July 1, 1941. R. W. McLAUGHLIN, JR 2,247,886

BUILDING STRUCTURE

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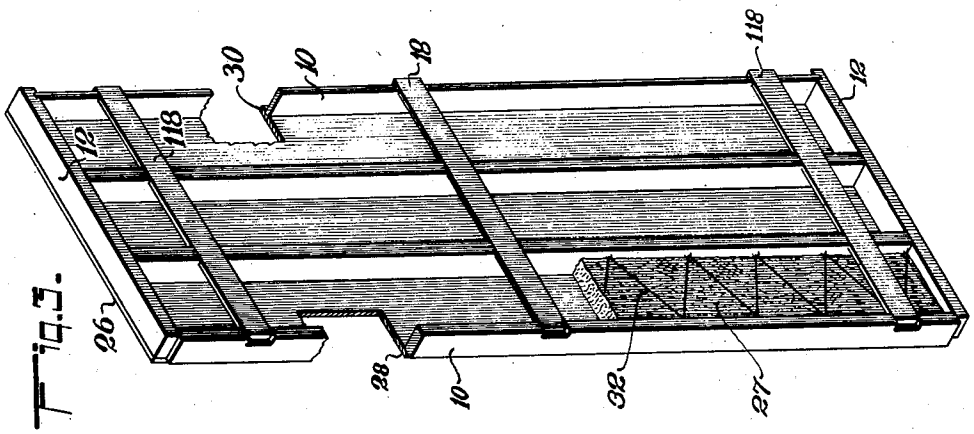

Fig. 3.

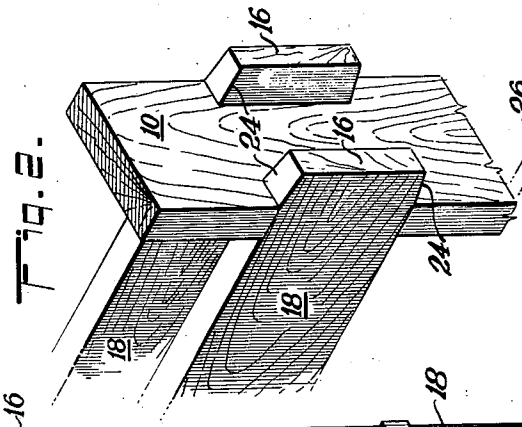

Fig. 2.

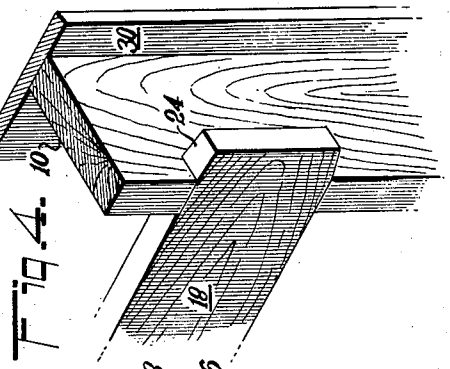

Fig. 4.

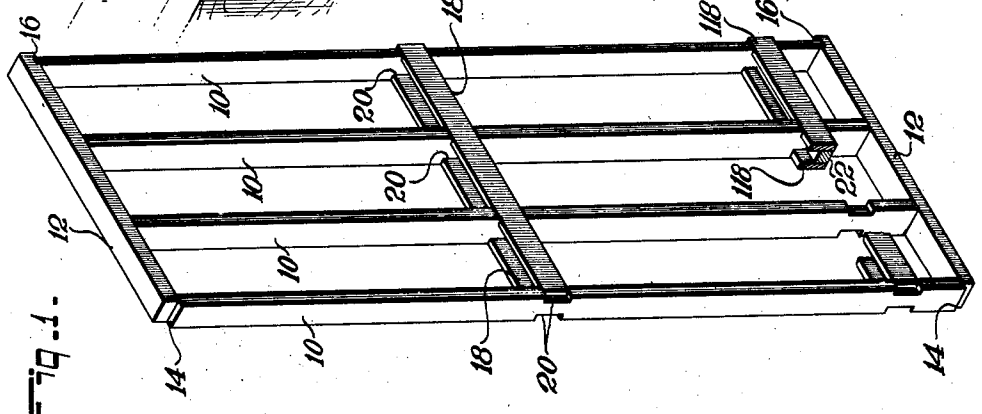

Fig. 1.

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BUILDING STRUCTURE

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10 Claims. (Cl. 20—4)

This invention relates to building structures and more specifically to a prefabricated building unit.

In general, it is an object of the invention to provide an article of the character described, which will efficiently perform the purposes for which it is intended, which is simple and economical of construction, which can be expeditiously, conveniently and safely manipulated, and which can be readily manufactured and assembled.

Another object of the invention is to provide a building unit which has a periphery of simple geometric form but which interlocks with adjacent forms; which has only the usual building elements but which, due to a slight displacement of those elements, forms a rigid combination with similar adjacent units; and to provide such a unit which may be prefabricated.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, property and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description, taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of a building unit embodying one form of the invention;

Fig. 2 is a perspective view of a slightly modified detail of a part of the device shown in Fig. 1;

Fig. 3 is a perspective view, with parts broken away, of a modification of the device shown in Fig. 1; and

Fig. 4 is a perspective view of a slightly modified detail of a part of the device shown in Fig. 3.

A building unit is contemplated by the present invention which may be built at a factory and then joined to other similar units at the place where the building is being erected to form walls, ceilings, etc. The units are interchangeable and interlock with each other without complicated forms.

In the drawing, 10 denotes a plurality of stud-like members. They are part of a wall unit. They correspond to joist members in floor units and to rafters in ceiling units. They are preferably spaced parallel and of similar shape. There may be a minimum of two. Attached to the studs 10 are sills 12 which extend across the ends of the studs and preferably at right angles thereto. The sills reach only partly past one of the edge studs so as to leave the end of the edge stud exposed, as at 14. They extend beyond the stud at the other side of the unit, as shown at 16.

If desired, a pair of ribbons 18 may extend from one outer stud element 10 to and past the other outer stud element. They preferably are parallel to the sills 12, are spaced from each other, are each at the same distance as the other from any particular sill, and seat into notches 20 in the stud elements so that the ribbons are flush with the stud elements. The ribbons, like the sills, extend only partially past one edge stud 10 and extend beyond the other edge stud. The notches 20 in the one edge stud are therefore left partially unoccupied.

There may be other ribbons 118 near one end of the unit. They, too, are flush with the studs and have the same displacement described above. They may be used for attaching baseboards, mouldings, etc. If desired, pieces 22 of material may be inserted between the ribbons 118 so that they may provide a better hold for nails, screws, and the like than would the relatively thin ribbons 118 alone provide.

When successive units are spaced edge to edge in a building, the extending portions 16 of the sills and ribbons fit against the exposed edges 14 of the studs of the next unit and fit into the otherwise unoccupied parts of the notches 20 of the edge stud of the next unit.

In Fig. 2 there is shown the projecting portions 16 of the ribbons 18. Their edges are beveled as at 24 in order to facilitate their insertion into the unoccupied notches of the next element.

In Fig. 3 there is shown a unit similar to the unit shown in Fig. 1 with the exception that the unit is provided with a panel 26 which entirely covers one side of the unit and which is secured to the remaining portions thereof in any desired fashion. It, too, may reach only partially past one stud 10, as at 28, and extend beyond the opposite stud 10, as at 30. The portion 30 of one unit fits into the corner formed by the portion 28 and edge stud 10 of the next unit in a fashion similar to the interlocking of the ribbons and sills with adjacent units. If desired, heat and sound insulating material 27 may be carried in the troughs formed by panel 26, studs 10 and sills 12. In this type of unit there need be but one ribbon 18 for any given position along the studs 10, as the panel 26 adds sufficient rigidity. If desired, the insulating material may be held in place, with or without panel 26, by any suitable

means such as wiring 32 which is carried back and forth between and attached to stud elements 10.

Fig. 4 shows, in enlarged detail, the extending portions of the panel and ribbon in connection with the edge stud 10.

If desired, one of the stud elements 10, and more specifically that element beyond which the sills, ribbons and panels extend, may be thinner than the remaining studs of the assembly, as it is intended to abut against a stud of an adjacent assembly, and hence need not function as a structural supporting element.

If desired, all the elements employed in the various assemblages described may be of wood.

The foregoing construction enables even unskilled labor to join wall units and all kinds of adjacent units with celerity and assurance. The forms of the elements are about as simple as they could possibly be. The entire combination of parts is strikingly elemental and, at the same time, quite efficient.

Since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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

1. A prefabricated building unit, which transmits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising a series of supporting stud-like elements, a plurality of other supporting elements forming a generally planar, skeleton, frame structure with said stud-like elements, each of said other elements reaching past only a part of the first of said series and forming its own notch and extending beyond the last of said series whereby said unit may be fitted between other similar units, fittingly receiving the extending elements from one adjacent unit where its own elements fail to reach and fitting its own extending elements against the other adjacent unit where the other elements of the latter fail to reach, each of said notches having a plurality of surfaces perpendicular to the general plane of the structure.

2. A prefabricated building unit, which transmits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising a series of stud-like elements, a plurality of spaced elements forming a lattice with said stud-like elements, each of said spaced elements reaching past only a part of the first of said series and forming its own notch therewith and extending beyond the last of said series whereby said unit may be fitted between other similar units, fittingly receiving the extending elements from one adjacent unit where its own elements fail to reach and fitting its own extending elements against the other adjacent unit where the spaced elements of the latter fail to reach, each of said notches having a plurality of surfaces perpendicular to the general plane of the lattice.

3. A prefabricated building unit, which transmits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising two pluralities of crossing, building-supporting elements, all of the elements of one of said pluralities extending only partially past a boundary element of the other plurality and reaching beyond another boundary element of said other plurality, said unit having two, spaced, generally planar faces, each of the certain ones of said elements in each of said pluralities of elements having a surface in the plane of one of said faces and having a second surface in the plane of the other of said faces

4. A prefabricated building unit, which transmits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising two pluralities of crossing elements, all of the elements of one of said pluralities extending only partially past a boundary element of the other plurality and reaching beyond another boundary element of said other plurality and forming thereby and therewith a plurality of spaced notches each having surfaces perpendicular to the general plane of said unit and reaching beyond another boundary element of said other plurality, and each having an outer surface co-planar with a surface of each of said other plurality.

5. A prefabricated building unit, which transmits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising two pluralities of crossing elements, all of the elements of one of said pluralities extending only partially past a boundary element of the other plurality and reaching beyond another boundary element of said other plurality, and each having two outer surfaces flush with, and facing in the same direction as, two outer surfaces of each element of said other plurality.

6. A prefabricated building unit, which transmits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising two pluralities of crossing elements, all of the elements of one of said pluralities extending only partially past a boundary element of the other plurality and reaching beyond another boundary element of said other plurality, and each having an outer surface flush with an outer surface of each element of said other plurality, said boundary element of said other plurality extending only to a point short of the outer surface of a boundary element of said one plurality.

7. In a combination of the character described, a plurality of prefabricated building units, each of said units transmitting stress between itself and an adjacent unit and being, with adjacent units, self-supporting, and each of said units comprising two pluralities of crossing elements, all of the elements of one of said pluralities extending only partially past a boundary element of the other plurality and reaching beyond another boundary element of said other plurality, and each having an outer surface flush with an outer surface of each element of said other plurality and at least one of said units projecting into the next of said units at points where said elements of said one plurality of elements of said next unit extend only partially past said boundary element of said other plurality of elements of said next unit.

8. A prefabricated building unit, which trans-

mits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising a plurality of supporting stud-like elements, a plurality of other supporting elements forming a skeleton, frame structure with said stud-like elements, each of said other elements reaching past only a part of the first of the first-mentioned plurality of elements and extending beyond the last of said plurality whereby said unit may be fitted between other similar units, fittingly receiving the extending elements from one adjacent unit where its own elements fail to reach and fitting its own extending elements against the other adjacent unit where the other elements of the latter fail to reach, said unit having two spaced planar faces, each of said faces having a plane associated therewith, one of said planes being determined by surfaces of the elements of one of said pluralities of elements, and the other of said planes being determined by other surfaces of the elements of said plurality of elements.

9. A prefabricated building unit, which transmits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising a plurality of supporting stud-like elements, a plurality of other supporting elements forming a skeleton, frame structure with said stud-like elements, each of said other elements reaching past only a part of the first of the first-mentioned plurality of elements and extending beyond the last of said plurality whereby said unit may be fitted beween other similar units, fittingly receiving the extending elements from one adjacent unit where its own elements fail to reach and fitting its own extending elements against the other adjacent unit where the other elements of the latter fail to reach, said unit having two spaced planar faces, each of said faces having a plane associated therewith, surfaces of elements of each of said pluralities of elements lying in each of said planes.

10. A prefabricated building unit, which transmits stress from one part of a building frame to another and which in combination with other similar units is self supporting, said unit comprising a plurality of stud-like elements, a plurality of spaced elements forming a lattice with said stud-like elements, each of said spaced elements reaching past only a part of the first of said first-mentioned plurality of elements and extending beyond the last of said plurality whereby said unit may be fitted between other similar units, fittingly receiving the extending elements from one adjacent unit where its own elements fail to reach and fitting its own extending elements against the other adjacent unit where the spaced elements of the latter fail to reach, said unit having two spaced planar faces, each of said faces having a plane associated therewith, one of said planes being determined by surfaces of the elements of one of said pluralities of elements and the other of said planes being determined by other surfaces of the elements of said one plurality of elements.

ROBERT W. McLAUGHLIN, JR.