United States Patent

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[72] Inventor **Robert Mitchell Ward**
58 Traquair Park West, Edinburgh 12, Scotland

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[33] **Great Britain**
[31] **42510**
Continuation of application Ser. No. 690,804, Dec. 15, 1967, now abandoned.

[54] **A PANEL ASSEMBLAGE MEANS FOR THE CONSTRUCTION OF THE WALLS OF BUILDINGS**
2 Claims, 10 Drawing Figs.

[52] **U.S. Cl.** **52/520,** 52/404, 52/478, 52/483, 52/582, 52/619
[51] **Int. Cl.** **E04d 3/35,** E04d 3/362
[50] **Field of Search** 52/235, 404, 407, 478, 483, 497, 519, 530, 574, 582, 585, 586, 588, 589, 619, 520

[56] **References Cited**

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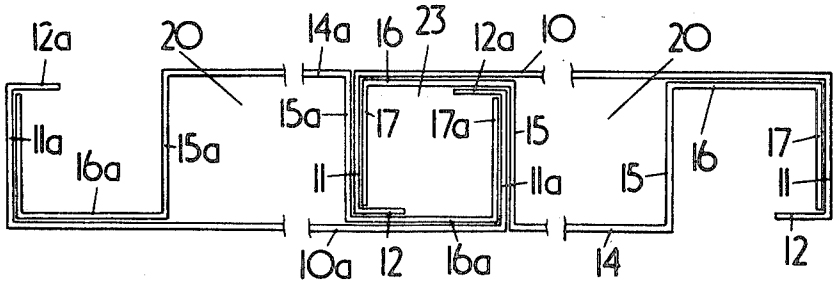
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Primary Examiner—Alfred C. Perham
Attorney—Holman & Stern

ABSTRACT: A panel assemblage for forming the walls of buildings comprising an outer and inner metal sheet or components both formed with longitudinal channels at their vertical edges which channels are of such section that the channels of one sheet interfit with those of the other sheet to form between the sheets a cavity which is filled with heat-insulating material, and also form outer channels which are open on one of the faces of the panel, assembling said panels so that the outer channels of laterally adjacent panels interfit and form therebetween vertical channels or cavities, inserting locking members into the vertical channels or cavities to bind together said panels, which members project upwards to engage the corresponding channels in the assembled panels immediately above and anchoring the said locking members to purlins secured to a supporting framework.



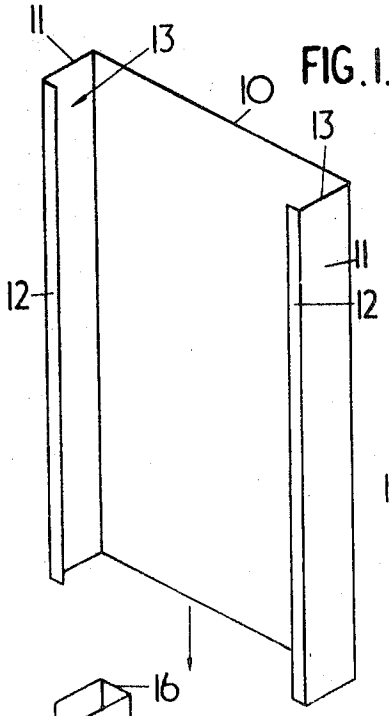
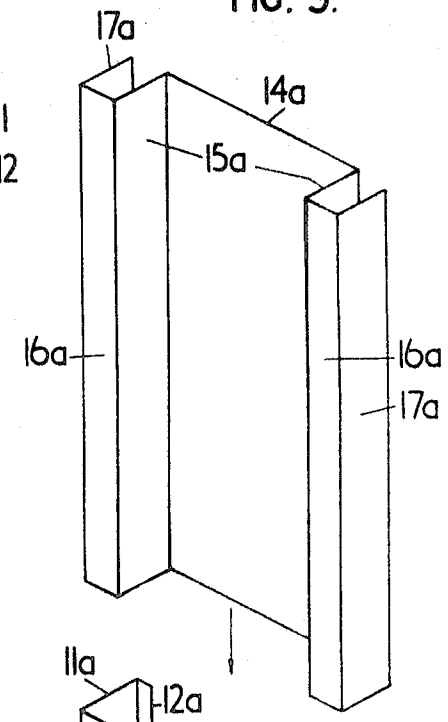


FIG. 1.

FIG. 2.

FIG. 3.



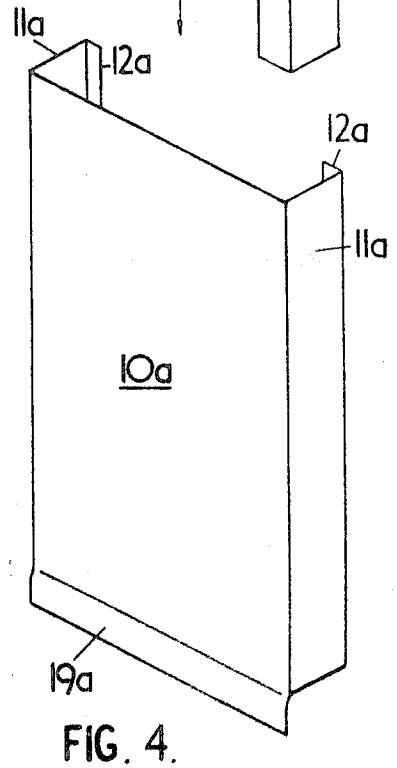


FIG. 4.

INVENTOR
ROBERT MITCHELL WARD
BY Hanson, Downing & Sestrich
ATTORNEYS

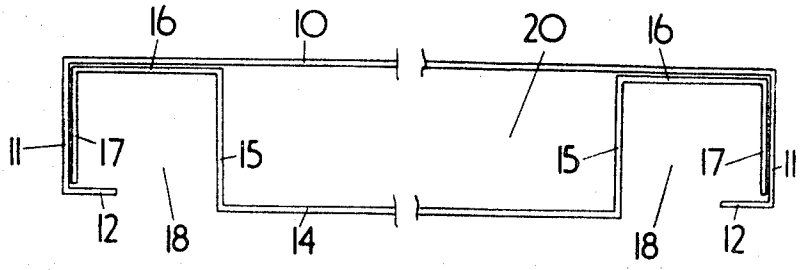


FIG. 5.

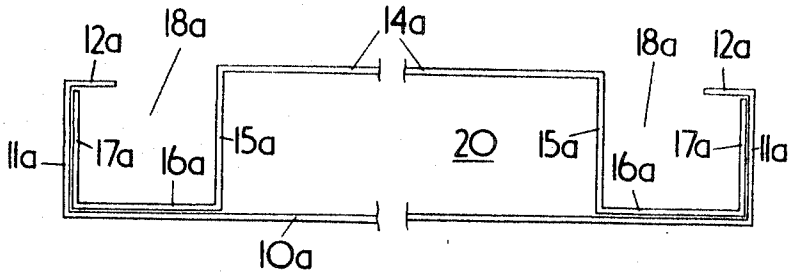


FIG. 6.

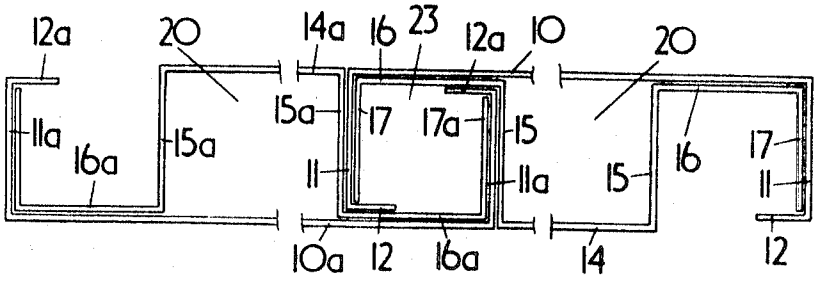


FIG. 7.

INVENTOR
ROBERT MITCHELL WARD
BY
ATTORNEYS

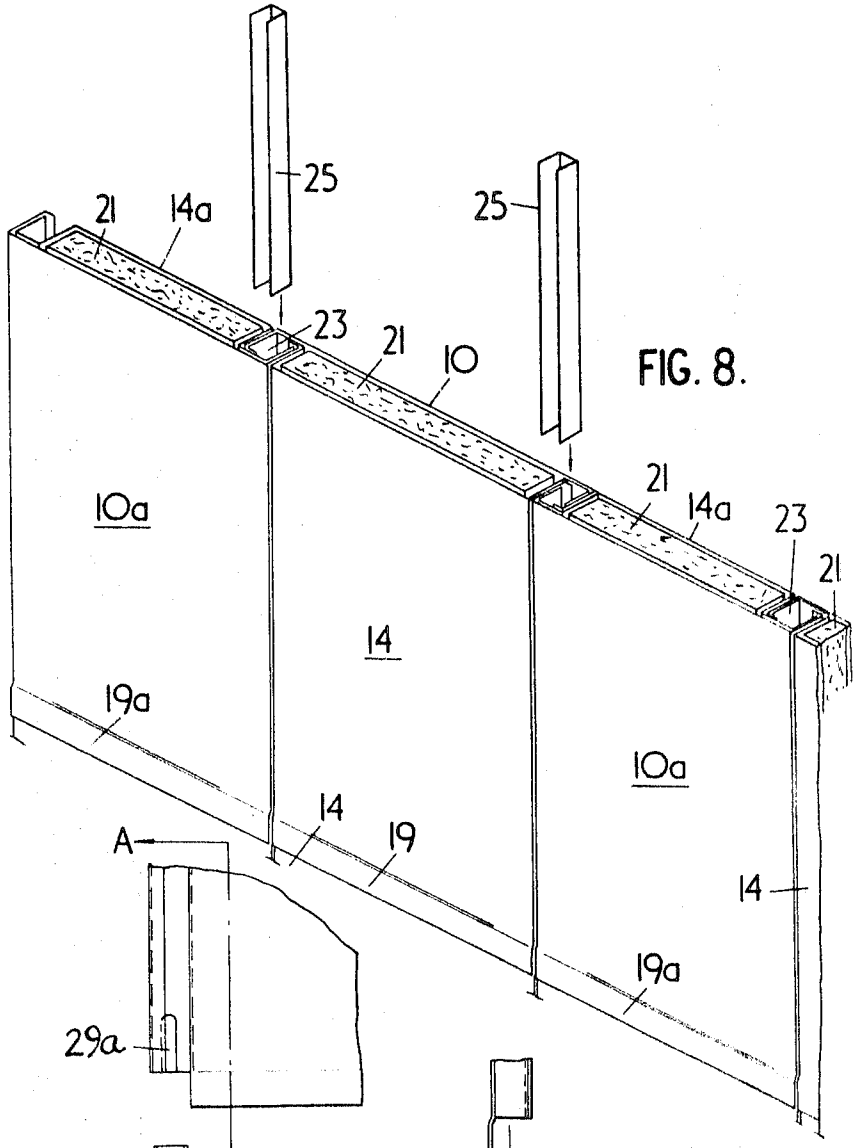


FIG. 8.

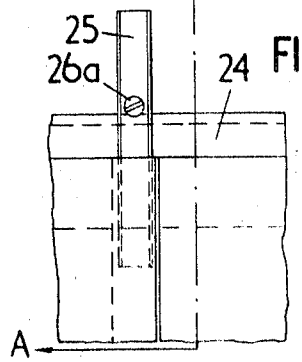


FIG. 9.

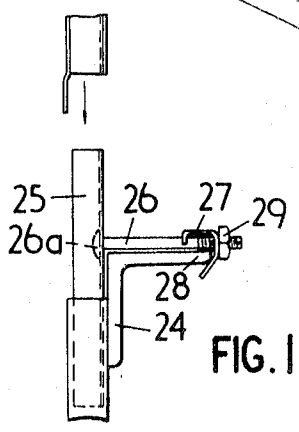


FIG. 10.

INVENTOR
ROBERT MITCHELL WARD
BY

ATTORNEYS

A PANEL ASSEMBLAGE MEANS FOR THE CONSTRUCTION OF THE WALLS OF BUILDINGS

This is a continuation of application Ser. No. 690,804 filed Dec. 15, 1967and now abandoned.

This invention has reference to the construction of walls of buildings wherein the walls are formed of panels secured to an inner supporting framework.

The present invention has for its object to provide an improved method of and panels for use in the construction of walls whereby the walls can be quickly erected without the necessity of introducing means to seal the joints formed by the assembled panels.

According to the present invention the panels for the construction of the walls of buildings are formed of panels each comprising two plates or components each of which is formed with longitudinal channels at its vertical edges and which channels are of such horizontal cross section that the channels of one sheet interfit with those of the other sheet to form between the sheets a cavity which is filled with heat-insulating material and also form channels which are open on one of the faces of the panel, the sheets which will form the outer face of the panels having joggled or offset downward extensions which constitute weathering strips and the walls formed by assembling such panels to form a first horizontal tier of vertical panels the outer flanges of laterally adjacent panels interfitting and forming therebetween vertical cavities, inserting locking members into the upper ends of said cavities to bind together the interfitting panels which members project upwards beyond the panels, anchoring said locking members to a purlin, thereafter forming a superimposed tier in like manner, the said projecting locking members extending into the vertical cavities of the panels of the second tier, and anchoring the locking members introduced into the upper ends of the cavities of the second tier to a purlin, the weathering strips of the panels forming the second tier covering the horizontal joints between said two tiers and thereafter forming further superimposed tiers of panels in like manner.

The invention further consists in panels for use in the construction of walls as set forth in the preceding paragraph each panel being formed of a first metal sheet which at its vertical sides form two opposed channels and a second sheet which at its vertical sides forms channels of somewhat U-shaped section which slide into the channels of the first sheet to form between the sheets a cavity in which is inserted heat insulating material, and which also form substantially U-shaped channels for the reception of the outer flanges of adjacent panels each pair of laterally assembled panels then forming channels for the reception of locking members introduced therein, such members then locking the laterally assembled panels and locking together vertically superimposed panels and weathering strips formed by joggling or offsetting the lower end of one of the sheets forming each panel.

The invention will now be described with reference to the accompanying drawings wherein:

FIG. 1 is a perspective view of the rear component of a panel in accordance with the invention;

FIG. 2 is a perspective view of the front component of this panel;

FIG. 3 is a perspective view of the rear component of a second panel in accordance with the invention;

FIG. 4 is a perspective view of the front component of said second panel;

FIG. 5 is a plan view of the panel formed by the components shown in FIGS. 1 and 2;

FIG. 6 is a plan view of the panels formed by the components shown in FIGS. 3 and 4;

FIG. 7 is a plan view of the panel shown in FIGS. 5 and 6 interlocked;

FIG. 8 shows part of a wall formed by the interlocked panels and the interlocking members by which the interlocking panels are rendered rigid;

FIG. 9 is an elevation of part of an erected wall together with a panel positioned to form part of a further row to be superimposed thereon; and

FIG. 10 is an end view of FIG. 9.

The rear component shown in FIG. 1 is formed from a metal sheet 10, preferably an aluminum sheet, with right-angled flanges 11 extending along its two longer sides, and the longitudinal edges of the flanges are turned over as at 12 to form opposed channels 13.

The front component shown in FIG. 2 is formed from a metal sheet 14, preferably aluminum, the longer sides of which are turned to form right-angled inner flanges 15, then turned to extend parallel to the sheet as at 16 and then turned at right angles to form outer flanges 17, such component thus having side channels 18 of U-shaped section. It will be seen that this component extends downwardly beyond the channels to form a weatherstrip 19 which is offset outwards to the thickness of the sheet. The front component is slid into the rear component to form a panel, see FIG. 5, the flanges 17 sliding into the opposed channels 13 and the inwardly turned flanges 12 retaining the components in their assembled position. The panel described will be referred to as a first panel.

The other panel, which will be referred to as a second panel, is formed of a rear component, see FIG. 3, similar to the front component shown in FIG. 2 but without the weatherstrip 19, the panels thereof bearing the same reference numbers together with the index *a*. The front component of the second panel, which component is shown in FIG. 4, is similar to the rear component shown in FIG. 1 but is provided with an offset weatherstrip 19*a*. FIG. 4 has the same reference numerals as in FIG. 2 plus the index *a*.

To form the second panel the rear component, FIG. 3, is slid into the front component, see FIG. 6. The front and rear components of both panels form between them a cavity 20 which is filled with heat-insulating material 21.

Two of such panels can be interlocked, but not rigidly interlocked, by sliding one side of the first panel, i.e. a side which has the abutting flanges 11 and 17 and also the flange 12 into the channel 18*a* of the adjacent side of the second panel. This is shown in FIG. 7. When so interconnected a cavity or channel 23 is formed, two of the opposed faces thereof being formed by the flanges 17 and 17*a*.

It will be noted that the outer flange of the channels 18 and 18*a* are both somewhat less in depth than the depth of the panels. This, as will be seen from FIG. 7, permits the said front and rear faces of the panels to be coplanar. Further the weatherstrips 19 and 19*a* are contiguous and on the outer faces of the panels.

In erecting a wall, a metal or wooden framework, not shown, is first formed and secured thereto by means of brackets which are horizontal lengths or purlins 24 of angle iron spaced apart to correspond with the length, i.e. the vertical height, of the panels. The first horizontal row of panels is supported by clips to the lowest purlin. The panels forming such row are alternate first and second panels interconnected one after the other by sliding their outer flanges into the channels of the adjacent panels, as shown in FIG. 7. When so fitted the panels can partake of a lateral movement relative to each other.

To secure the adjacent panels in interlocking engagement with each other, sheet metal locking members 25 of a three-sided section are introduced into the channels or cavities 23 formed by the interfitting panels; said locking members project upwards from the said channels. Said locking members are introduced to rigidly secure each panel to the previously erected panel and are therefore of such section that they will bear tightly on the flanges 17 and 17*a* of each pair of assembled panels in each row. The next row of panels is erected to bear on the top of the row previously assembled, the second row being formed like the preceding row and the locking members, where they project upwards, extend into the channels or cavities 23, which are formed by the interfitting panels of the second row. In like manner further rows of panels are erected.

To secure the panels to the framework the purlins **24** have mounted thereon a series of bolts **26** which are inserted through apertures in the locking members, the bolts having bands **26***a* which bear on the inner face thereof. The other ends of the bolts pass through holes in clips **27** which latter engage with the inner edges **28** of the horizontal flanges of the purlins, the bolts being screw threaded. Nuts **29** screwed on to the bolts bear on the clips and draw the locking members and therefore the panels towards the framework. In like manner succeeding rows of panels can be built up. It will be understood that each locking member is so secured to a purlin immediately after it has been introduced to lock together a pair of panels.

The weather flanges **19** and **19***a* cover the joints formed between the rows of panels.

It will also be appreciated that the inner faces of the lower ends of the channels formed in the second and succeeding rows of panels must be slotted as at **29***a* to clear the bolts anchoring the locking members.

I claim:

1. A panel assemblage for use in the construction of walls formed of superimposed horizontal tiers of panels comprising a first panel defined by a first sheet component having a right-angled flange at each vertical edge thereof with the flanges being inturned at their longitudinal edges for providing opposed channels and a second sheet component having a channel of U-shaped section at each vertical edge and having at its lower end an offset weather strip extending between its two channels, the channels of U-shaped section fitting within the opposed channels of the sheet component to provide an open-ended cavity for heat-insulating material and also providing

longitudinally extending side channels, the flanges of the first sheet component and the outer flanges of the channels of U-shaped section being of less depth than the depth of the inner flanges of the U-shaped section channels and a second panel including a first sheet component having a channel of U-shaped section at each vertical edge thereof and a second sheet having right-angled flanges at each vertical edge thereof with the flanges inwardly turned at their longitudinal edges, the lower end of this sheet having an offset weather strip extending the breadth of the sheet, the channels of U-shaped section of the first sheet fitting within the opposed channels of the second sheet to provide an open-ended cavity for receiving heat-insulating material and also providing longitudinally extending side channels, the outer flanges of the U-shaped section of the first sheet and the flanges of the second sheet being of less depth than the inner flanges of the U-section channels, the two panels being assembled by interfitting their adjacent vertical edges so that each sheet component having flanged ends is coplanar with a sheet component having channels of U-shaped section and the weather strips of the two panels being then in alignment, the interfitting edges of the two panels forming a vertical passage and locking means inserted in the passage to hold the panels in their assembled position, said locking means projecting upwardly from the panels so that they will enter the passage formed by a superimposed pair of panels.

2. A panel assemblage as claimed in claim **1** wherein the inserted locking means extends upwardly to lock together and to secure the superimposed panels in fixed relationship to the lower panels.