Aug. 2, 1955 B. BRUNTON 2,714,231

BUILDING STRUCTURES

Filed April 2, 1951 2 Sheets-Sheet 1

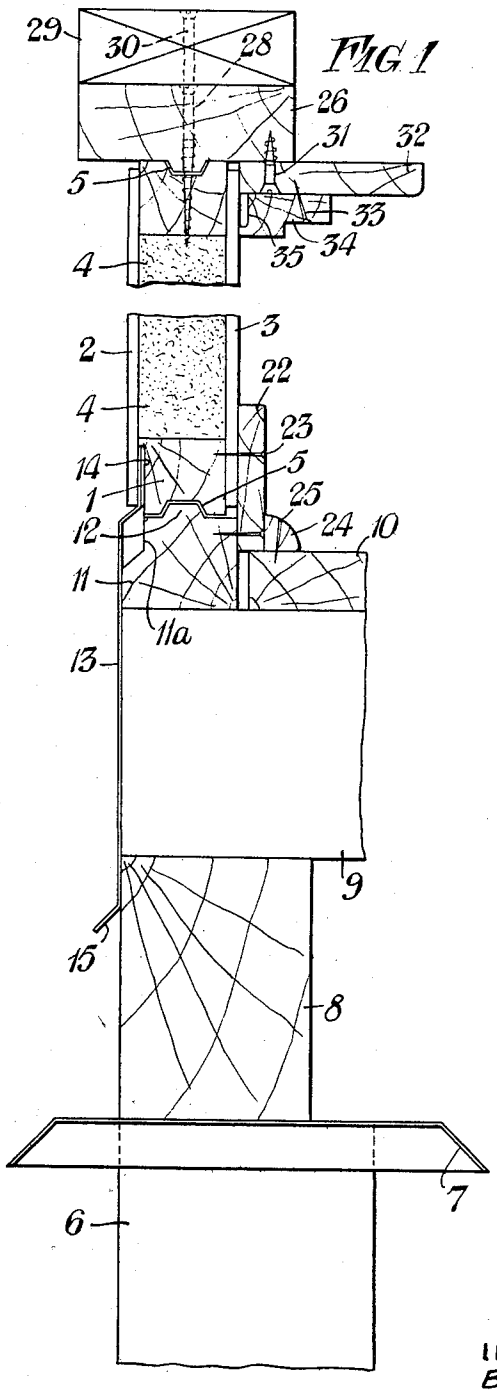


FIG 1

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FIG. 2.

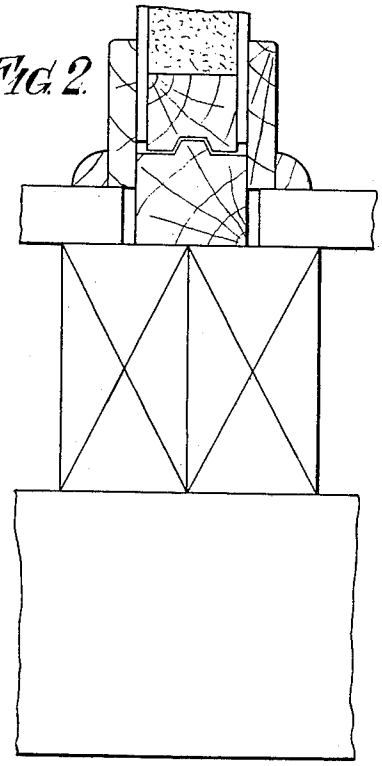
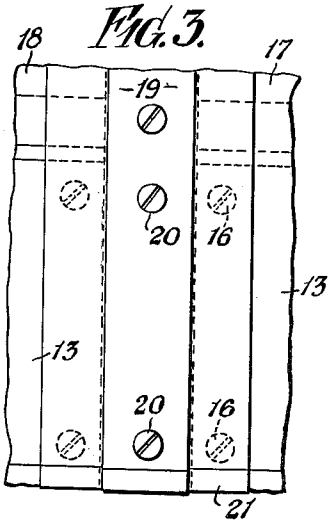


FIG. 3.



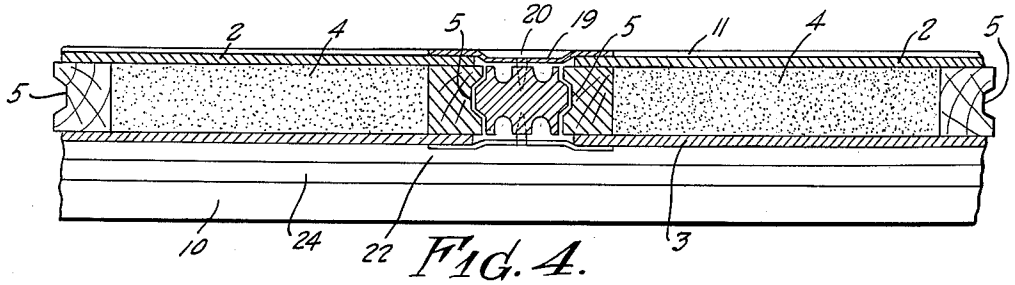


FIG. 4.

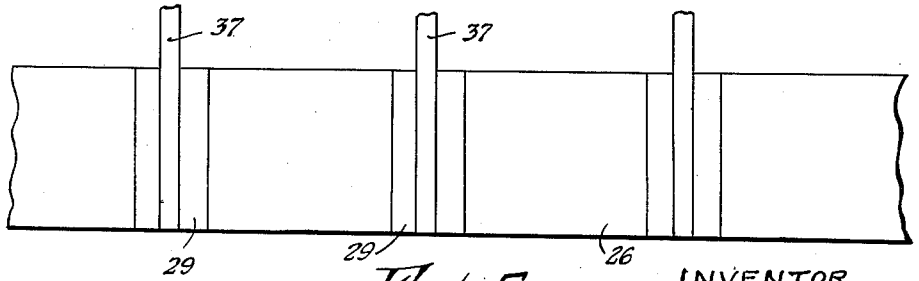


FIG. 5.

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United States Patent Office

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BUILDING STRUCTURES

Bernard Brunton, London, England

Application April 2, 1951, Serial No. 218,768

Claims priority, application Great Britain October 4, 1950

1 Claim. (Cl. 20—2)

The present invention relates to building structures more particularly unit type structures in which the building comprises a number of prefabricated units which are assembled on site, and has for an object to provide improved means for and method of anchoring and supporting the units in vertical alignment.

The invention is more particularly though not exclusively applicable to the modular system of unit construction using panels of the wood frame composite type and in the accompanying drawings two embodiments of the invention as applied to such panels are illustrated.

In the drawings:

Figure 1 is a transverse section through an external wall of a building constructed according to the invention;

Figure 2 is a similar section through the lower portion of an internal wall;

Figure 3 is a partial front elevation of the wall shown in Figure 1.

Figure 4 is a transverse horizontal section looking downward and taken through two wall panels of an external wall with the flashing removed to show the structure thereunder; and

Figure 5 is a fragmentary plan view of the top of an external wall showing the arrangement of the roof trusses thereon.

Referring to Figure 1, an external wall of a building is formed of unit type wall panels each comprising a wooden frame 1 carrying a pair of facing sheets 2 and 3 such as, for example, asbestos cement sheets between which sheets is secured a rigid cellular or lightweight core 4 formed for example by wood wool coated with cement slurry. The frame members are grooved or slotted as at 5, the said grooves extending longitudinally of the members around the periphery of the panel. The building construction shown in Figure 1 is of a type suitable for use in tropical or semi-tropical countries and the foundations therefore consist of piles or stumps 6, which may be of red gum or other suitable hard wood, on the top of which are fitted ant caps 7 of galvanised iron or similar material which will act as a barrier to termites and like insects. Hard wood joists 8 are laid along the tops of the stumps 6 and in turn support floor joists 9 upon which floor boards 10 are laid.

The wall panels are supported upon the joists 9 by means of a keel plate 11 which runs in a continuous length around the building conforming to the wall plan thereof. The keel plate 11 is formed of a number of lengths of suitable timber having a tongue 12 formed continuously along the upper face thereof which tongue is adapted to engage in the grooves 5 of the wall panels. By reason of the tongue and groove engagement of the panels with the keel plate, the panels are securely held against lateral movement and are efficiently anchored in position.

The outer surface of the wall is provided with strips of flashing 13 such as for example galvanised iron flashing. The upper end of the flashing is received in a groove 14 formed between the frame member 1 and

the outer facing sheet 2, the keel plate 11 being cut away as at 11*a* as shown in the drawing. The lower end of the flashing is bent outwardly at 15 as shown, the flashing being secured to the keel plate 11 and to the joists 8 by means of screws 16 (Figure 3).

Figure 3 shows a partial front elevation of the wall construction shown in Figure 1 and represents the lower portion of a vertical joint between two wall panels 17 and 18. Any suitable manner of forming the joint may of course be employed but it is preferred to use the form of construction described in our co-pending application Serial No. 218,767, filed April 2, 1951, and now abandoned. In such construction the joint is covered by a cover grip secured to a junction post interposed between adjacent panels 17, 18 and adapted to engage the edge portions of the panels. Such a cover grip is indicated at 19 in Figure 3 and, as will be seen from the drawing, is extended downwardly to cover the ends of the flashing strips 13, being secured to the keel plate and to the joists 8 by means of screws 20. The lower end of the cover grip is bent outwardly as at 21 to register with and conform to the outwardly bent portions 15 of the flashing strips.

The inner surface of the wall (Figure 1) is terminated by means of a skirting board 22 secured to the panel frame 1 and to the keel plate 11 by means of nails or drive screws 23 and a beading or quadrant strip 24 is secured to the floor boards 10 by means of nails or drive screws 25.

At their upper ends the wall panels are aligned by means of a wall capping 26 extending continuously along the top of the walls, which capping is provided with a longitudinal tongue 27 along its under face which tongue is adapted to engage in the groove 5 formed in the panel frame 1. The capping 26 is secured to the panel frames 1 by means of screws 28 and where required is provided with blocks 29 secured thereto by means of screws 30, which blocks support the roof trusses 37.

Secured to the underside of the capping 26 as by screws 31, for example, is a ceiling joint cover plate 32 to which there is in turn secured as by nails or drive screws 33 a beading 34. The beading 34 is recessed as at 35 to provide a closed channel through which electric wires or other services may be run.

In Figure 2 there is shown a section through the lower portion of an internal wall. As will be seen, the construction is similar to that of Figure 1 with the exception that both faces of the wall panel are provided with skirting boards 22, the slot 14 in the panel and the cut away portion 11*a* of the keel plate (Figure 1) being dispensed with in this construction.

There is thus provided a simple and easily assembled construction for aligning and supporting unit type wall panels and, by means of the capping, the weight of the roof trusses is uniformly distributed over the panels while the keel plate in its turn ensures an even distribution of weight over the foundations of the structure, especially in the case of a joist and pile type foundation as illustrated.

It will be understood that the invention is not limited to use with the type of foundation shown in the drawing. Other types such as, for example, concrete raft or brick foundations may be employed. In such cases, however, it is preferred to insert a layer of waterproof bituminous or mastic material between the keel plate 11 and the panel frame 1, such material being allowed to fill the space between the cut away surface 11*a* of the keel plate and the flashing 13. Any suitable bituminous or mastic waterproof material may be used but it is preferred to use that known under the registered trademark "Secomastic."

Similarly it will be appreciated that the invention is

not limited to the particular form of construction described and illustrated.

In like manner, materials other than those specified may be used always providing, of course, that they are adaptable to the form of construction required by the invention.

What I claim is:

A unit type building structure comprising a plurality of prefabricated unitary type wall panels in said structure supported in said structure generally in aligned relation in a vertical plane to form a wall of said structure, each of said panels having a pair of opposed faces defined by frame elements extending generally in said plane and peripherally about a space, and facing sheets attached to said opposed faces of said frame elements parallel to said plane and spanning between oppositely disposed elements to close said space at opposite faces of said frame; each of said frame elements including grooves of substantially uniform cross-section in the external surfaces on the respective peripheral sides of said panel, said frame element which extends along the bottom peripheral side of said panel being formed to provide a recess in one of said opposed faces thereof parallel to said plane and extending along the length of said bottom element, the facing sheet attached to said face of said bottom element extending over said recess; a continuous supporting member disposed in said structure below said panels and having a tongue projecting upwardly therefrom along and engaging the grooves of the bottom sides of the plurality of said panels for supporting said panels along said bottom sides thereof in said aligned relation in said plane; a flashing sheet

extending upwardly into said recess behind the last mentioned facing sheet and extending downwardly over said supporting member; said supporting member being provided with a channel extending therealong behind said flashing sheet and adapted to receive a water-proofing material; a continuous capping member disposed in said structure above said panels and having a tongue projecting downwardly therefrom along and engaging the grooves of the top sides of said plurality of panels for holding said top sides of said panels in alignment in said plane, a plurality of roofing trusses supported by said capping member so as to transmit the roof weight uniformly over the wall panels; and means engaging said supporting and capping members and said panels for fastening said panels in said plane in said structure.

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