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WALL CONSTRUCTION

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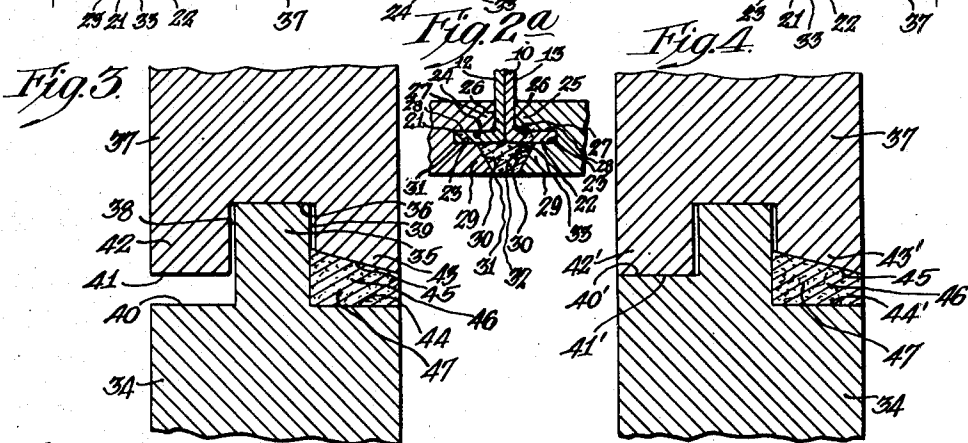
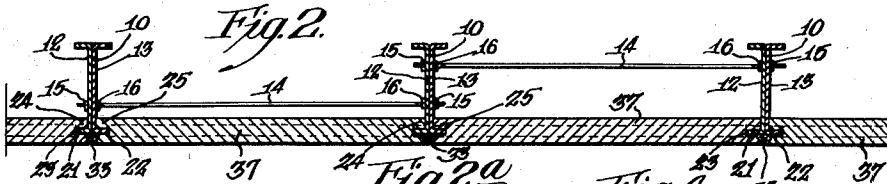
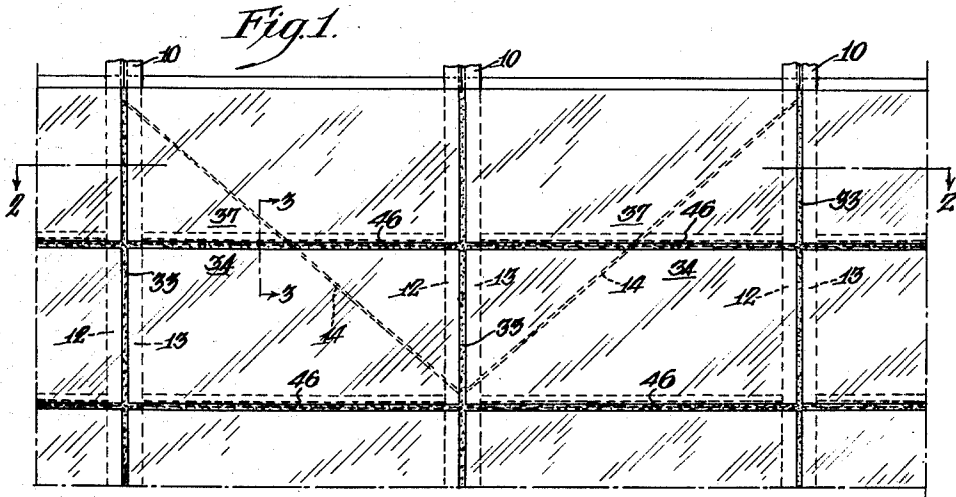


Fig. 5.

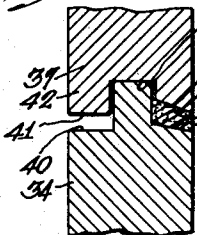


Fig. 6.

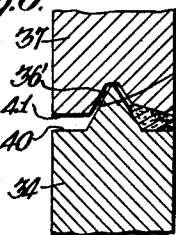
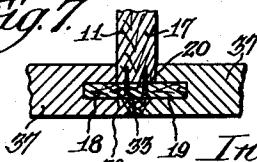


Fig. 7.



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WALL CONSTRUCTION

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4 Claims. (Cl. 20-4)

My invention relates to wall construction of a type in which panels are inserted between risers or studding spaced horizontally to correspond with the width of the panels.

One purpose of the invention is to provide for fitting of the panels against the webs of the studs or risers along the interior vertical panel edges and for pointing on the outsides in order to avoid weather leakage.

A further purpose is to secure the panels to the studding at the interior vertical edges and to provide wedge room for wedge pointing or caulking of the joint between the panels.

A further purpose is to use a tongue and groove panel construction with the tongue facing upwardly so as to protect against leakage past the lifted tongue, and to caulk at the outside within a tapered part of a space between the panels.

A further purpose is to wedge caulking inwardly and upwardly from the outside within horizontal joints so that the protection against the weather will be increased.

Further purposes will appear in the specification and in the claims.

I prefer to illustrate a few forms only, selecting forms which are practical, effective and inexpensive but which have been selected primarily because of their aptness in illustrating the invention.

Figure 1 is a fragmentary front elevation of a wall construction embodying my invention.

Figure 2 is a section of Figure 1 taken upon line 2-2.

Figure 2^a is a fragmentary enlarged section corresponding to a portion of Figure 2.

Figure 3 is a fragmentary section of Figure 1 taken upon line 3-3.

Figures 4, 5 and 6 are fragmentary sections corresponding generally to Figure 3 but showing modifications.

Figure 7 is a section corresponding nearly to Figure 2^a but showing a modification.

In the drawing similar numerals indicate like parts.

In the construction shown I have illustrated risers 10 of metal (Figures 1 and 2) and 11 of wood (Figure 7) which are intended to serve the same general purpose and which will be used or varied according to the needs of the structure planned. The risers shown are intended for light buildings but are capable of being made very rigid and strong with the same forms of riser notwithstanding the lightness of the construction.

The risers comprise I-beams which are conveniently composite sections and are shown as

formed in Figures 2 and 2^a by placing shallow channels 12, 13 back to back and fastening them together in any convenient form. This may be done for example by spot welding or they may be held together by tie rods 14 threaded at their ends and fastened to the I-beam as by nuts 15, 16; one on one side of one channel and the other on the other side of the other channel. The detail of tie-rod placing, per se, is not intended to be claimed by me.

In Figure 7 the I-beam is built up from wooden studding 17 at whose inner and outer longitudinal edges duplicate flanges 18, 19 are secured. One edge only is shown. The flanges are held to the studding edges by fastenings 20; so that the flanges 18 and 19 in the wooden form find their counterpart in Figure 2.

Adjacent panel end edges (Figure 2^a) are vertically grooved at 23 to receive flanges 21 and 22, leaving panel vertical interior rims 24, 25 butt-ending edgewise against the webs 26 of the I-beams. The vertical side faces 27 of the rims 24 and 25 hug the inwardly directed faces 28 of the I-beam flanges.

The outside rims 29 left on the outside of the grooves 23 are shorter laterally than the interior rims and are flared outwardly at 30, from the outer faces 31 of the flanges. As a result the adjoining panels when fitted together on opposite sides of the double channel leave a vertical outwardly facing groove 32 wider adjacent the channel flanges than at the outside, to be filled with pointing material 33.

The panels shown are reversely formed along their top and bottom edges as seen in Figure 3. The upper edge of the lower panel 34 presents an upwardly directed horizontal rib or tongue 35 forming the tongue to fit into downwardly facing groove 36 such as that seen at the bottom of the upper panel 37.

It will be noted that Figures 3 and 4 differ chiefly in that in Figure 3 the upwardly facing shoulder 40 at the inside of the tongue 35 is not engaged by the downwardly facing surface 41 of the transversely extending rib 42, which rib forms the inner boundary of the groove 36. In Figure 4 the upwardly facing shoulder 40' is engaged by the downwardly facing surface 41' of the rib 42'.

In either form it is not the intention that there be vertical spaces at 38 and 39 on opposite sides of the tongue but merely that the tongue and groove fit be a sufficiently easy fit so as to avoid splitting or injury to the tongue and to the walls of the groove when material is used for the panel

which would be likely to give trouble in this particular.

On the front or outside of the panel construction the rib 43 or 43', forming the outside wall limiting the groove, does not extend all the way down to the upwardly facing shoulder 44 and is sloped downwardly and outwardly at 45 to provide a wedge shaped space 46 which may be caulked at 47. The wedge shape helps hold the caulking material in. The caulking protects against the weather, forms a decorative pointing between the panels and re-enforces, stiffens and strengthens the entire structure.

Both vertical and horizontal joints are thus shown, the vertical joints being those between the flanges of the I-beam and vertical ribs and grooves in the vertical edges of the panels, seen in Figures 2 and 2^a, and the horizontal surface of a lower panel and the adjoining lower horizontal surface of the next panel above. The joints have much in common but also have noticeable differences.

In Figure 5 the structure is quite similar to Figure 3 except that the upwardly facing shoulder 44² at the outside upon the lower panel slopes downwardly and outwardly, though not to the same extent as the face 45. The shoulder 44² is higher adjacent the tongue than is either upwardly facing shoulder in Figure 3 and higher than is the other shoulder in Figure 5. The slope of the shoulder 44² assists in clearing from water the space between the two tapered faces though the space is still wedge-shaped.

The form shown in Figure 6 resembles that shown in Figure 3 somewhat, the most noticeable difference between them being that the side walls of the tongue and groove construction are tapered in Figure 6, as seen at 35' and 36' so as to give an upwardly facing tapered tongue within a downwardly facing tapered groove. The shoulders in this form are horizontal and the space between the right shoulder in Figure 6 and the downwardly facing surface 45 is tapered as in Figure 3. The apex of the tapered tongue takes the weight of the panels above it.

I show a series of vertical I-beams arranged parallel in combination with panels adjacent the I-beams having grooves in the vertical edges of the panels within which the flanges of the I-beams fit, vertical ribs inside of the grooves and engaging the webs of the I-beams closely adjacent to the flanges and outer ribs outside of the flanges forming the outer walls of the grooves in the panels. These outer walls are tapered so that with adjacent panels engaging the same I-beams a space is left between the ribs wider close to the I-beam flanges at the inside of the I-beam than at the outside of the space. I have also filled the space by pointing held in place by the wedge-shaped section of the space.

I show also a tongued and grooved horizontal panel joint in which the space to the front of the tongue is tapered so that its walls converge toward the front faces of the panels and by this shape hold the pointing in.

It will be evident that part of my invention is shown in each of the constructions, that of the vertical joints seen in Figures 2 and 2^a and that of the horizontal joints seen in Figures 3-6.

It will be evident also that my invention is independent of the height of the shoulders adjacent the tongues along the inside and outside of the upper edges of the panels, the shoulders being shown at equal height in Figure 3, with the outer shoulder 44', lower than the inner shoulder

in Figure 4, and with the outer shoulder 44² higher than the inner shoulder in Figure 5.

It will be evident also that the weight of the upper panel is taken by the tongue against the bottom of the groove in Figure 3 but permissibly by the inner rim and/or inner shoulder in Figure 4 or divided between the inner shoulder taking the weight of the inner rim or of the tongue taking the weight of the bottom of the groove in that figure.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I therefore, claim all such in so far as they fall within the reasonable spirit and scope of my invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In wall construction, a plurality of I-beams having their webs parallel and spaced at intervals, effective as risers, panels between the I-beams, each grooved at the vertical end faces to receive an I-beam flange and by the grooves divided vertically into inner and outer rims, the inner rims fitting the inner surfaces of the flanges, and at its end edges fitting the adjacent I-beam webs and the outer rims shorter laterally than the inner rims and under-cut at their edges so as between adjacent panels to provide tapered spaces wider adjacent the I-beam flanges than at the outer surfaces of the panels, and filling material within the tapered spaces held in by the taper and acting as pointing material.

2. In a wall, vertical supports spaced one from another, a lower and an upper panel engaging them and having co-operating tongued and grooved horizontal edges, the tongue of the lower panel facing upwardly between adjacent shoulders, fitting within ribs forming a groove in the upper panel, bottoming within the groove, the rib limiting the outside of the panel groove not reaching down as far as the outside shoulder adjacent the tongue of the lower panel, and the space between the bottom face of the said outside rib and said shoulder being tapered so that its walls converge from the tongue to the outer faces of the panels, in combination with pointing material filling said space, the rib thus acting to wedge the pointing material inwardly.

3. In a wall having vertical risers, a plurality of panels supported in the risers, having their upper horizontal edges tongued, with adjacent inner and outer shoulders and the lower horizontal edges of the panels grooved, the grooves formed between inner and outer ribs having downwardly directed faces which in position are opposite respectively the inner and outer shoulders, the novelty which consists in that the lower face of the inner rib rests upon the inner shoulder, that the outer downwardly directed rib is shorter in height than the inner rib, and that the lower face of each outer rib slopes downwardly and outwardly, whereby a space is left between this downwardly directed sloping face and the opposite outer shoulder of the next panel beneath it in the wall.

4. In a wall having vertical risers, a plurality of panels supported in the risers, the upper horizontal edges of the risers being tongued, with adjacent inner and outer shoulders, and the lower horizontal edges of the cross section grooved, the grooves being formed between inner and

outer ribs having downwardly directed faces which in position are opposite respectively the inner and outer shoulders, the novelty which consists in that the lower face of the outer rib of one panel and the upwardly facing outer shoulder of the panel immediately beneath it, both slope outwardly and downwardly but the face of the panel rib slopes more than the upwardly

5 directed face of the shoulder, whereby a downwardly and outwardly contracting space is left open at the outside, that this space is filled with pointing material and that the upper panel rests directly upon the lower panel at another point in the width of the panel to relieve the pointing of pressure.

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