Feb. 20, 1951 MacMILLAN CLEMENTS 2,542,859

BUILDING CONSTRUCTION

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Fig. 1.

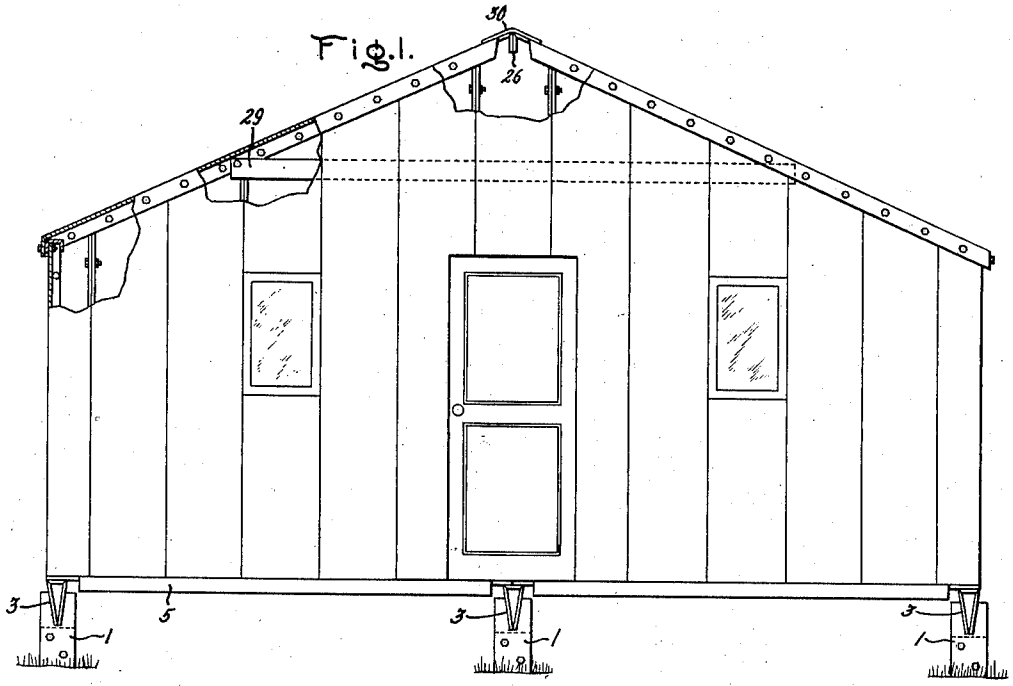


Fig. 3.

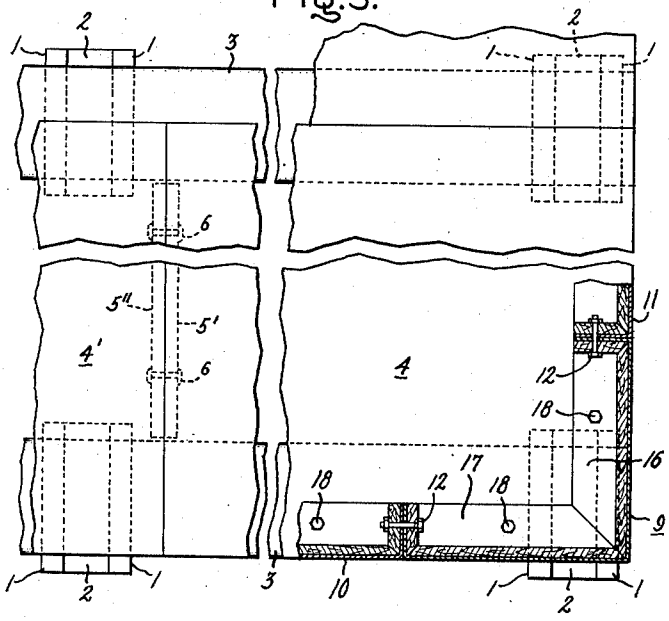
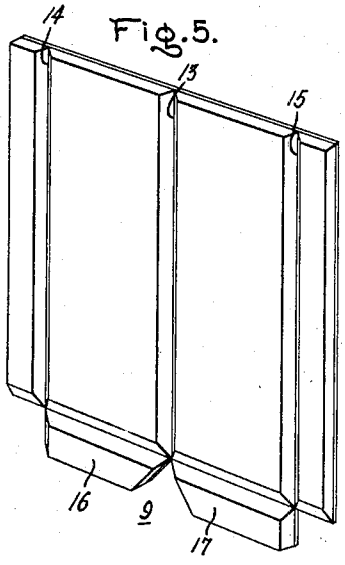


Fig. 5.



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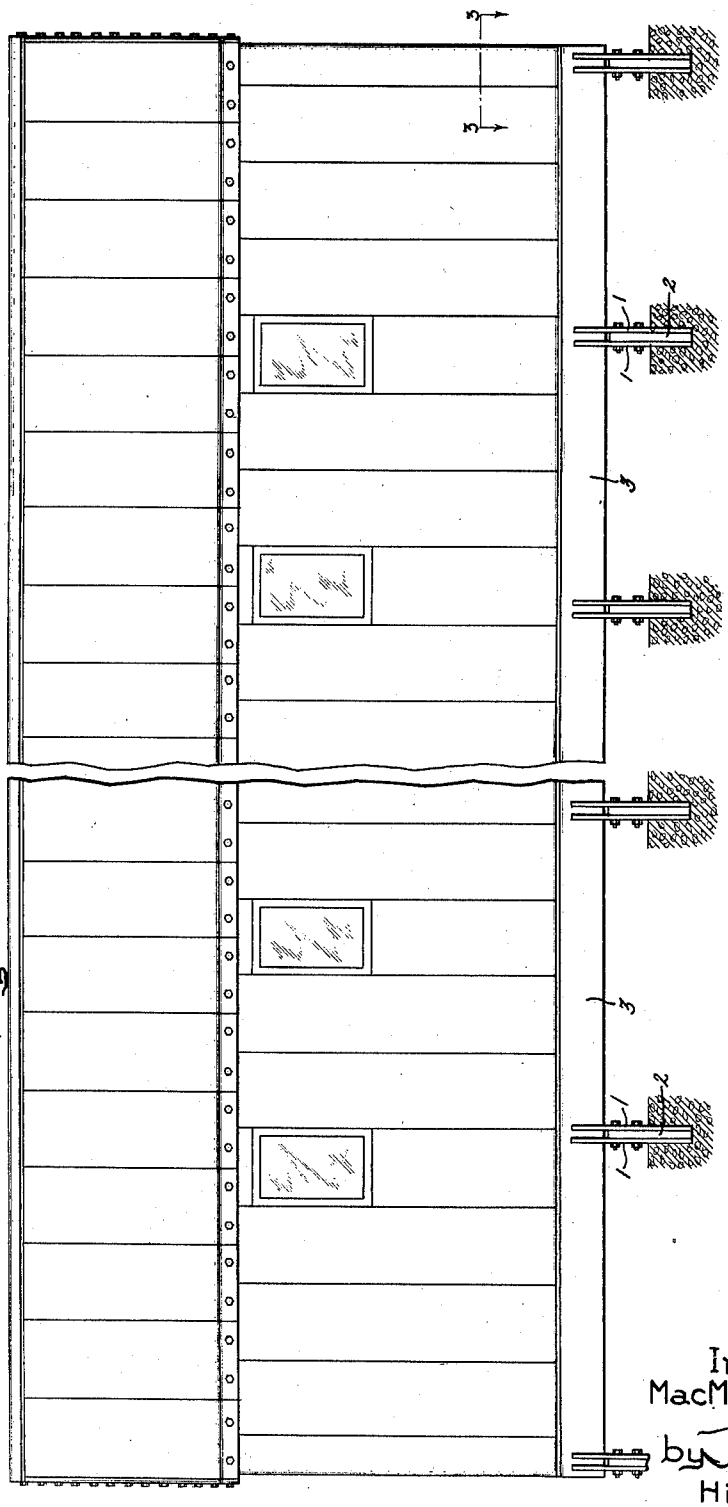


Fig. 2.

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BUILDING CONSTRUCTION

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Fig. 4.

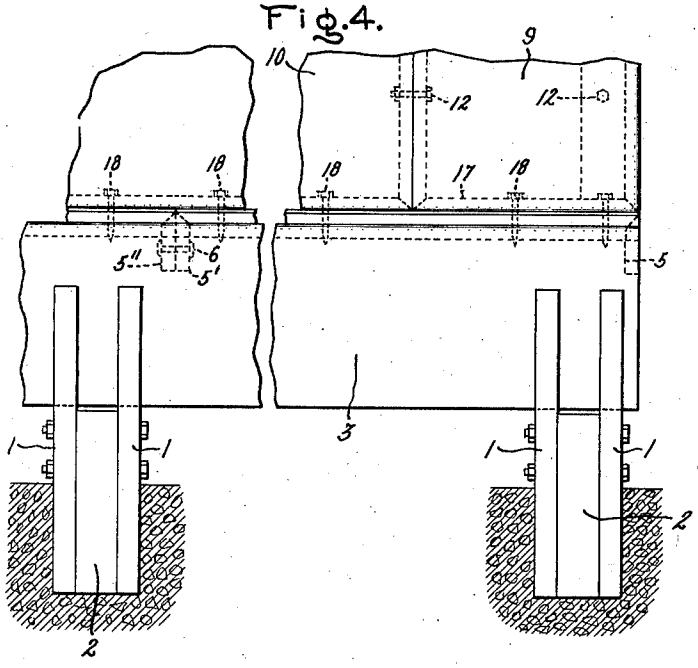


Fig. 6.

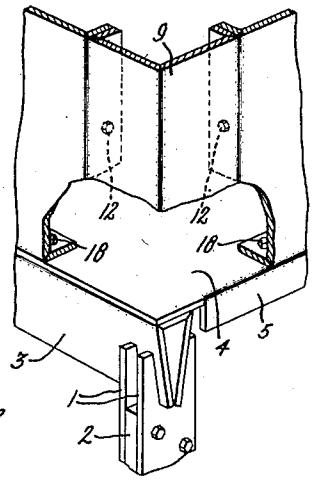
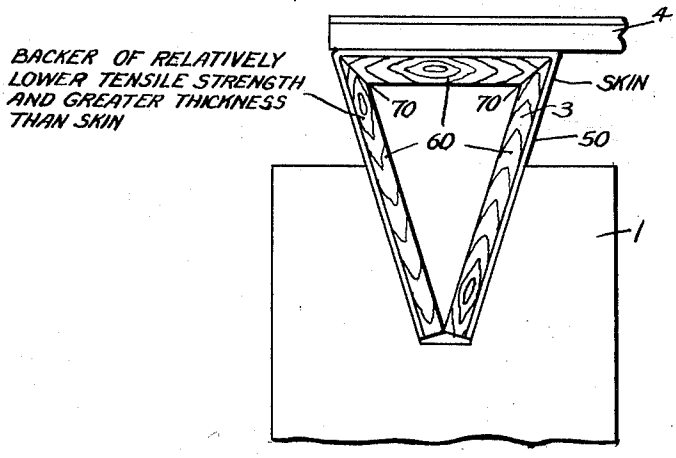


Fig. 7.



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UNITED STATES PATENT OFFICE

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BUILDING CONSTRUCTION

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Application June 6, 1945, Serial No. 597,845

2 Claims. (Cl. 20—1)

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This invention relates to building construction and more particularly to improvements in the fabrication of certain of the structural units which make up a building.

Practically all buildings have at least a roof, side walls and a floor. In addition, most of them have sills, plates or the equivalent which are interposed between the building proper and its support or foundation and which serve to tie the structure together at the bottom.

In accordance with this invention these latter units are fabricated in a novel manner from flat sheets of laminated material. This material has a flexible relatively thin high tensile strength wear- and weather-resistant skin bonded to a stiff relatively thick low tensile strength backing sheet. Examples of the skin are metal, such as sheet copper, stainless steel, zinc, magnesium, etc., or organic material, such as canvas. Examples of the backing material are plywood, fiber board or hard pressboard, etc.

An object of the invention is to provide new and improved building construction.

Another object of the invention is to provide a new and improved method of constructing a building.

A further object of the invention is to provide a novel type of structural unit for buildings.

The invention will be better understood from the following description taken in connection with the accompanying drawings and its scope will be pointed out in the appended claims.

In the drawings Fig. 1 is a front elevation of a building, suitable for a barracks, which is constructed in accordance with my invention, Fig. 2 is a side elevation of the building shown in Fig. 1, Fig. 3 is a corner plan view, partly in section, on line 3—3 of Fig. 2, Fig. 4 is an enlarged side elevation of the corner whose plan view is shown in Fig. 3, Fig. 5 is a view of one of the corner wall panels as it appears originally and before it is folded into shape, Fig. 6 is a partly broken away perspective view of the same corner, and Fig. 7 is an enlarged end view of one of the sills.

Referring now to the drawings, the building shown in Fig. 1 may be supported in any suitable manner, such as by V-notched members 1 which may be bolted to posts or any suitable members 2, shown in Fig. 6, which are set into the ground. A plurality of these members 1 are arranged in parallel straight lines, three of which are indicated in Figs. 1 and 2, for receiving supporting beams or sills 3 for the building. As shown most clearly in Fig. 6, the sills are hollow members which are illustrated as being triangular in cross

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section. These sills are constructed by cutting parallel grooves in the backing layer of laminated sheet material of the type previously described, which grooves are parallel to the edges of the sheet and then bending the sheet along these grooves with the skin on the outside. The technique of working laminated material in this manner to provide it with flanges forms the subject matter of my Patent 2,149,882, granted March 7, 1939, on an application filed March 1, 1937.

As seen in Figure 7, V-notched members 1 receive sill 3 that supports floor panel 4. The V-notched member has a skin 50 backing member 60 and meeting faces 70, that result in the folding operation after the notches have been cut.

The floor of the building is laid across the tops of the sills 3 and comprises flanged panels with the flanges extending downwardly and joined together so as to form rigid floor joists. Fig. 6 shows a portion of a floor panel 4 at one corner of the building. It will be seen that this panel has a depending flange 5 and that the flange is cut off short so as to permit the extension of the main part of the panel to rest on the flat top of the triangular sill 3. A side elevation of the construction showing the floor panel 4 with its flange 5 and its opposite flange 5' which is in abutting relation to a flange 5'' on the next floor panel is shown in Fig. 4. The abutting flanges 5 and 5' are preferably fastened together by a through bolt or rivet 6, although, obviously, equivalent means, such as an eyelette or screw, can also be used.

As will be seen more clearly in Fig. 3, the flanges 5' and 5'' are shorter at both ends than the overall width of the panels 4 and 4' and it will be seen that the floor panels extend to approximately the center of the middle sill 3.

The walls of the building are also constructed of multiple flanged panels whose flanges are in abutting relation and are joined together. In Fig. 3 there is shown in cross section a corner wall panel 9 and portions of two ordinary wall panels 10 and 11, which latter two may be similar in construction. As shown in Figs. 3, 4 and 6, the flanges of the wall panels are also fastened together by any suitable means, such as through bolts 12.

A perspective view of one of the corner wall panels or posts 9 is shown in Fig. 5 in which the groove 13 is the one on which the panel 9 is formed to form the corner and the grooves 14 and 15 permit the panel to be bent so as to form the end flanges. In addition, it will be noted that there are bottom grooves and notches forming

bottom tabs 16 and 17. The latter are also illustrated in Figs. 3 and 4. These bottom tabs may be fastened to the sills 3 by suitable means which passes through the ends of the floor panels so as to clamp the latter in position, such means being indicated by the studs 18 in Figs. 3 and 4.

The ordinary wall panels 3 are constructed in essentially the same way as the corner panel except that they do not have the center groove as they are not folded or bent in the middle.

The joined inwardly projecting flanges of the wall panels in effect constitute wall studs which give very substantial strength and rigidity to the wall structure. The metal outer skin of the panels of course corresponds to the siding or surfacing of the building and, furthermore, the backing layer of the sheets from which the panels are made constitute in effect the sheathing of the building.

As all of the structural units of the building are made by bending into shape pregrooved or notched sheets or strips of laminated material, the material entering into the building construction may be packed very compactly and, for example, a one-story building having a 20′ x 20′ floor plan may be made from a pile of flat material whose dimensions are 2′ x 2′ x 10′.

While there has been shown and described a particular embodiment of this invention, it will be obvious to those skilled in the art that various changes and modifications can be made therein without departing from the invention and, therefore, it is aimed in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A hollow structural beam comprising a parallel sided sheet of laminated material having a skin bonded to a backer, said backer having a relatively lower tensile strength and greater thickness respectively than said skin, a pair of parallel grooves cut through said backer to said skin, said grooves being parallel to said parallel sides, said sheet being folded along said grooves to form a hollow closed sided beam with said skin on the outside, the folded parts of said sheet being in contact with each other along their outer edges.

2. A support for a building including a plurality of posts set in the ground in a straight line and having V-shaped notches in their upper ends and a hollow triangular cross-section sill fitted into the V notches of said posts, said sill comprising a sheet of laminated material having a skin bonded to a backer, said backer having a relatively lower tensile strength and greater thickness respectively than said skin, said backer being grooved down to said skin in two parallel lines, said sheet being folded along said grooves to form said triangular cross-section sill with the skin on the outside.

MACMILLAN CLEMENTS.

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