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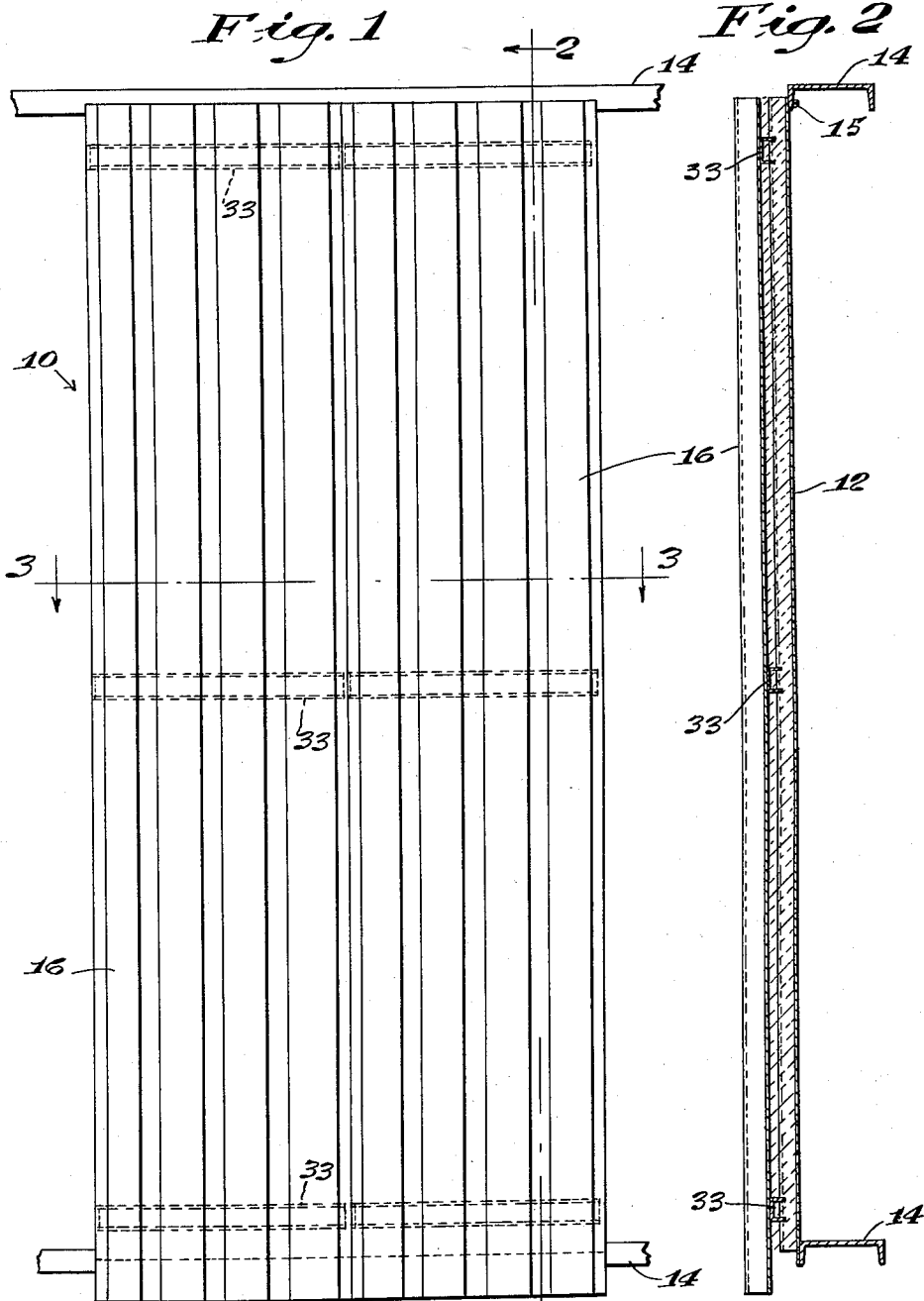
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WALL PANEL

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2 Sheets-Sheet 1



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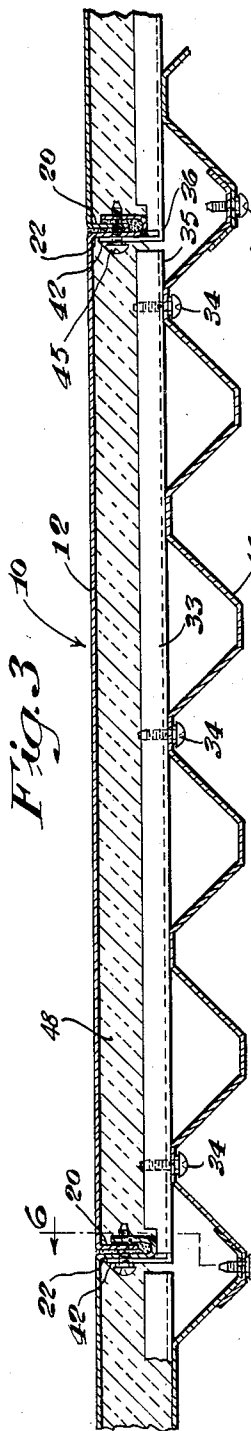


Fig. 3

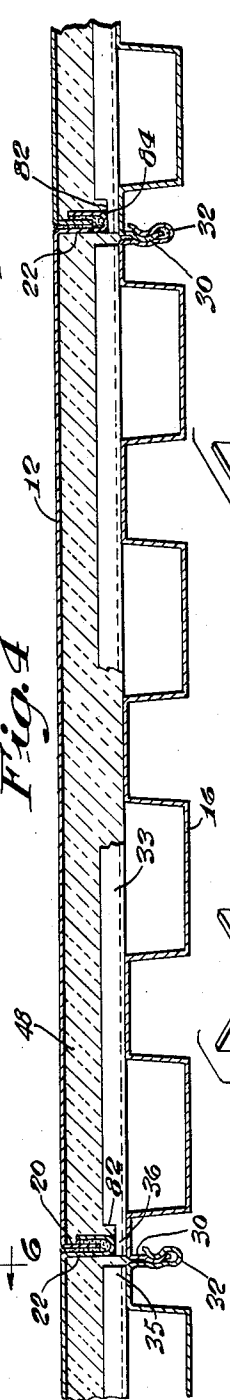


Fig. 4

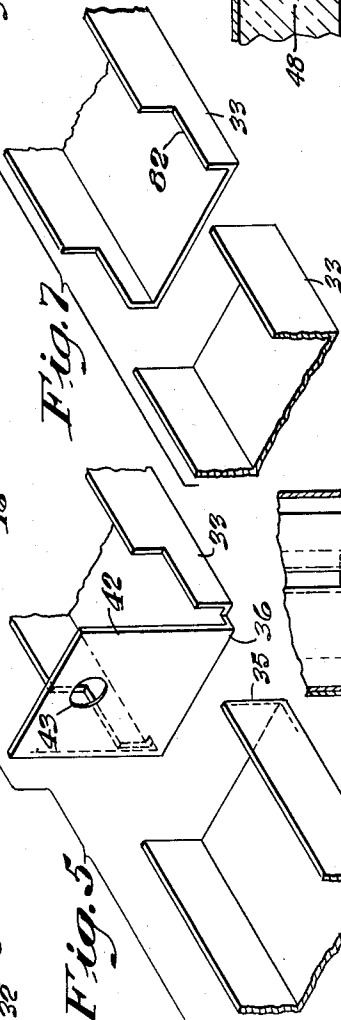


Fig. 5

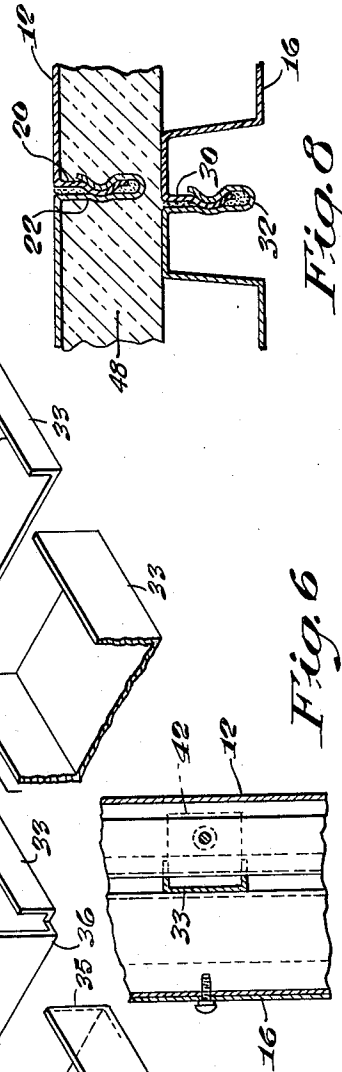


Fig. 6

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Fig. 7

Fig. 8

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WALL PANEL

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1 Claim. (Cl. 189—34)

This invention relates to a wall panel.

In general the object of the invention is to provide a novel insulated sheet metal wall panel which may be erected and dismantled in a minimum of time and with minimum labor.

A further object of the invention is to provide a novel wall panel structure embodying a plurality of panel units and novel means of detachably securing together the panel units to enable the wall panel structure to be quickly and easily erected and taken down when it is desired to move the structure.

With these general objects in view and such others as may hereinafter appear, the invention consists in the wall panel units, in the wall panel structure and in the fastening means for the erection of the wall panel units, and the various structures and parts thereof hereinafter described and particularly claimed at the end of this specification.

In the drawings illustrating the preferred embodiment of the present invention:

Fig. 1 illustrates in side elevation a plurality of connected panels;

Fig. 2 is a section of the panels shown in Fig. 1 taken on the line 2—2 thereof;

Fig. 3 is a section of the present connected panels taken on the line 3—3 of Fig. 1;

Fig. 4 is a similar section of a modified form of the present connected panels;

Fig. 5 is a perspective view of the fastening means for fastening the outer and inner components of the wall panel shown in Fig. 3;

Fig. 6 is a cross section taken on line 6—6 of Fig. 3;

Fig. 7 is a perspective view of a modified form of fastening means for fastening the outer and inner components of the wall panel shown in Fig. 4; and

Fig. 8 is a cross section showing the crimped marginal lips of the inner and outer sheets of the panel units.

In general the present invention contemplates an insulated sheet metal wall panel structure comprising a plurality of panel units erected side by side and each unit comprising an inner sheet metal facing sheet adapted to be secured to the framework of the building. The inner sheet metal facing sheet of each unit is provided with outwardly extended lips on the two side edges thereof, one being a male lip and the other a female lip, and with the male lips of one panel unit projecting into the female lip of an adjacent unit.

The insulated sheet metal wall panel further comprises an outer sheet and a sub-girt system secured thereto and which may in some instances be prefabricated and which is arranged to cooperate with the previously erected inner facing sheet to form the completed panel structure. The sub-girts are arranged to extend transversely of the outer sheets and spaced along the length thereof, and provision is made for securing the outer sheet unit to the inner facing sheets through connections to the outwardly extended lips of the inner facing sheets as will be described.

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Referring now to the drawings, one embodiment of the invention is illustrated in Fig. 3 wherein 10 represents the present wall panel structure comprising a series of panel units adapted to be erected upon the framework of the building and to be secured thereto. Each panel unit comprises an inner facing sheet 12 which is attached to the framework of the building, herein shown as horizontally disposed steel girders 14, by means of bolts 15 or otherwise. Each inner facing sheet is provided along its opposite marginal edges with outwardly turned lips, one lip 20 comprising a male lip and the second lip comprising a female lip 22. As adjacent sheets 12 are erected upon the framework of the building, the male lip of one unit is inserted into the female lip of the adjacent unit. In erecting the panel units a convenient number of inner facing sheets are secured to the framework preparatory to erection of the outer facing sheets.

The outer section of each panel unit comprises an outer metal facing sheet 16, which is preferably corrugated and also provided along its marginal edges with corresponding male and female lips 30, 32. The inner face of the outer facing sheet 16 has attached to it, either in the factory or in the field, a plurality of sub-girts 33 extending at spaced intervals transversely across the inner face of the sheet, and in the embodiment of the invention illustrated in Fig. 3, each sub-girt 33 comprises a U-shaped channel member secured by the self-tapping screws 34 or by welding to the outer facing sheet. The channel shaped sub-girt shown in Fig. 3 and in detail in Fig. 5 is preferably of a length with relation to the width of the outer sheet 16 so that the forward end 35 thereof terminates a short distance within the margin of the facing sheet, and the rear end 36 projects slightly beyond the margin of the sheet, as illustrated.

In the embodiment of the invention illustrated in Fig. 3, and as shown in detail in Fig. 5, one end of the channel shaped sub-girt 33 is provided with an upstanding end flange 42 having an opening 43 therein for connecting said one end to the outwardly extended lips 20, 22 of the inner facing sheet 12. Thus, in the erection of the panel structure the outer facing sheet 16 having the sub-girt 33 attached thereto is secured at one edge to the inner facing sheet by a self-tapping screw 45 extended through the flange 42 and the male and female lips 20, 22 of the inner facing sheet, as shown in Fig. 3. The other edge of the outer facing sheet may be attached to the marginal edge of the previously erected outer facing sheet, as by connecting the overlapped edges of the corrugated outer sheet by self-tapping screws 47. In practice, the space within the inner facing sheets of each unit is filled with insulation 48, preferably during erection.

In the embodiment of the invention illustrated in Fig. 4, the sub-girts may and preferably will take the form illustrated in detail in Fig. 7 wherein the rear end portions of each sub-girt are cut away so that when erected the cut-away shoulders 82 contact the underside of the female lip 22 of the inner facing sheet of the next succeeding panel unit being erected, and the shoulders 82 may be if so desired welded by welds 84 or otherwise secured to the female lip as illustrated in Fig. 4. The sub-girts are preferably of a length coextensive with the width of the outer facing sheet and are preferably welded either in the plant or in the field to firmly secure the sub-girts to the outer facing sheet, and as succeeding panel units are erected the male and female lips 30, 32 of the adjacent outer facing sheets are interlocked and preferably crimped or dimpled in the manner illustrated in Fig. 4. It is also preferred to caulk the lips of both the outer and inner sheets with a suitable waterproofing compound. In some instances both sets of lips 20, 22 and 30, 32 may be crimped, as shown in Fig. 8.

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In those instances where the panel units are to be erected in vertical relation to one another, the top and bottom of the units may telescope sufficiently to form weathertight joints.

While the preferred embodiment of the invention has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

An insulated sheet metal wall panel comprising a plurality of panel units erected side by side, each unit comprising an inner sheet metal facing sheet adapted to be secured to the framework of a building having outwardly extended lips on the two side edges thereof, one a tongue-like male lip and the other a U-shaped female lip, with the male lip of one panel unit projecting into the female lip of an adjacent panel unit, a body of insulation filling the space between the lips and overlying the inner facing sheet, a prefabricated outer sheet and sub-girt system comprising a corrugated metal facing sheet having a plurality of spaced, lightweight channel shaped sheet metal sub-girts extending transversely across and secured to the inner face of said corrugated facing sheet, the length of each sub-girt being substantially the same as the width of the prefabricated outer sheet to which it is secured,

the flanges of said sub-girts being notched at one end thereof, said prefabricated outer sheet and sub-girt system adapted to be secured to said panel units with the ends of the sub-girts having the notches overlying said outwardly extending female lips and the other end extending up to said female lips, said sub-girts being secured to the female lips by welding said female lips to the upper edge of said notched sub-girt portion, said outer sheet adjacent said notched portion of the sub-girt having an outwardly extending male lip and the opposite edge of said outer sheet having a female lip, said female lip telescopically receiving said male lip of an adjacent sheet, and said lips being crimped in interlocking relation.

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