R. W. GILBERT.

SECTIONAL BUILDING.

APPLICATION FILED JULY 11, 1919.

1,378,448. Patented May 17, 1921.

2 SHEETS—SHEET 1.

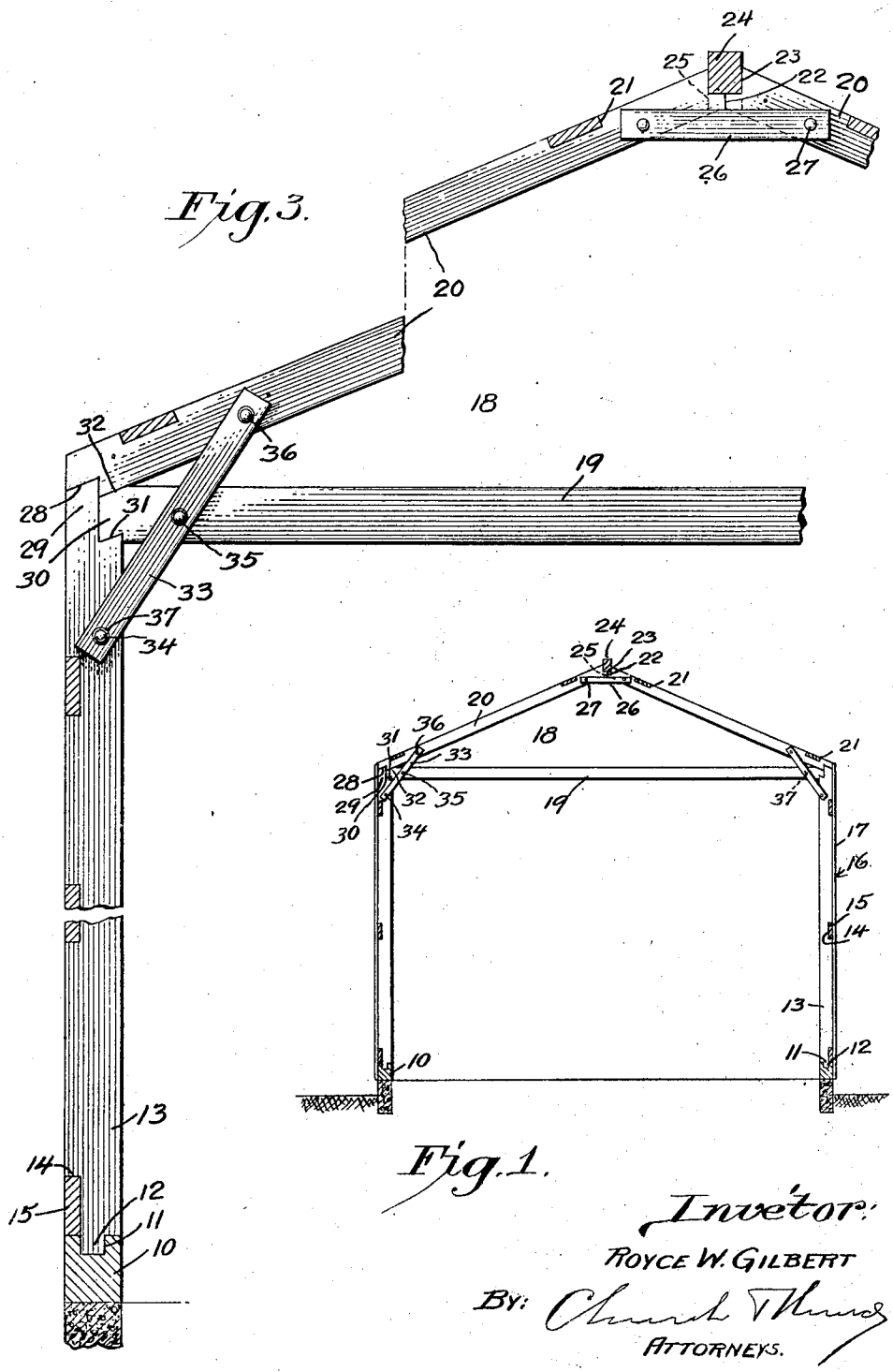


Fig. 3.

Fig. 1.

Inventor:

ROYCE W. GILBERT

By: Church & Church

ATTORNEYS.

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2 SHEETS—SHEET 2.

Fig. 4.

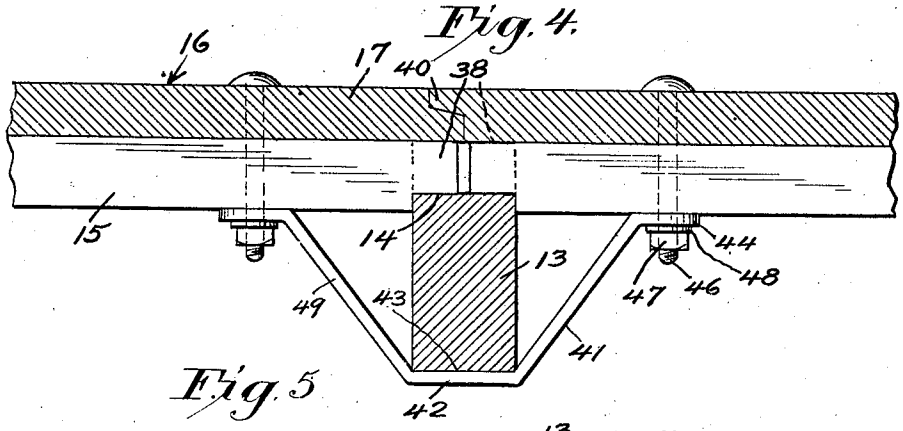
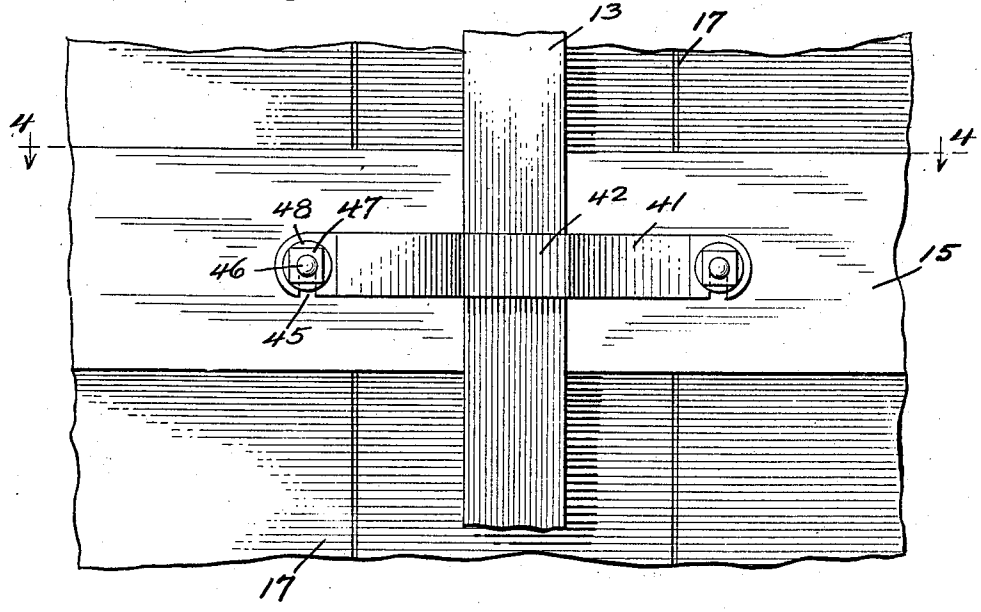


Fig. 5



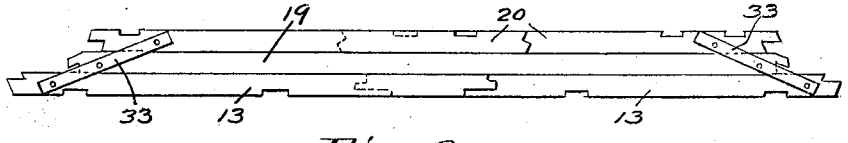


Fig. 2.

Inventor:

ROYCE W. GILBERT

By: Chamberlain & Thurman

Attorneys.

UNITED STATES PATENT OFFICE.

ROYCE W. GILBERT, OF CLINTON, IOWA.

SECTIONAL BUILDING.

1,378,448. Specification of Letters Patent. Patented May 17, 1921.

Application filed July 11, 1919. Serial No. 310,193.

To all whom it may concern:

Be it known that I, ROYCE W. GILBERT, a citizen of the United States, and resident of Clinton, in the county of Clinton and State of Iowa, have invented certain new and useful Improvements in Sectional Buildings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to sectional buildings particularly of the type wherein all possible labor shall be performed at the mill, in view of the cost of labor at the place of setting up or due to the limited time allowed for such setting up or to both causes. The present invention was developed and brought to perfection by the pressing requirements of the United States Army for the building of portable structures for the housing of the rapidly mobilized army, it being a matter of universal knowledge that carpenter labor in the vicinity of the various camps was not only of relatively poor quality, but was held at exorbitant price, thus necessitating the furnishing of materials to the camp as nearly complete as it was possible for human ingenuity to provide it.

The principal object of this invention is to provide a sectional building which can be constructed by unskilled labor in a minimum of time and with a maximum of security requiring for its completion but two tools, namely, a mallet and a brace wrench, all the sawing, nailing, chipping, etc., being performed at the lumber mill where the various elements that go to make up the portable house are manufactured.

Another object of this invention lies in the provision of a bent that will be securely locked in place when the tenon of the side stud is placed in the mortise of the sill, and yet the bent may be securely and neatly folded up for transportation with merely the addition of a single strap of band iron.

A further important object of the present invention is the provision of a clamp having a triple object, namely, to hold the panels in, to hold the panels together, and to form a continuous tie around the building. This clamp and the bent together form the essential elements for the construction of a simple, efficient and readily constructed sectional building.

In the drawings,—

Figure 1 represents a bent as set up, the view being a side elevation thereof;

Fig. 2 represents the bent folded and ready for shipment, but without showing the band of iron in place, this band being of the usual construction;

Fig. 3 is an enlarged view of one corner of the bent;

Fig. 4 is a horizontal section through the stud and panels, and showing the clamp and cleats in plan view; and

Fig. 5 is a side elevation of the parts shown in Fig. 4.

The sills 10 are mortised at appropriate places as at 11 to receive the projecting tenons 12 of the studs 13 which are notched as at 14 to receive the cleats 15 which support the strips 16 of siding which form the panels 17, the latter being formed of such size as to reach from the sill to the rafter and to extend in width from one bent to another.

These bents denoted as a whole by the numeral 18 consist of the two studs 13, a ceiling joist 19, and a pair of rafters 20, together with the ties to hold these various elements together. The bents are held in position by the panels as will hereinafter be more fully explained, the location of the bents being fixed by the mortises in the sills.

Each of the rafters 20 is provided with a plurality of notches 21 to receive the cleats of the roof panels which are similar to the cleats 15 of the side panels except as regards number, there being preferably three cleats for the side panels and two cleats for the rafter panels in the size of sectional structure shown in the drawing. At their top or peak end each rafter 20 is cut as at 22 to provide a vertical joint with the cooperating rafter and is cut away as at 23 to provide for the reception of the roof beam 24 which is notched as at 25 so that the lower edge of the roof beam will rest upon the central tie 26 which is bolted as at 27 to each of the rafters 20. At its lower end each rafter is notched as at 28 on its otherwise vertical face to receive the reduced end 29 of the stud, this extension being finished with a top face parallel to the roof angle so as to fit snugly into the rafter.

The projection 30 on the ceiling joist 19, which extends into a notch 31 in the stud 13, is for convenience finished with a side parallel to the lower face of the rafter and

the upper edge of the ceiling joist 19 is reduced as at 32 on a line parallel thereto, this construction providing a secure and rigid joint, due to the tie 33 which is connected to the stud, joist and rafter by means of bolts 34, 35 and 36, respectively, such bolts being fastened loosely in place at the mill, the usual washers 37 being provided as is customary.

The panels 17 of siding 16 held together by the three cross cleats 15 to which they are nailed at the factory, form units which are provided with reduced tenons 38 which are received in the notches 14 of the studs and the panels themselves, that is, the sidings, are securely connected together by a beveled lap joint 40 providing a rain proof connection. The steel clamp 41 is generally V-shaped, as shown, bearing at its base 42 against the inner face 43 of the stud and at its outward end being bent parallel thereto as at 44 to lay flat against the cleats. This clamp 41 is provided at either end with a slot 45 to receive a bolt 46 passing through the siding and cleat, these bolts being placed in position at the mill with their respective nuts 47 and washers 48, the slot 45 permitting the securing in place of the steel clamps without the necessity for entirely removing the washers and nuts, this feature having been found in practice to afford a considerable saving in time, as well as loss of the nuts and washers.

At the four corners of the building similar slotted steel clamps are provided but it will be understood that the steel clamps used at such corners will be a simple straight piece of metal bent at its ends at an angle of 45 degrees, if the corner beam is squared in cross section or at other suitable angle, provided, as is preferred, that all the studs shall be of the same cross section, the desire in all cases being that the steel clamp shall bear against the upright studs. It is to be particularly noted that these steel clamps have a three-fold purpose. They hold the panels in place against the studs and they hold the panels together at the joints 40 due to the angle the portion 49 makes with the cleat and the stud and they also form a complete tie around the entire building.

When the tenon 12 of the stud 13 is placed in the sill 10, the entire bent is locked firmly in position by the various configurations of the joints at the corner where the rafters meet the studs and the various beams are securely held or locked in this position by virtue of the ties 33 pivoted to each of the three beams.

In preparing the material to form the sectional structure of this invention for packing, the panels are shipped in the usual way and the bents are folded, as shown in Fig. 2, with all of the parts connected together except that one bolt 27 which holds the tie to the rafter is removed. The ties 33 are bolted to the beams so that the studs, joists and rafters may be laid parallel, and it will be noted that they are held in such position at each end of the package shown in Fig. 2, by means of these ties 33, so that the bent is ready to be shipped as soon as a single band of iron is strapped around the center to hold in place the free ends of the studs and the rafters.

What is claimed is:

1. A bent for a sectional building, consisting of a ceiling joist, a pair of studs and a pair of rafters, a tie pivoted at each end of the ceiling joist, each tie being also pivoted to a rafter and a stud, projections on the studs fitting into notches cut in the rafter and ceiling joist, so that when the elements are in position in the structure, they will be locked together by the said ties.

2. In a bent for a sectional building, the combination with a notched stud, a notched rafter, and a ceiling joist, of a tie bolted to said members near their ends, said bolts each forming a pivot so that said members may be assembled for shipping parallel to one another by moving said stud, rafter, and tie about their respective pivotal bolts out of notch engaging relation.

3. In a sectional building, a ceiling joist notched at one end, a tie pivoted thereto, a notched rafter pivoted to said tie, and a notched stud provided with extensions and also pivoted to said tie so that when said parts are in position the extensions on the stud shall project into said notches and be held in such position by said tie when the free end of said rafter is supported in elevated position.

4. In a sectional structure, a plurality of panels each consisting of a plurality of cleats and a number of sidings arranged at right angles thereto, the outside sidings of each panel being grooved to receive the adjacent panel, a notched stud receiving the ends of the cleats, bolts extending through the sidings and the cleats of each panel near the longitudinal edge thereof, and a clamp member parallel with one face of said stud in a central portion and extending at an angle to said stud and said cleats at either side and having a slotted extremity at each end to engage the bolt of the adjacent panels on either side of said stud.

5. In a sectional building, a collapsible bent consisting of a plurality of ties and a plurality of members pivoted together by said ties and each movable about its pivot so that said members when in collapsed form all lie parallel and have their free ends located between said ties.

ROYCE W. GILBERT.