

March 30, 1948.

H. L. GOGERTY

2,438,604

PREFABRICATED AND DEMOUNTABLE HOUSE CONSTRUCTION

Filed Jan. 8, 1943

3 Sheets-Sheet 1

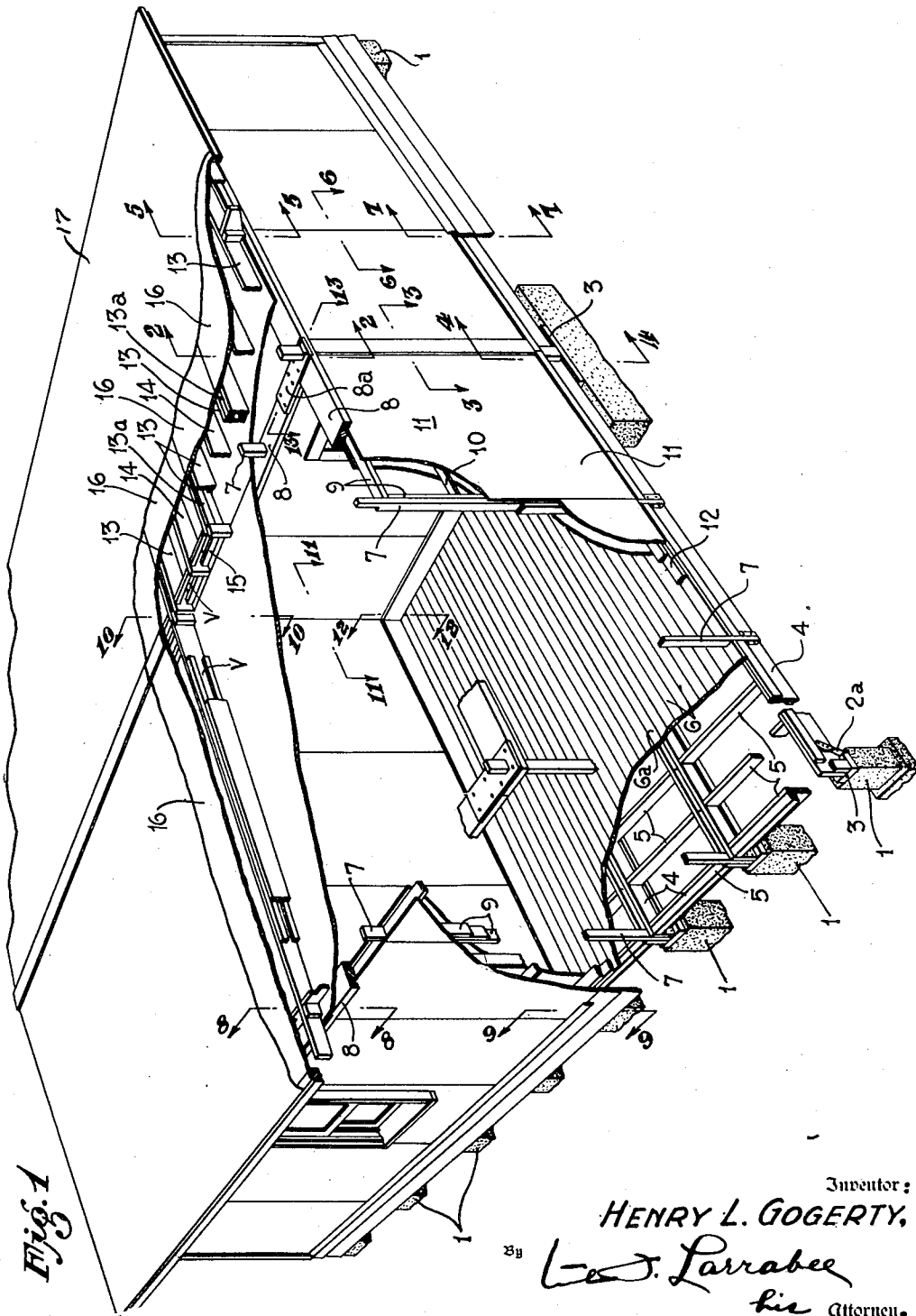


Fig. 1

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Fig. 2

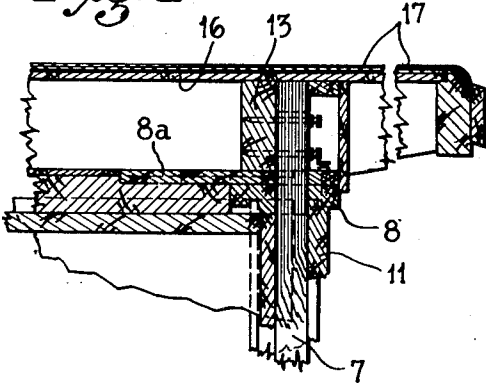


Fig. 5

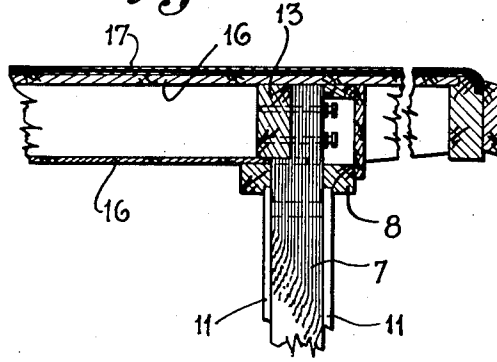


Fig. 3

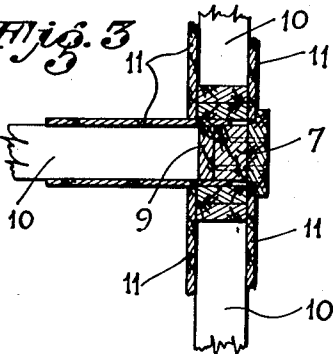


Fig. 6

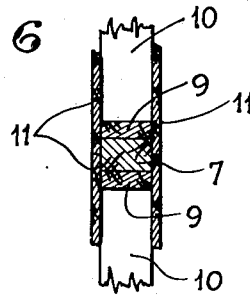


Fig. 4

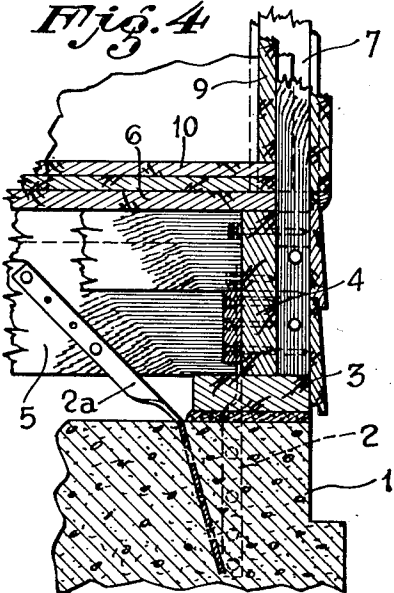
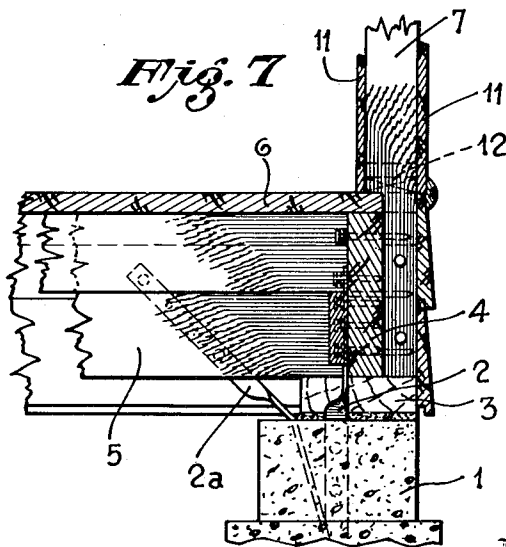


Fig. 7



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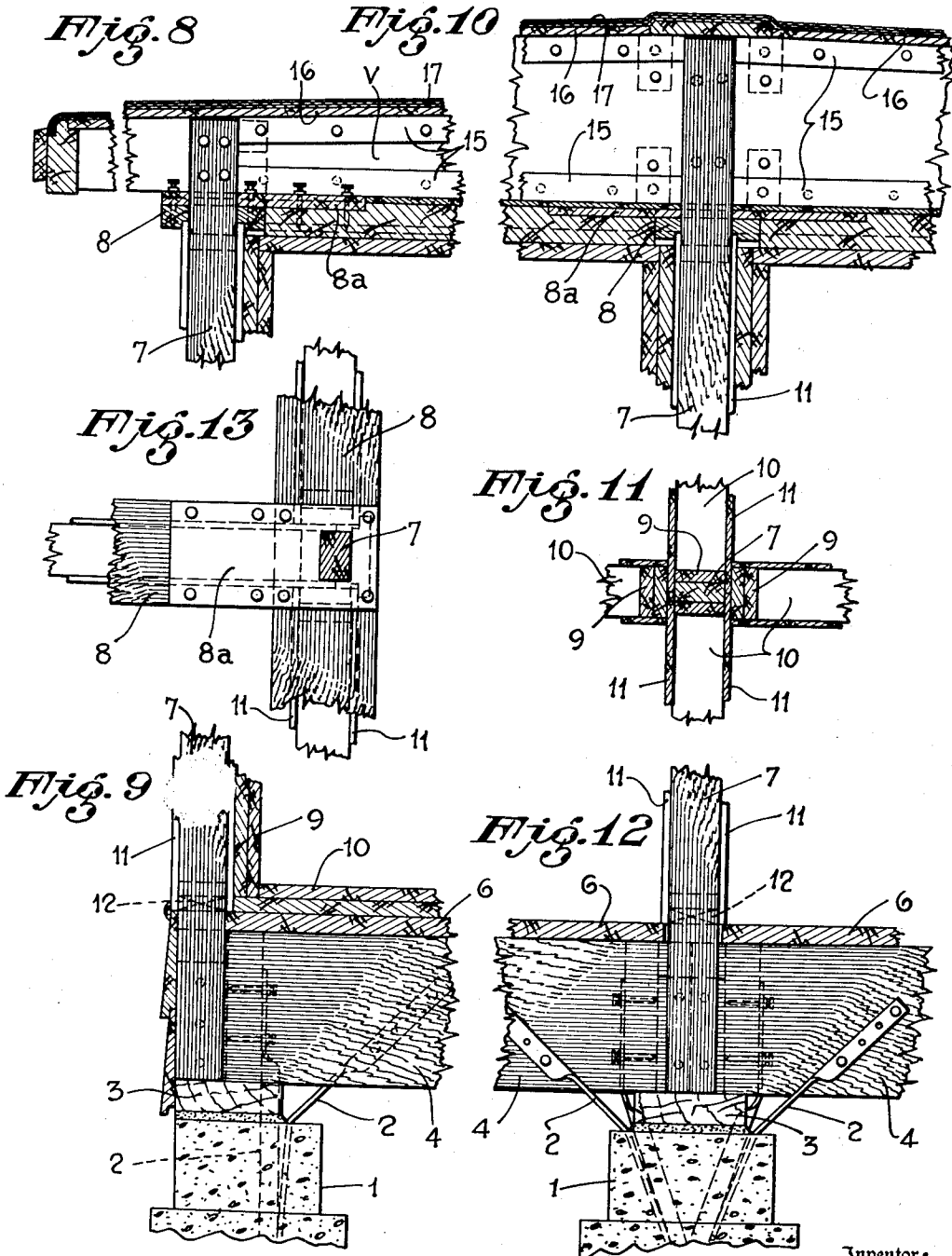
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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PREFABRICATED AND DEMOUNTABLE HOUSE CONSTRUCTION

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Application January 8, 1943, Serial No. 471,702

2 Claims. (Cl. 20-2)

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My invention relates to the art of building construction with particular reference to the construction of homes, though it will be understood that the invention is of utility in the construction of any building comprising in whole or part, the floor, walls, roof and interior walls, thereof.

The invention is specifically directed to a type of construction enabling homes to be prefabricated at a central point and then rapidly erected on the home site to provide a sturdy building properly braced to withstand all stresses acting upon it and yet capable of ready dismantling and reerection at some other location, thus meeting an urgent necessity of times in which migrations of workers are necessary to provide a work force adjacent work centers, such as munition factories or shipyards which during war are expanded to several times their normal capacity, or to meet the need of numerous dwellings to house refugees from areas devastated by the enemy in time of war, or by storms, earthquakes or fires.

An object of the invention is to provide a building composed of a plurality of basic prefabricated units which are secured in place with a minimum of fastening means, such as nails or bolts, the units being fitted into keyways provided by framing members or interlocking with said framing members.

A further object of the invention is to reduce work done on location to a minimum thus ensuring that the desirable characteristics of the design are not deleteriously affected by unskilled or not fully trained workmen.

A further object of the invention is to provide a building composed of a plurality of units locked together to form a rigid structure designed to be amply strong to resist all stresses by the interlocking of the framing members and the plurality of units, a relatively few fastening means such as nails or bolts serving to complete the structure, the removal of said nails or bolts enabling the building to be readily disassembled without injury to the units of which it is composed.

A further object of the invention is to provide a building structure permitting a plurality of designs to be built up since the basic units may be arranged in various combinations.

A still further object of the invention is to provide a building construction capable of rapid erection and dismantling and readily transported in dismantled condition due to the self contained and individually framed nature of the units of which it is composed.

A still further object of the invention is to provide a low cost but adequate building, costing little

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to manufacture or erect and using a minimum of metal members and not requiring any basement or foundation wall.

Other objects, advantages, and features of invention may appear from the accompanying drawings, the subjoined detail description, and the appended claims.

The accompanying drawings illustrate the invention in a form I at present deem preferable; and in the accompanying specification the invention is described by way of example only as applied to a typical small dwelling having four rooms and a low pitched roof, and it is to be understood that the scope of the invention is in no way limited to this illustrative embodiment but only as defined by the scope of the appended claims.

In the drawings:

Figure 1 is a perspective elevation partly in section of a dwelling constructed in accordance with my invention.

Fig. 2 is a fragmental view in vertical cross section on line 2-2, Fig. 1, showing the arrangement of parts connecting the upper ends of vertical members to horizontal members and roof members.

Fig. 3 is a fragmental view in horizontal cross section on line 3-3, Fig. 1.

Fig. 4 is a fragmental view in vertical cross section on line 4-4, Fig. 1, showing the arrangement of walls, floor and framing elements at the foot of an upright frame member.

Fig. 5 is a view in vertical cross section on line 5-5, Fig. 1, showing the arrangement of parts at the upper end of a vertical or studding frame member at its point of connection to the roof members.

Fig. 6 is a view in horizontal cross section on line 6-6, Fig. 1, showing the arrangement of parts at a point intermediate the ends of the vertical frame member shown in Figs. 5 and 7.

Fig. 7 is a view in vertical cross section on line 7-7, Fig. 1, showing the arrangement of parts at the lower end of the vertical frame member shown in Figs. 5 and 6.

Fig. 8 is a fragmental view in vertical cross section on line 8-8, Fig. 1, showing the arrangement of parts at the upper end of a vertical framing member at the point of connection of the framing member with a partition wall.

Fig. 9 is a fragmental view in vertical cross section on line 9-9, Fig. 1, showing the arrangement of parts at the lower end of the vertical framing member shown in Fig. 8.

Fig. 10 is a fragmental view in cross section on line 10-10, Fig. 1, showing the arrangement of

parts at the center line of the roof and connection of the roof frame members to the upper end of a vertical frame member or studding.

Fig. 11 is a fragmental view in horizontal cross section on line 11—11, Fig. 1, showing the arrangement of parts at the junction of partition walls at right angles to one another with a vertical frame member or studding.

Fig. 12 is a fragmental view in vertical cross section of the arrangement of parts at the lower end of the vertical framing member shown in Figs. 10 and 11.

Fig. 13 is a fragmental view in horizontal cross section on line 13—13, Fig. 1.

Figure 1 illustrates generally the salient features of my invention which are the use of piers 1 on which the dwelling is supported, thereby insuring a dry house with sufficient space between the floor and ground to ensure full ventilation, and the integration of a plurality of self braced floor, wall and roof units to form a complete building with the units locked together by framing members and a small number of securing means.

The piers 1 are preferably formed of concrete which may be poured on the site or may be pre-formed, as determined by questions of relative cost, nature of building site, etc. Preferably the piers 1 rest on footings of concrete though in some cases this may not be necessary. Ties 2 are preferably cast in the concrete piers and it will be seen that in the form of the invention illustrated, ties 2 and 2a (see Fig. 4) are shown; tie 2 serving to resist any force tending to separate the floor from the piers while tie 2a serves to brace the structure against forces tending to slide the floor over the piers. The space between the floor and the ground is sufficient to permit installation of heating equipment of the floor type and to inspect piping, install gas and electric meters. 3 indicates a sill resting on top of the piers and floor joists 4 in turn rest on the sills. It is to be understood that the piers 1 are arranged according to the plan of the house to support the floor joists and walls. The characteristic feature of self supporting units is clearly shown in Fig. 1, the floor units comprising floor joists or load carrying members 4 and connecting members 5, flooring 6 being nailed across the frame formed by members 4 and 5. The floor units are laid side by side, extending from a row of piers supporting one end of the floor unit to another row of piers supporting the opposite end of the units; and as shown in Fig. 1 a floor board 6a can be arranged to cover the joint between one floor unit and the adjacent unit. It will be seen that the construction described affords a sturdy and rigid floor.

The floor joists are supported on the piers 1 so as to leave room for the support of vertical framing members 7 which with horizontal members 8 serve to lock the construction into a unitary whole, and these members 8 will be hereinafter more fully described.

The outer wall is formed of a plurality of units each individually framed by vertical members 9 and cross members 10 covered by sheet material 11 nailed thereto, which preferably covers both the outer and inner sides of the wall units and extend beyond the peripheral framing members, thus forming a groove around the unit. The covering material is preferably plywood of a suitable thickness, such material is now readily obtainable in the form of tough, strong, waterproof sheets, and has proved very satisfactory in use.

While I have found that the peripheral groove formed by the construction described is amply strong in actual practice, any suitable interlocking profile will serve the purpose of cooperating with vertical and horizontal framing members to securely hold the vertical and horizontal edges of the wall panels.

The vertical framing members or studding 7 is formed of material of sufficient strength to securely support the adjacent wall units. The studs 7 rest at their lower ends on the sills 3, or if desired are carried through cut-outs in the sills and rest directly on the piers 1. The lower ends of the studs are secured to abutting floor joists by bolts or nails as shown in Figs. 4 and 9. The surface covering of the wall units overlies the edges of the studs and are positioned by this engagement or by any suitable interlocking surfaces arranged on the vertical edges of the wall units and the edges of the studs.

The upper horizontal edges of the wall units are securely held by horizontal framing members or stringers 8 which also serve to lock the upper ends of the vertical framing members or studding in position. The upper ends of the studding members extend through lock plates 8a which are secured to the horizontal stringers, and the upper horizontal edges of the wall units and the lower surfaces of the stringer members 8 are formed with interlocking surfaces serving to hold the upper edges of the wall units securely in position. In the form of the invention illustrated, the lower face of the stringer or tie member 8 is provided with grooves (see Fig. 2) to receive the projecting edges of the covering 11 of plywood or the like secured to the faces of the wall units.

The roof is built up of self braced units similar to the floor units, though since in some localities no heavy snow loads need be provided for, the construction shown in Fig. 1 has been found to be entirely satisfactory, and as shown in Fig. 1, 12 indicates side framing members and 14 indicates intermediate bearing members, and 15 indicates transverse members completing the peripheral frame of the roof unit, 16 indicates a covering of material such as plywood applied to the units. The side members of the units, as is the case in floor and wall units, lie against opposite sides of the vertical studding and are secured to said studding by nails or bolts driven through the studding ends projecting through the horizontal tie or stringer members 8.

To afford additional rigidity I prefer to provide filler strips 13a to close the space between adjacent outer framing members of the roof units, thus providing a plurality of base girders of great rigidity.

If the roof has to be designed to carry heavy loads, transverse load carrying members may be inserted to extend between the side frame members of the roof units; but, for dry areas such as the Southwestern United States, the roof construction shown in Fig. 1 has been found satisfactory. In this construction, in a small dwelling, the roof units may extend from the center line of the house in opposite directions to the walls. Roofing material of any desired type such as tarred felt may be laid directly on the plywood roof unit covering or by nailing strips across the roof units interlocking tiles could be used.

The ceiling can be applied directly to the underside of the roof units in the form of wide sheets of material or in any other desired form.

Preferably the roof is carried out to form wide

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eaves supported by projecting brackets that are nailed or bolted to the roof units at the sides of the roof, if so desired. Ventilation of the roof may be provided for by leaving apertures in the ends of the roof units and providing spaces, as indicated at V in Fig. 1 in the inner end framing members of the roof units, the usual vents being provided to lead warm air out into the open.

The width of the wall units can be uniform, and may be, and preferably is so chosen, that standard width of wall board may be readily incorporated. This is an important feature of the invention since not only is the work of fabrication greatly facilitated but the provision of doors and windows is simplified by the use of units of uniform width, certain of the wall units being fitted with doors hung on the edge framing members which are preferably of double thickness to compensate for loss of rigidity due to omission of bracing members, while window frames may be fitted in other similarly strengthened units.

Interior partitions are preferably formed similarly to the outside walls though if desired, thickness of the units may be less, and of course the covering material could be of lighter gauge or thickness.

Insulation may be readily placed within the space between the wall unit covering and by providing a double skin to floor and roof units, to the floor and roof as well for locations subject to severe heat or cold.

While I have shown securing means in the form of nails or bolts to tie the pier units together, and to tie the building to hold the walls, roof and floor together, it is pointed out that in certain locations or in all of them other means may be employed instead, thereby avoiding any marring of the timbers of the structure.

In many locations in the drawings furring nails are illustrated, while ordinary nails would serve to secure the parts together. This is done to indicate that at these locations such furring may be easily and quickly engaged by a claw hammer or wrecking tool to remove the same, thereby reducing breakage of the frame units to a minimum and providing ease of withdrawal of the nails when the structure is disassembled for removal purposes.

The installation of plumbing and electrical wiring is facilitated by the self supporting nature of the units which may be first erected into a complete structure interlocked with the framing members of the building and the pipes and/or wiring then run through the individual units as may be necessary after which the units can be finished by securing the wall panels either exterior or interior, in position.

It will be apparent that my invention provides

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an inexpensive but very satisfactory construction of prefabricated building and one possessing great flexibility in the arrangement of rooms and in the possibility of use of whatever lumber or materials are most readily obtainable in any particular locality and in which the need for foundation digging or lot levelling has been reduced to a minimum, further the work required to be done on the homesite is reduced to merely fitting and nailing or bolting or tying the frame and unit members into a complete structure, together with the usual installation of plumbing, electrical wiring and gas piping.

I claim:

1. In a prefabricated building structure having floor joists, wall units and rafters, as a part thereof, the combination of: a vertical framing member disposed at the junction of two walls of said structure and secured top and bottom to a rafter and joist respectively; a horizontal framing member provided with an aperture therein through which said vertical member passes; a second horizontal framing member abutting said first horizontal member; and a plate secured to a horizontal face of said abutting member and provided with an aperture through which said vertical member passes, whereby said various parts are firmly locked together.

2. In a prefabricated building structure having floor joists, walls and rafters as a part thereof, the combination of: a vertical stud disposed at the junction of two walls of said structure and extending from a joist to a rafter; a horizontal framing member extending along an edge of one of said walls and provided with a vertical aperture through which said stud extends; a second horizontal framing member extending along an edge of the adjoining wall to a point adjacent said stud; and a horizontal apertured plate through which said stud extends and which is secured to each of said horizontal framing members to lock said structure together.

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