

March 26, 1946.

W. A. HALICKI ET AL

2,397,259

SHELTER

Filed May 3, 1943

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Fig. 1.

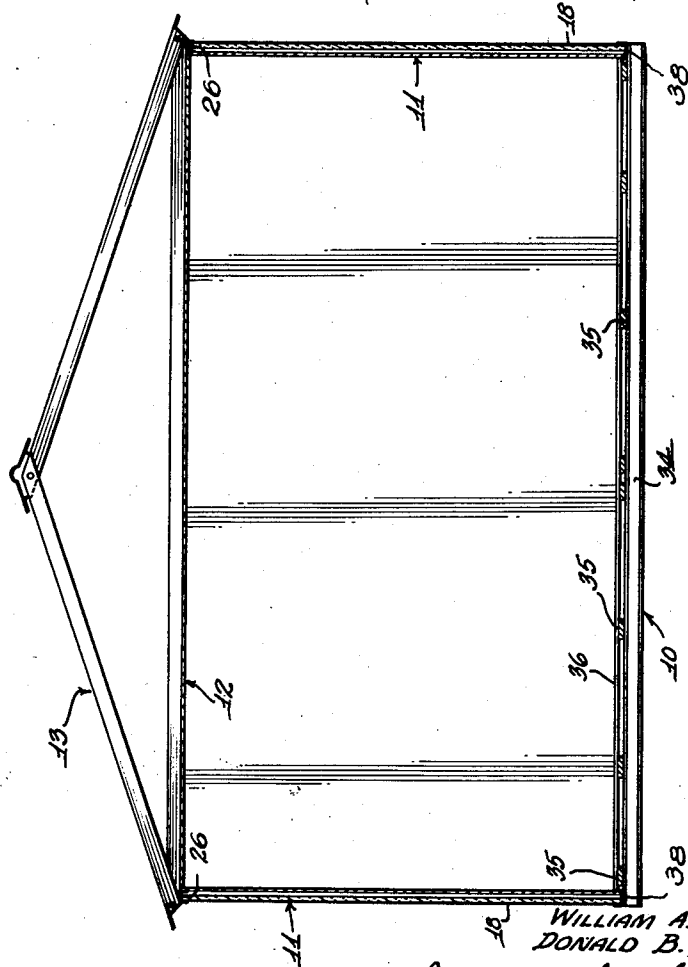
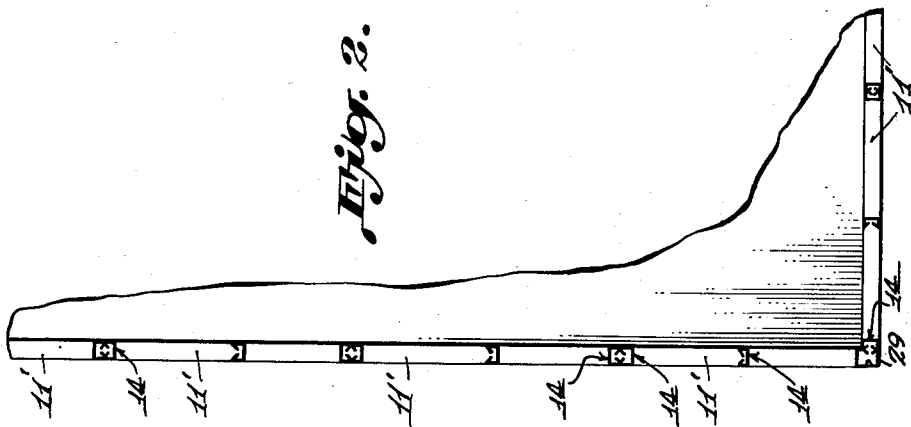


Fig. 2.



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Fig. 3.

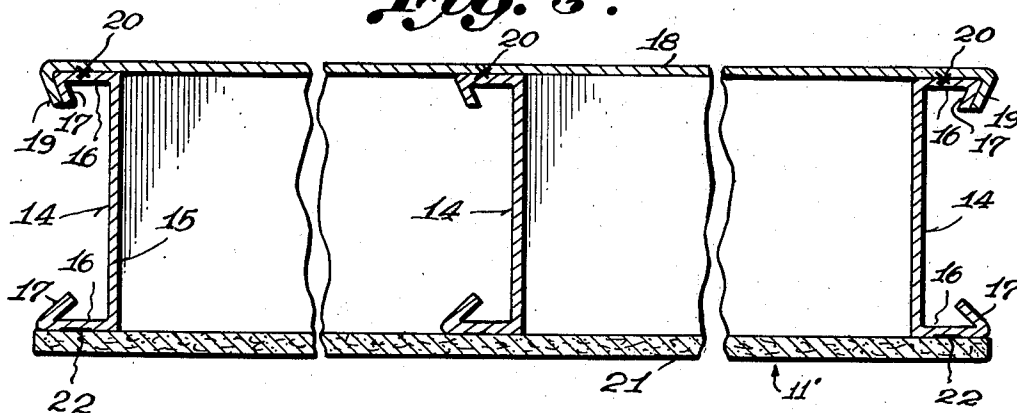


Fig. 4.

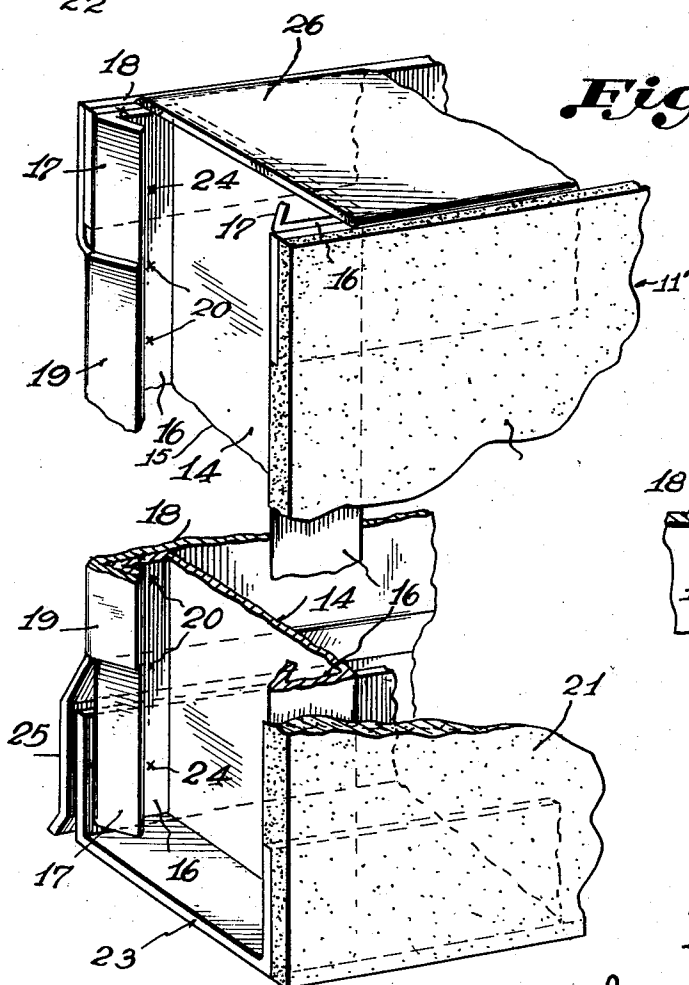
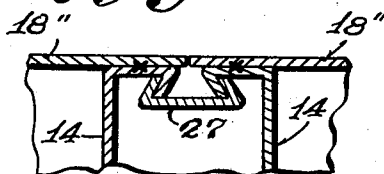


Fig. 10.



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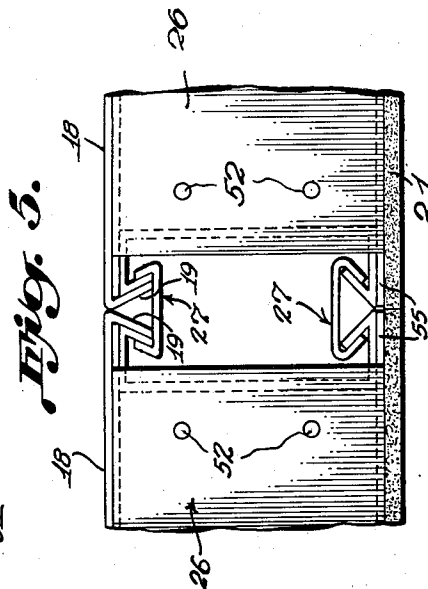
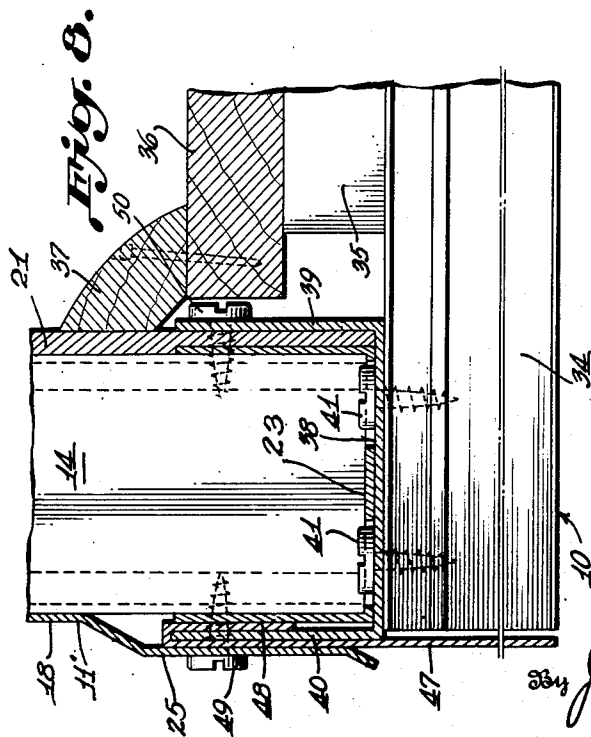
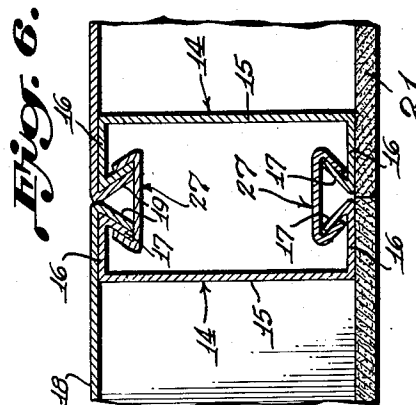
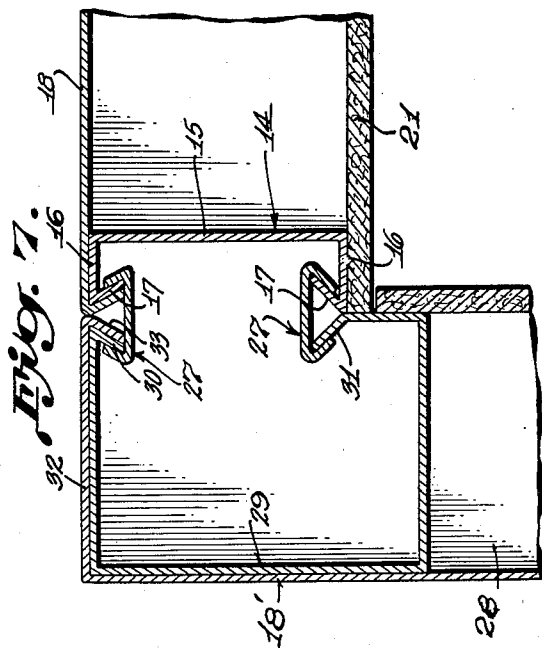
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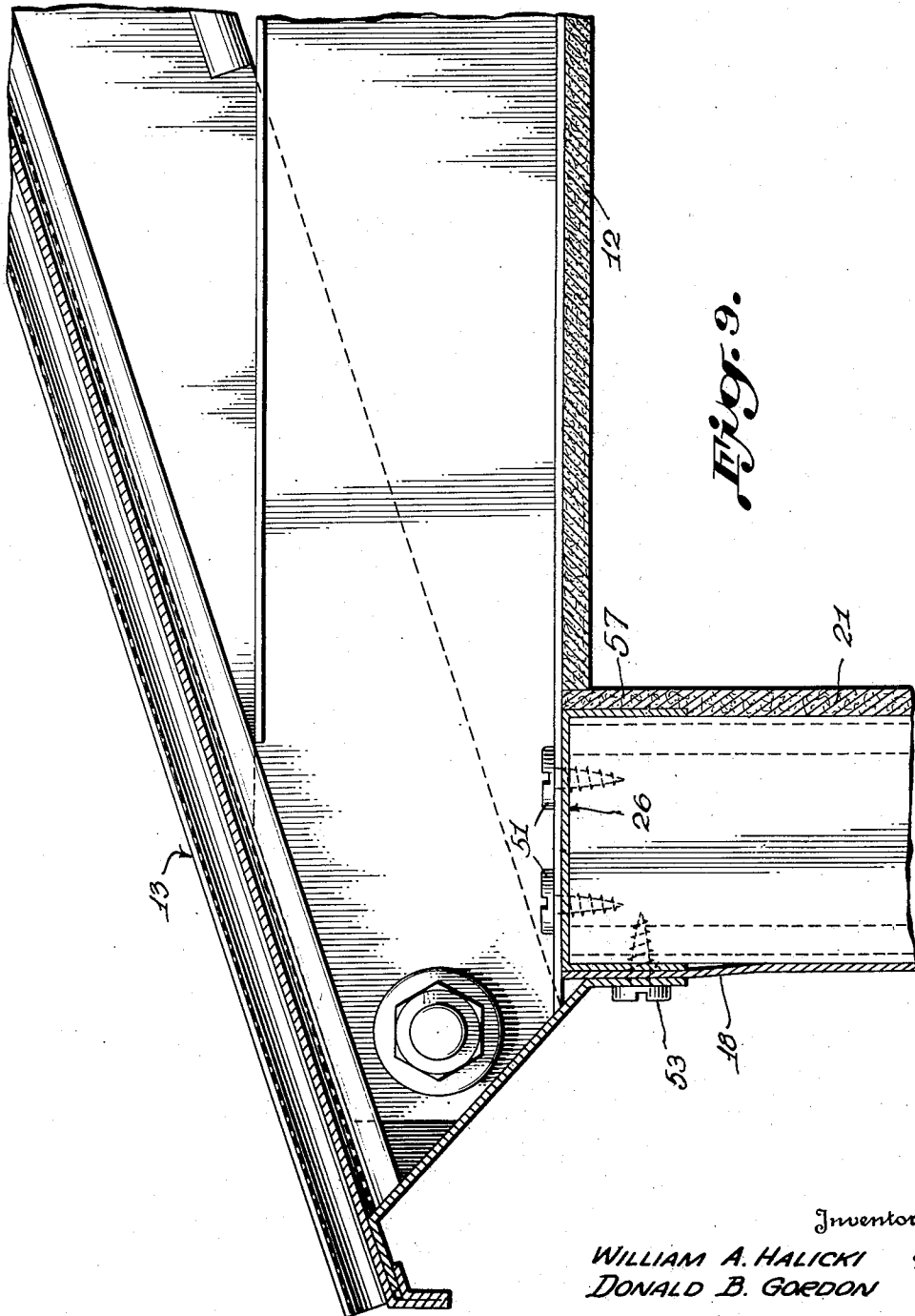
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UNITED STATES PATENT OFFICE

2,397,259

SHELTER

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Application May 3, 1943, Serial No. 485,416

3 Claims. (Cl. 189—34)

The present invention relates to improvements in readily erectable and demountable shelters.

An important object of the present invention is to provide a shelter of great structural strength which is readily erectable and demountable in the field.

A further important object of the present invention is the provision of a shelter formed with novel side wall panels.

A further important object of the present invention is the provision of a shelter in which novel side wall panels are rigidly held in place in a simplified manner.

A further important object of the present invention is the provision of a prefabricated panel for incorporation in a demountable shelter.

Other objects of the invention will become apparent to those skilled in the art from the following detailed description taken in connection with the accompanying drawings which disclose preferred embodiments of the invention.

Figure 1 is a view in vertical section taken across the width of the shelter,

Figure 2 is an enlarged sectional view of a portion of the structure,

Figure 3 is a view in cross section of a prefabricated panel,

Figure 4 is a view in perspective of one end of the panel of Figure 3,

Figure 5 is a plan view of the end portions of two adjoining panels in the completed wall of the shelter,

Figure 6 is a view in horizontal section of the structure shown in Figure 5,

Figure 7 is a horizontal sectional view through one corner of the shelter,

Figure 8 is a view in cross section through the base of a wall of the shelter,

Figure 9 is a view in cross section of the upper portion of the wall with associated roof structure, and

Figure 10 is a view in horizontal section similar to Figure 6 showing a further embodiment of the invention.

Referring specifically to Figures 1 and 2, reference numeral 10 indicates a base supporting walls 11 and ceiling 12. Roof structure indicated generally at 13 has been made the subject matter of a copending application, Serial No. 485,417, filed May 3, 1943, by the present inventors, now Patent No. 2,372,827, issued April 3, 1945. Walls 11 are made up of panels 11' suitably connected together and to base 10.

Referring to Figures 3 and 4 it will be seen

that each panel 11' is made up of a special structural member 14 herein sometimes termed a modified C-shape. This C-shape is formed of a web 15, flanges 16 and flange extensions 17 inclined at an acute angle to the flanges. An external sheathing member 18, which may be of any desirable material but preferably metal, is provided with flanges 19 arranged at an acute angle to the plane of the sheathing member which corresponds to the angle of flange extensions 17 of the C-shape. Flange extensions 17 and flanges 19 may be considered as reversed edge portions of flanges 16 and sheathing member 18, respectively. A pair of C-shapes in back-to-back relation are positioned as shown in Figure 3 with the extensions 17 and flanges 19 in snugly fitting relation. Flanges 16 are tacked to sheathing member 18 in any suitable manner, preferably, if sheathing member 18 is formed of metal, by a line of spot welding as indicated at 20. Where desired, additional C-shapes may be incorporated in the panel to constitute reinforcing members. The prefabricated panel may include an inner wall member of wall board or any other desired material indicated at 21 tacked to the inner flanges 16 of the C-shapes in any suitable manner such as by adhesive indicated at 22. The panel is closed at the bottom by a channel member 23 having its flanges suitably secured to the C-shapes as by spot welding 24. Sheathing member 18 is formed with an outwardly bent depending section 25 spaced from the outer flange of channel 23 for purposes to be described later. The top of the panel is closed by a channel 26 which has its flanges suitably tacked as at 24 to the C-shape. A portion of the web of channel 26 is cut out to expose the ends of flange extensions 17. Due to the fact that the outer flange of channel 26 fits between the C-shapes and the sheathing member a portion of flange 19 on the sheathing member may have to be omitted as shown depending upon whether or not the gauge of the materials used makes this necessary. Obviously, in the neighborhood of portion 25 of the sheathing member, flange 19 will have to be omitted.

Figures 5 and 6 show the manner in which two adjacent panels are joined together. With the ends of the two panels contiguous a spline or key member 27 having flanges disposed at angles corresponding to the angles of C-shape flange extensions 17, is driven down in locking position as shown. It will be apparent that the insertion of these key members is made possible by the cutout portions of channels 26. Here

again in rare cases the gauge of the material of which sheathing member 18 is formed may have to be taken into account and the corresponding key member made a little larger than the key member on the inner side.

In Figure 7 a modified form of joint is shown which may be used at the corners of the shelter. In this case a panel 28 having one end of the same construction as the panel shown in Figures 3 and 4 presents at its other end a structure including a special structural member 29 which has flange extensions 30 and 31 arranged to fall into keying position relative to the flange extensions 17 of a panel on the end of the other side wall. Sheathing member 18' of the modified panel has an extension 32 carrying a flange 33 which corresponds to flange 19 on the other panels. Splines 27 connect the parts together in the same manner as with the regular panels.

Referring to Figure 8 the wall and base structure is seen. Joists 34 which may be laid on any suitable foundation support floor nailing strips 35. Floor 36 and molding 37 make the finished structure. Laid along the ends of joists 34 to form the base for a wall is channel member 38 having flanges 39 and 40. This channel is fastened to the joist members by self-threading screws 41. This type of screw which is known in the art fastens two metal parts together by being inserted into preformed holes which have a diameter equal to the body of the screws, the sharp finlike threads on the body of the screw cutting the edges of the openings in a self-threading fashion. A flashing member 47 depends from outer flange 40 of channel member 38. This flashing member is supported by a depending flange 48 which embraces flange 40.

From Figure 8 it will be apparent that panel member 11' fits into channel member 38, channel member 23 on the panel having cutout portions to receive the heads of screws 41. Portion 25 of the panel sheathing 18 embraces the upper end of the flashing 47 and the flange 40 of channel 38. Self-threading screws 49 and 50 anchor the parts together at this point. Figure 9 shows the construction of the wall at the top. It will be noted that the roof structure is joined thereto by self-threading screws 51 which connect the flanges of a structural member to channels 26 by means of screw holes 52 (see Figure 5). This throws the weight of the roof structure directly on C-shapes 14. Self-threading screws 53 connect the eaves of the roof structure to the panel.

In the completed wall 11 the pairs of C-shapes 14 connected by splines 27 form supporting columns of a framework which includes bottom and top bracing members in the form of channels 23 and 26, respectively.

In the modification shown in Figure 10 the sheathing members 18' do not have flanges, the sheathing members being connected to the C-shapes by welding only. In this modification, prior to fabrication of the panel the sheathing members can be readily shipped in flat condition. This may be of advantage where it is desired to fabricate the panel in the field, although it is to be understood that the embodiment shown in Figures 3 and 4 could also be fabricated in the field, possibly with the flange on the sheathing member being formed at that point.

In assembling the shelter of the present invention, joists 34 are laid on any suitable level foundation. Channels 38 are laid in position along the extremities of the joists and fastened thereto by screws 41. Similar channels are laid along

the end joists and similarly fastened. Panels 11' as shown in Figure 4, or if desired without inner wall member 21, are positioned in the channels with portion 25 of sheathing members 18 embracing the upper end of flashing member 47. Adjacent panel members are rigidly connected together by means of splines or key members 27. Four special corner panels previously described are placed in position and rigidly connected to the adjacent wall structure in the same manner. If insulation (not shown) is desired, it is incorporated in the panel previous to erection, or where inner wall members 21 have been omitted the insulation may be applied at this point in erection. Screws 49 connect the outside parts of the base. If the inner wall members have been omitted they may be put in place at this time, the lower edge portion being snugly received between the inner flanges of channels 23 and 38. Screws 50 are then inserted. At this point the roof structure described in the copending application herein referred to may be applied to the tops of the walls. Finally floor nailing members 35 are placed in position and the floor 36 laid thereon. The application of molding 37 and ceiling 12 completes the structure.

It will be noted that, although Figures 5 to 8 inclusive show the identical structure of the panels of Figures 3 and 4, no welding is shown between the parts. Thus although Figures 5 to 8 inclusive show exactly how the panels are assembled to form a wall, these figures also show a construction in which the parts of a panel are held together solely by the splines or key members and the panel is thus not prefabricated. The present invention contemplates a shelter constructed in this manner. It will be apparent that such a structure is not as readily erected as when the prefabricated panels are used but for many purposes this limitation may be offset by other advantages inherent in a structure which requires no fabrication methods such as welding. All parts could be shipped to the site separately. As mentioned above the sheathing members 18 could be shipped flat and the flanges 19 formed immediately prior to erection.

We claim:

1. In a shelter of the class described, a base structure, said base structure comprising a plurality of spaced joists, an outer channel member mounted along the edges of the joists and fastened thereto, an inner channel member fitting within the outer channel member, said inner channel member having its vertical flanges spaced from the corresponding vertical flanges of the outer channel member, and a metal flashing surrounding the base structure, said flashing having a portion thereof received in the space between the outer spaced flanges.

2. A wall structure comprising a supporting base, a channel member fastened to the base, a plurality of contiguous panels having lower portions received in the channel member, each panel including an external sheathing member extending downwardly below the top of the channel member and outside of the same, and a metal flashing surrounding the supporting base, said flashing having a portion extending upwardly between the sheathing members and the channel member and a portion extending downwardly between the channel member and the lower portions of the panels.

3. A wall structure comprising a supporting base, an outer channel secured to said base, a framework having lower portions received in the

outer channel, said framework made up of a plurality of spaced structural columns, each of said columns comprising a pair of channel shaped structural members arranged face to face, each of said structural members having a web portion and flange portions terminating in reversed edge portions, readily detachable means securing each pair of structural members together, said means comprising two key members each having a web portion and inclined flange portions parallel with the reversed edge portions and slidably engaging the corresponding reversed edge portions of a pair of structural members, outer sheathing members secured to the structural members, each of said outer sheathing members having inwardly reversed edge portions received between a pair of

5 cooperating structural members to lock the outer sheathing members in place, inner sheathing members connected along opposite edges to flanges of the corresponding structural members, and channel members extending between the ends of the structural members along the top and bottom of the external and internal sheathing members, the ends of the top channel members being arranged to leave the reversed edge portions exposed to permit insertion and removal of the key members and the lower channel members being inside of the outer channel secured to the supporting base.

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