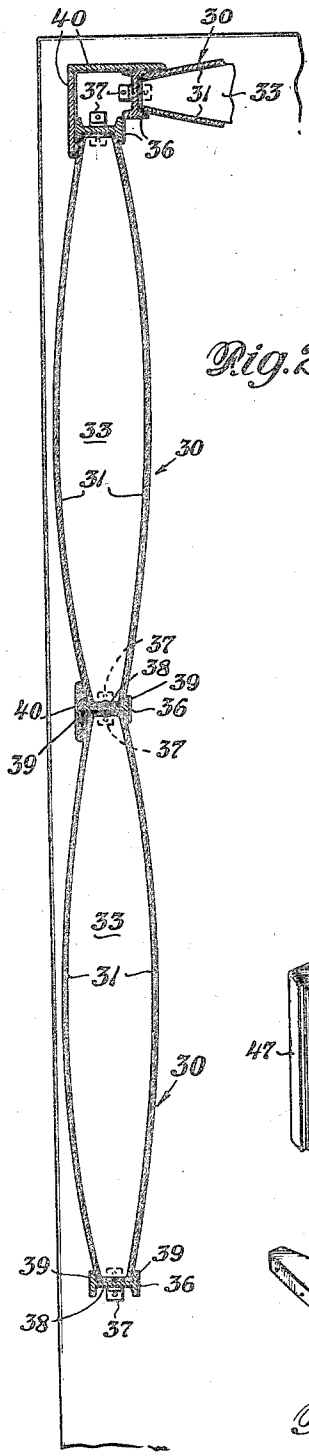


Fig. 2.

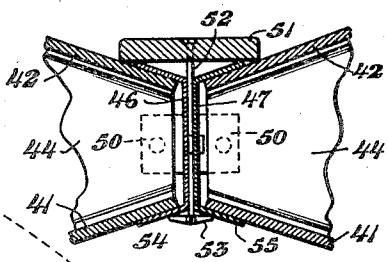


Fig. 6.

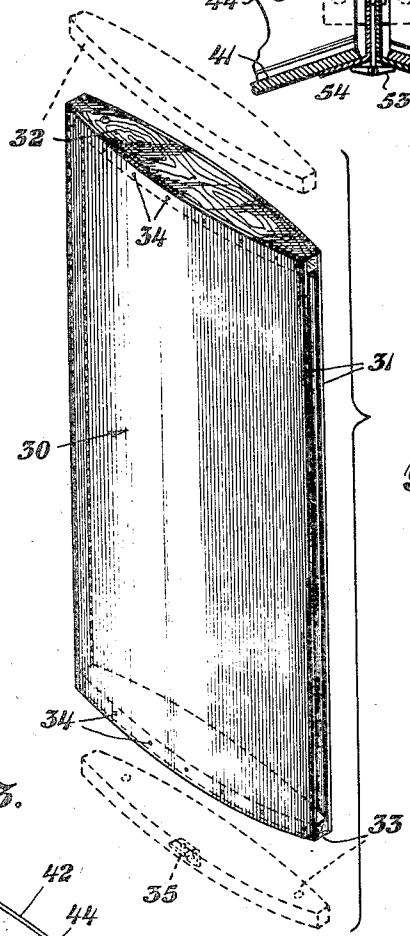
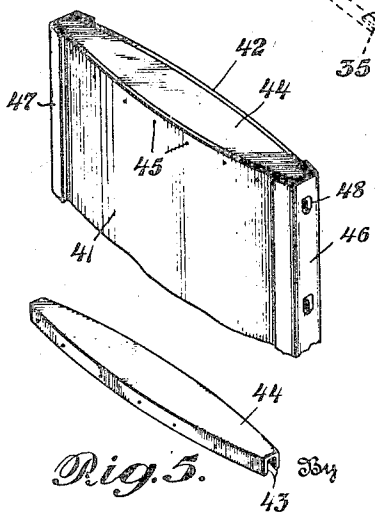


Fig. 1.

Fig. 3.



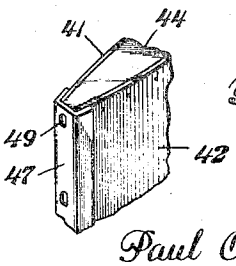


Fig. 4.

Fig. 5.

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WALL AND PANEL CONSTRUCTION

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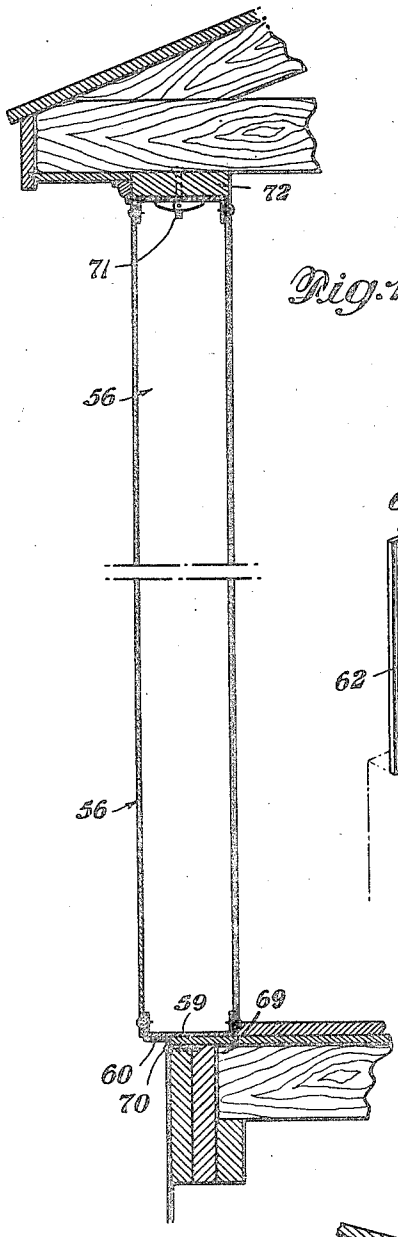


Fig. 11.

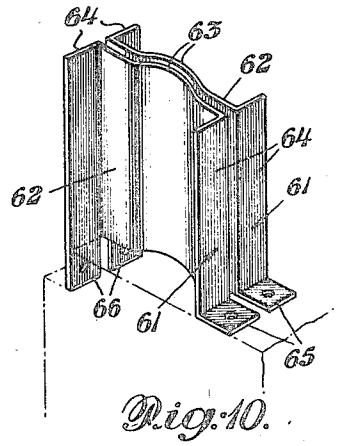


Fig. 10.

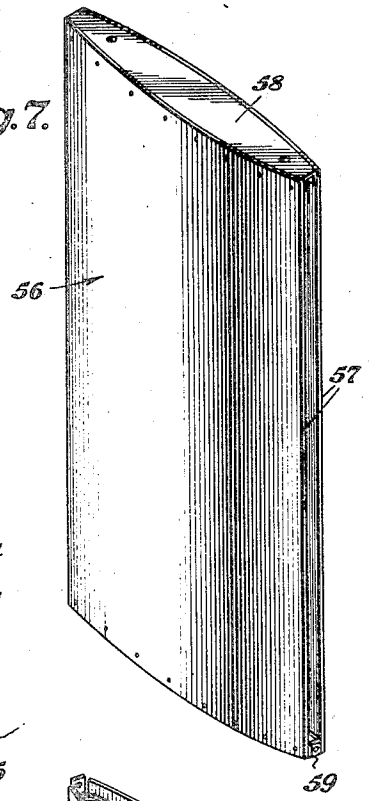


Fig. 7.

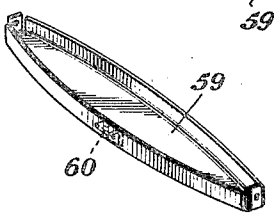


Fig. 8.

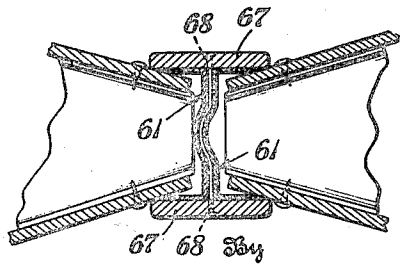


Fig. 9.

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WALL AND PANEL CONSTRUCTION

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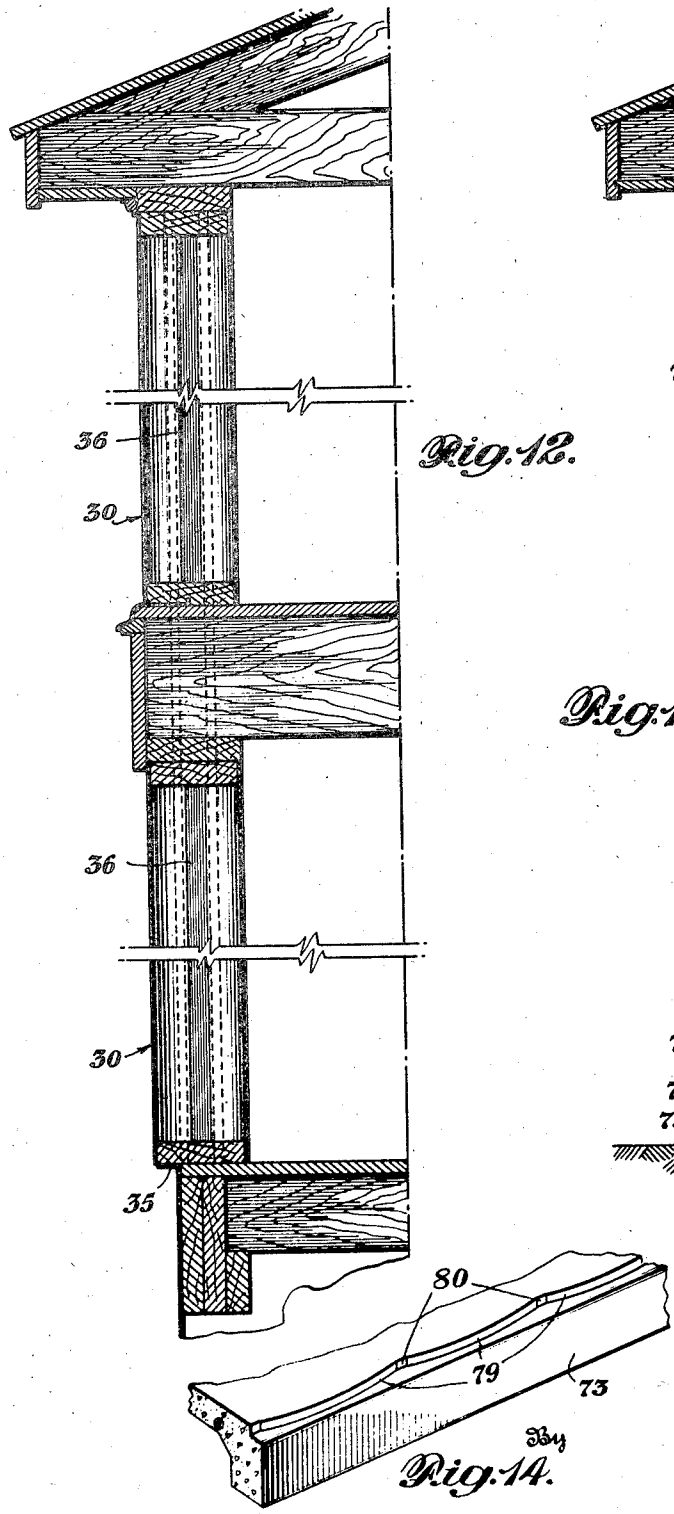


Fig. 12.

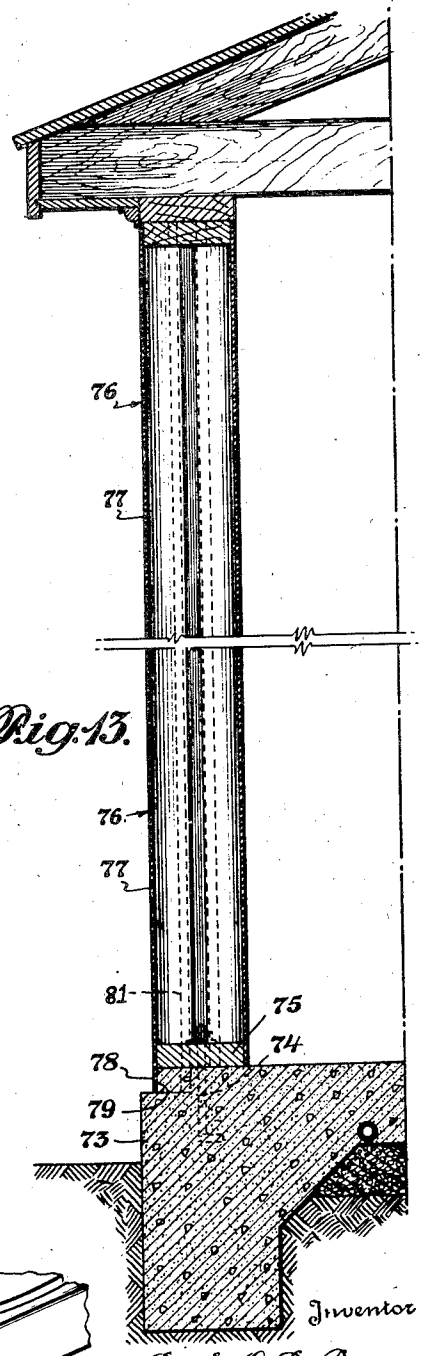


Fig. 13.

Fig. 14.

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WALL AND PANEL CONSTRUCTION

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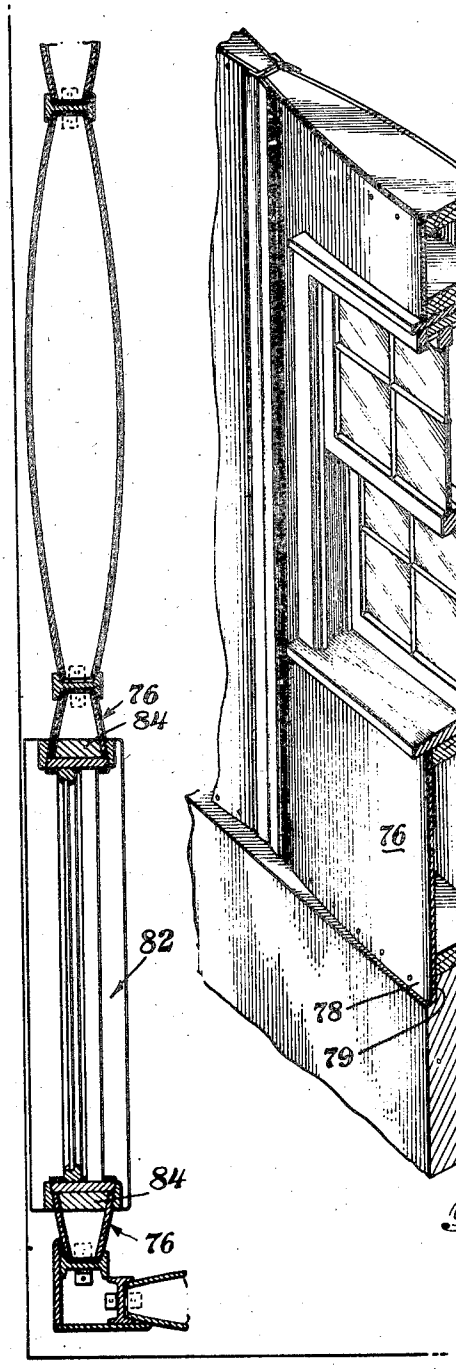


Fig. 17.

Fig. 15.

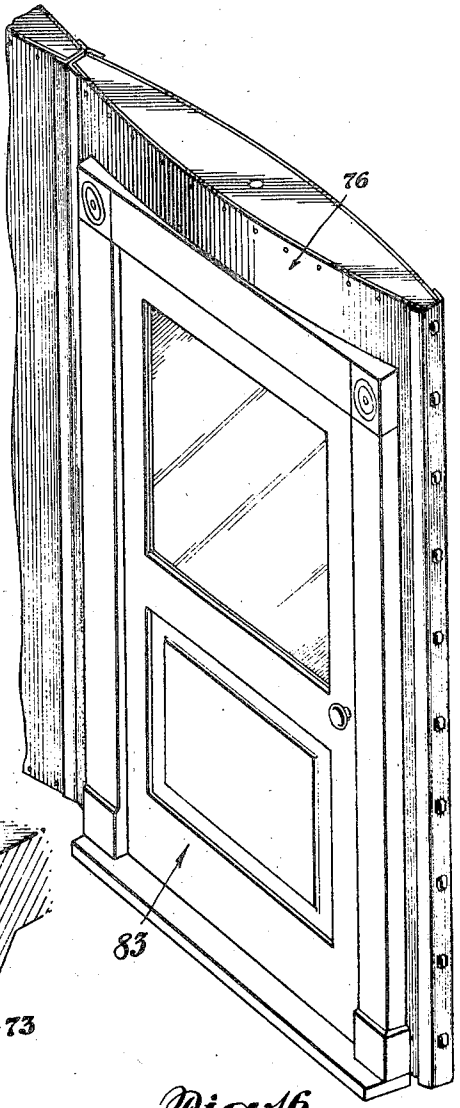


Fig. 16.

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UNITED STATES PATENT OFFICE

2,479,819

WALL AND PANEL CONSTRUCTION

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Application February 6, 1946, Serial No. 645,852

6 Claims. (Cl. 20—2)

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This invention relates to wall and panel construction and more particularly to prefabricated panels which may be readily assembled into walls.

Prior to the instant invention, it has been conventional to build walls of two by four studding covered with sheathing on the outside with or without additional exterior facing and covered with lathe on the inside which in turn is covered with plaster which in turn is then decorated such as with paint or wall paper.

It is an object of the instant invention to teach a novel wall construction requiring little or no surface treatment and a minimum of framing.

It is another object of the instant invention to teach a method of erecting a strong wall which will require little or no surface treatment.

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:

Figure 1 is a view in perspective of a panel in accordance with the invention;

Fig. 2 is a horizontal sectional view of wall construction in accordance with the invention;

Fig. 3 is a fragmentary view in perspective of a modified form of panel;

Fig. 4 is a fragmentary perspective view of a panel adapted to be connected with the panel shown in Figure 3;

Fig. 5 is a view in perspective of a panel element;

Fig. 6 is a fragmentary horizontal sectional view of a panel joint;

Fig. 7 is a view in perspective of a modified panel;

Fig. 8 is a view in perspective of a panel element of the panel of Figure 7;

Fig. 9 is a view similar to Figure 6 of a modified form of panel joint;

Fig. 10 is a fragmentary view in perspective of a panel joint connector element;

Fig. 11 is a vertical sectional view of a wall installation incorporated in house construction showing the floor framing and roof framing in connection therewith;

Fig. 12 is a view similar to Fig. 11 showing the second floor framing;

Fig. 13 is a view similar to Figs. 11 and 12 showing the panel construction installed above a concrete foundation wall;

Fig. 14 is a fragmentary view in perspective of the foundation wall shown in Figure 13;

Fig. 15 is a view in perspective with parts shown in section of a window installed in a panel in accordance with the invention;

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Fig. 16 is a view in perspective showing a door installed in a panel in accordance with the invention; and

Fig. 17 is a view similar to Figure 2 showing a window installed in a panel.

Referring to Figure 1, the prefabricated panel **30** comprises a pair of rectangular structural sheets **31** which have been bowed about a vertical axis with the concave faces thereof facing each other and fastened at the top and bottom to a shaped top filler piece **32** and a bottom filler piece **33**. The sheets **31** may be of plywood, asbestos board, plastic-composition, or metal and the filler pieces **32** and **33** may be of wood. The sheets **31** may be secured to the pieces **32** and **33** by the screws **34**. When sheets of 4' by 8' size are used, the prefabricated panel thus formed will be 8' high and somewhat less than 4' wide. An angle clip **35** may be secured to the bottom of the bottom piece **33** by one leg thereof leaving the other leg free to be secured to the base plate of the wall usually associated with the top of a foundation wall.

In Figure 2, the studs **36** may have channel sides so that the shape of the studs in horizontal section correspond to the letter I. The studs **36** at their bases may have small angle irons **37** secured to the webs **38** thereof by one leg and the other leg is adapted to be secured to the base on which the studs are erected. The studs are erected on spaced centers of the dimension corresponding to the width of the prefabricated panels **30** so that after the studs **36** are erected, the prefabricated panels **30** may be lowered therebetween from above with the flanges **39** of the studs **36** covering the vertical margins of the prefabricated panel and the sides of the prefabricated panel fitting into the channel sides of the studs. At the corners of the wall to be erected, two studs may be arranged with their webs at right angles to each other and with the corners of the inside adjacent flanges **39** touching each other. The outside flanges **39** may be covered with two vertical cover plates **40**.

The prefabricated panel may also be fabricated with half-studs incorporated into the panel construction as shown in Figures 3 and 4 wherein the flexed sheets **41** and **42** are secured at their tops and bottoms to the flanges **43** of the top and bottom pieces **44** by the screws **45**. The sides of the panel are adapted to be engaged by the metal channel half-studs **46** and **47**. The half-studs **46** are adapted to have pushed out male locking members **48** and the half-studs **47** are adapted to have punched out female locking members **49**

which cooperate with the male operating members 48 when the wall is assembled as shown in horizontal section in Fig. 6 wherein the half-studs 46 and 47 are provided at their bottoms with flanges 50 which are adapted to be secured to the base upon which the wall is to be erected. A vertical cover plate 51 may cover the joint between the two half-studs 46 and 47 on the outside of the wall which cover plate may be held in place by the screw 52 which may have its head 53 bearing on the inside flange 54 of the half-studs 46 and the inside flange 55 of the half-stud 47.

Referring to Figures 7, 8, 9, 10 and 11, the prefabricated panel 56 may comprise two flexed sheets 57 secured to the top piece 58 and the bottom piece 59 which bottom piece may have an angle iron 60 secured to the bottom thereof which incorporates a vertical depending leg adapted to be secured to the base upon which the wall is to be mounted. The studs may be of the type known as Stran-steel. Each of the two parts 61 of the Stran-steel stud comprises a web 62 which has a curved portion 63 and a pair of flanges 64 are adapted to engage the sides of the panel. The inner flanges 64 are bent at right angles inwardly in the plane of the bottom of the web 62 to form the small flanges 65 which are adapted to be secured to the base on which the wall is to be erected. The outer flanges 64 are adapted to extend below the bottom of the web 62 to form bearing surfaces 66 adapted to be secured to the outside vertical plane of the base above which the wall is to be erected. In the joint assembly as shown in Fig. 9, the vertical cover plates 67 are nailed to the Stran-steel studs 61 by the nails 68, the ends of which pass between curved portions 63 of the webs 62 so as to lock the nails to the stud assembly.

In Figure 11, the prefabricated panel 56 is in position on a base 69 and the angle iron 60 is secured to the bottom piece 59 which has a vertical depending leg secured to the base 69 by the screw 70. Toggle bolts 71 secure the top plate 72 to the top pieces 58 of the panels 56.

Figure 12 shows the prefabricated panels 30 incorporated in a two-story construction.

In Figures 13 and 14, the base 73 on which the prefabricated panels are to be erected is of concrete and the irons 74, which are embedded in the concrete base 73, are adapted to pass through the bottom pieces 75 of the prefabricated panels 76. The outer sheets 77 of the prefabricated panels 76 have their lower edges 78 depending below the bottom of the bottom piece 75 and are adapted to contact the curved step portions 79 formed on the outside of the concrete base 73 near the top thereof as shown in Figs. 13, 14 and 15. The straight portions 80 between the curved portions 79 correspond to the location of the studs 81 which may have their outside portions at the bottom extending downwardly to cover the straight portions 80 on the concrete base 73.

In Figure 15, a window 82 is set into the panel 76 which window may be of conventional design. In Figure 16, a door frame and door combination 83 are set into the prefabricated panel 76 which door and door frame combination may be of conventional design. In Figure 17, the prefabricated wall structure in accordance with the invention is shown in horizontal section erected on a base with one of the panels 76 having a conventional window 82 set thereinto. The prefabricated panels 76 which are to accommodate a window or a door are cut so as to provide an opening which can accommodate the window or door frame and the framing members 84 are secured to the inner and outer sheets of the panel 76 to provide a solid margin for the opening which accommodates the window or door frame.

It is to be understood that all the elements which go into the wall structure in accordance with the invention may be prefabricated off of the job under cover under favorable conditions and that the elements may be readily assembled on the job by relatively unskilled labor. The inner and outer sheets of the prefabricated panels may be coated or uncoated and when they are of plywood the natural grain of the wool will serve as decoration. When the panels are assembled, both the outside and inside of the wall require no further decoration nor any further protection against the elements. The wall studs are of such a nature that they may be readily prefabricated and assembled on the job. The wall panels may also be completely prefabricated and assembled by sliding them between the studs into place. When the studs are incorporated as half-studs into the panel structure, contiguous panels may be readily assembled as already described. Those panels which contain windows or doors may be assembled into the wall structure like panels which have no window or door openings. In connection with this type of wall construction, conventional floors, foundations, and roofs may be used. Use of the conventional number of studs is not required in this type of construction as the prefabricated panel by virtue of its shape eliminates the need for so many studs as the panel assumes the load which normally would be assumed in conventional structure by the use of many more studs.

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.

I claim:

1. A prefabricated panel for a wall structure comprising a pair of structural sheets of rectangular shape evenly bowed about a vertical axis with the concave faces of said sheets facing each other symmetrically about a plane passing vertically therebetween and with the vertical sides of said structural sheets being straight and with the sides of each sheet spaced from the sides of the opposing sheet which it faces, a top piece fastened to the tops of said structural sheets for securing them together and a bottom piece fastened to the bottoms of said structural sheets for securing them together, said top and bottom pieces being planular in shape and having vertical sides at the margins which contact said sheets which vertical sides have a shape corresponding to the bow in said sheets.

2. A wall structure comprising a plurality of studs of I-section with the web of the I arranged across the plane of the wall, a plurality of panels in accordance with claim 1 in place between said studs with the side margins of said panels between the flanges and adjacent the webs of said I-section studs.

3. A prefabricated panel in accordance with claim 1, half-studs being secured to each of side margins of said panel, one of said half studs having a male locking member formed thereon, and one of said half-studs having a female locking member formed thereon.

4. A panel in accordance with claim 1, an opening through said panel, frame members between the inner and outer sheets and about said opening.

5. A panel in accordance with claim 1, an opening through said panel, frame members between the inner and outer sheets and about said opening, and a window frame mounted in said opening.

6. A panel in accordance with claim 1, an opening through said panel, frame members between the inner and outer sheets and about said opening, and a door frame mounted in said opening.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
930,611	Pelton	Aug. 10, 1909
1,622,962	Michod	Mar. 29, 1927
1,764,001	Blanchard	June 17, 1930
1,895,667	Junkers	Jan. 31, 1933
1,978,494	Junkers	Oct. 30, 1934
2,208,589	Leemhuis	July 23, 1940
2,234,797	Burner	Mar. 11, 1941
2,270,846	Hines	Jan. 27, 1942
2,311,170	Hain	Feb. 16, 1943
2,372,200	Hayes	Mar. 27, 1945

FOREIGN PATENTS

Number	Country	Date
340,489	Italy	Mar. 17, 1936