W. H. WELLS.

SECTIONAL BUILDING CONSTRUCTION.

APPLICATION FILED APR. 6, 1916.

1,236,635.

Patented Aug. 14, 1917.

5 SHEETS—SHEET 1.

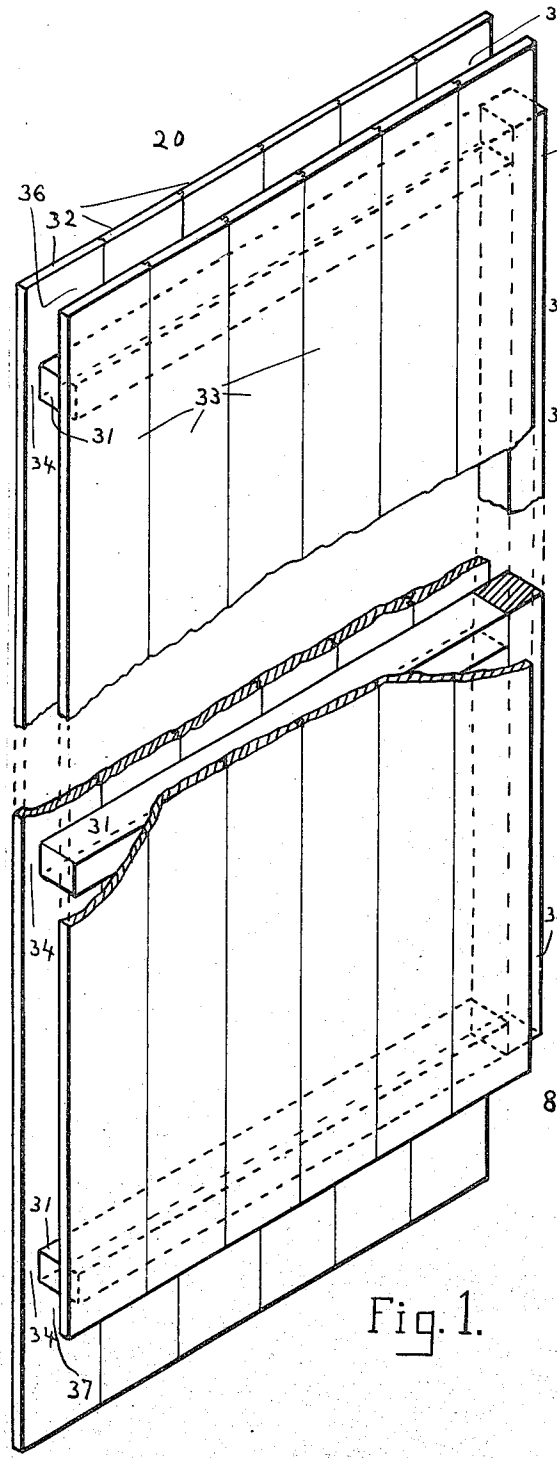


Fig. 1.

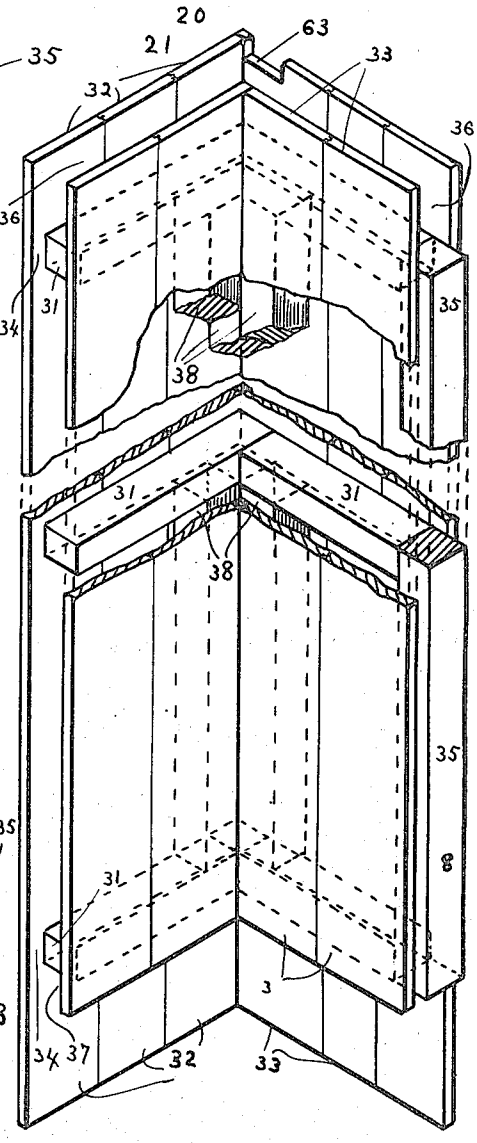


Fig. 6.

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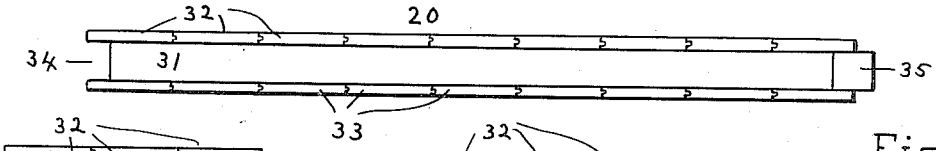


Fig. 2.

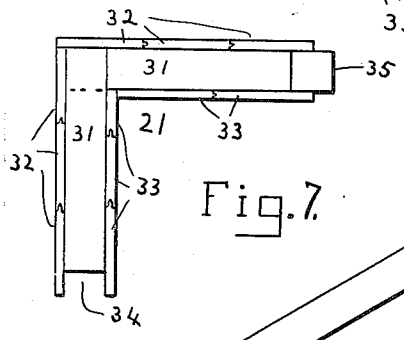


Fig. 7.

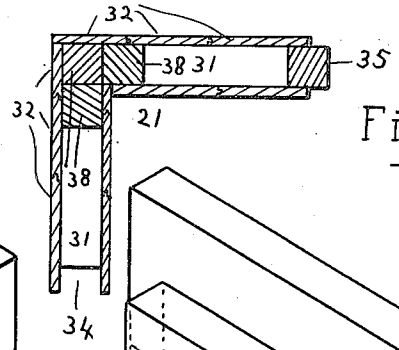


Fig. 8.

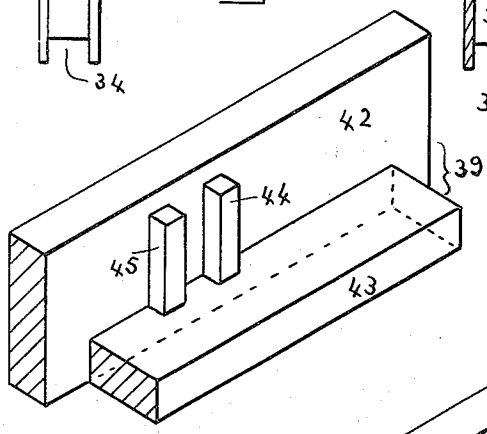


Fig. 3.

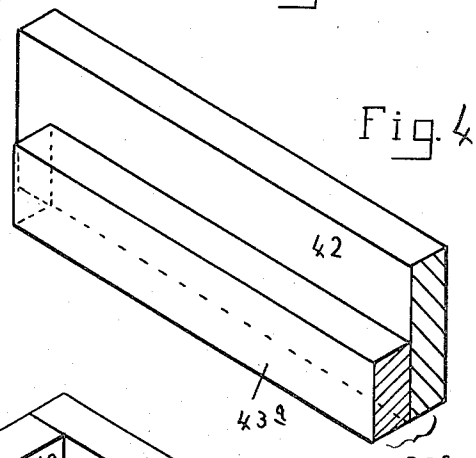


Fig. 4.

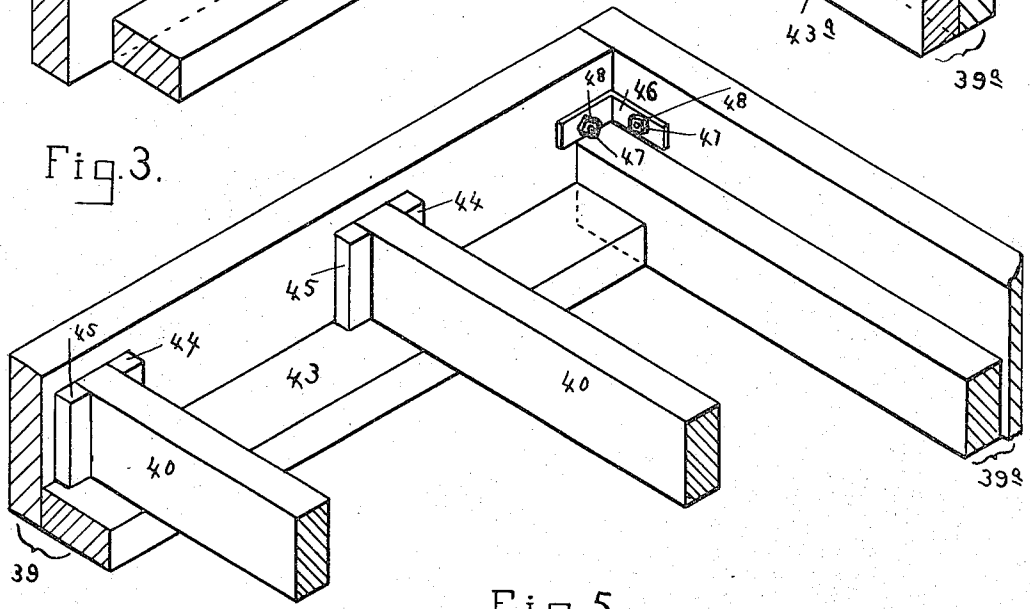


Fig. 5.

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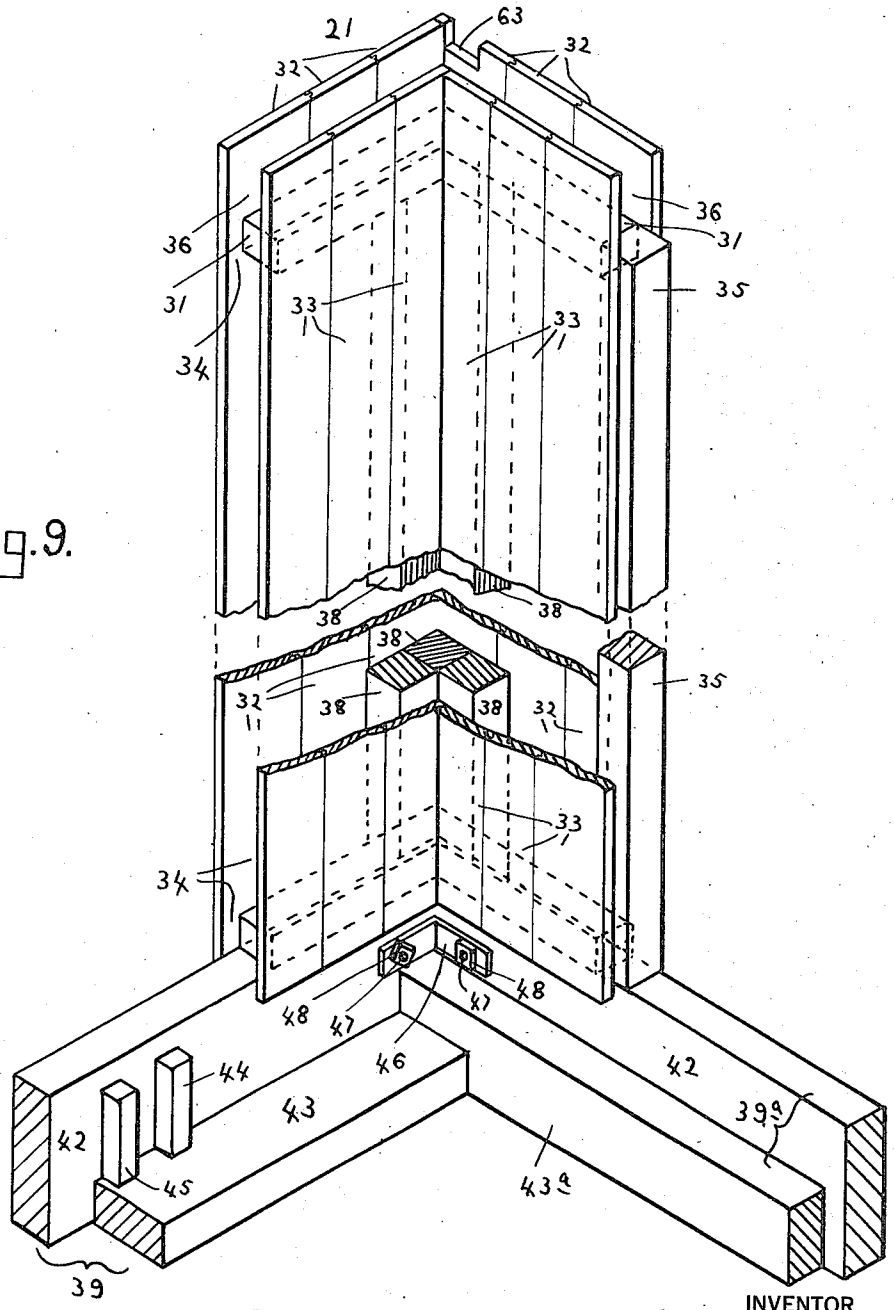
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5 SHEETS—SHEET 3.

Fig. 9.



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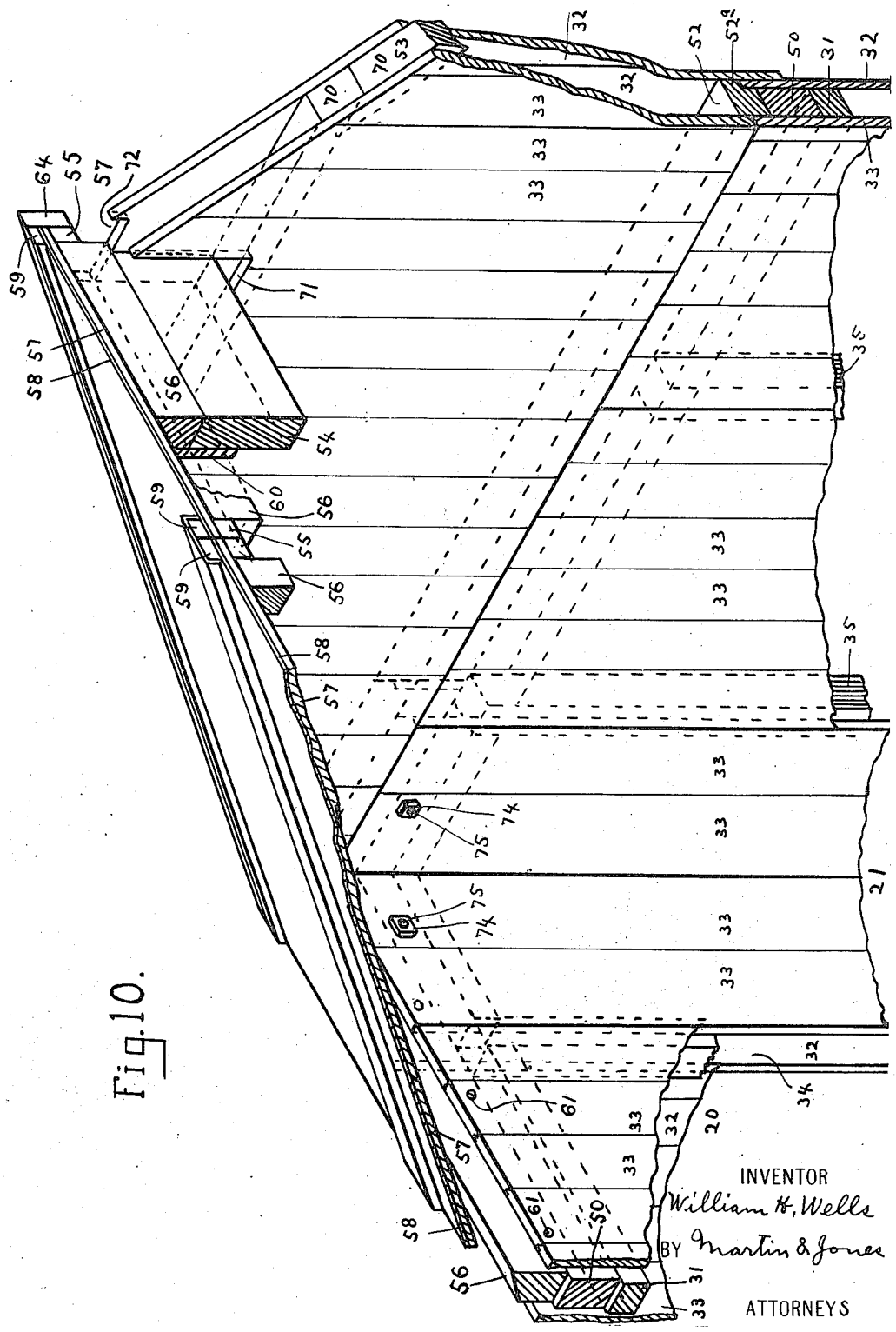


Fig. 10.

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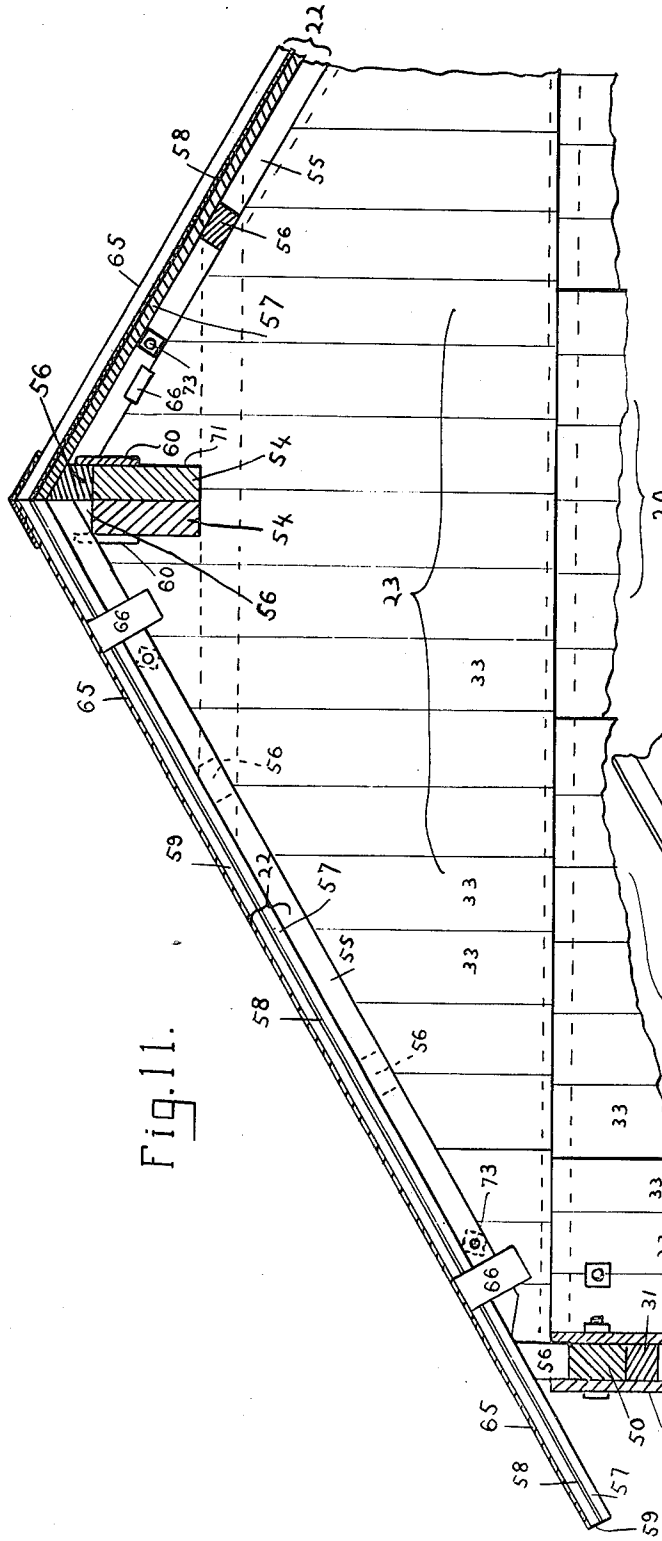


Fig. 11.

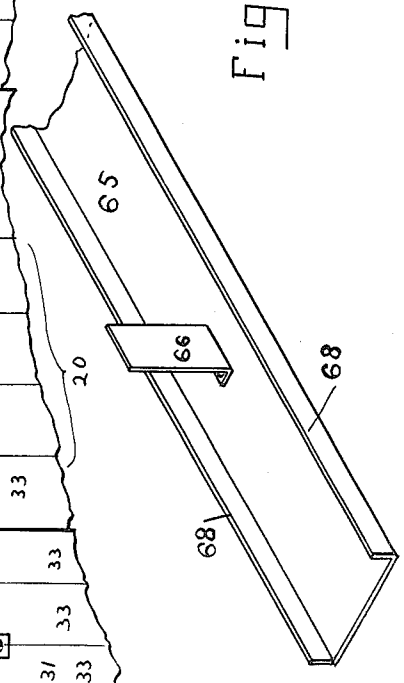


Fig. 12.

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UNITED STATES PATENT OFFICE.

WILLIAM H. WELLS, OF NORWICH, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO DIXIE HOUSE COMPANY, A CORPORATION OF SOUTH CAROLINA.

SECTIONAL-BUILDING CONSTRUCTION.

1,236,635. Specification of Letters Patent. Patented Aug. 14, 1917.

Application filed April 6, 1916. Serial No. 89,471.

To all whom it may concern:

Be it known that I, WILLIAM H. WELLS, of Norwich, in the county of Chenango and State of New York, have invented certain new and useful Improvements in Sectional-Building Construction; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the reference-numerals marked thereon, which form part of this specification.

My present invention relates to sectional buildings.

The purpose of my invention is to provide improvements in construction of sectional buildings and to provide forms of construction that will enable such buildings to be readily constructed where desired in various forms and sizes with the use of relatively few different forms of units.

A further purpose is to provide improved forms of such units for sectional houses and to make such units of simple construction and use but well adapted to provide a durable building.

A further object of my invention is to provide units of such form that they may be readily placed together by persons not skilled in carpenter work or house-framing and furthermore of such form that they may be erected and held in position with all required strength with the use of very few fastening members of simple form.

Yet another purpose of my invention is to provide certain features of construction for sectional buildings which features are more or less related to each other and result in the formation of sectional buildings of improved character and utility.

Further purposes of my invention will appear from the detailed description of the different features and from the claims thereupon hereinafter set forth.

Figure 1 is an isometric view of a unit used in exterior or interior walls of sectional buildings embodying my invention.

Fig. 2 is a plan view of the upper or lower edge of one of said sections.

Fig. 3 is an isometric view of a portion of one sill section and Fig. 4 is a similar view of another sill section adapted to cooperate therewith.

Fig. 5 is an isometric view of the above mentioned sill sections as brought together to form a corner with some of the joists in place.

Fig. 6 is an isometric view of one of the corner units as viewed from the inside with parts broken away in order to more clearly show the construction.

Fig. 7 is a top or bottom view of one of said corner units.

Fig. 8 is a horizontal sectional view on line 8—8 of Fig. 6.

Fig. 9 is an isometric view of a corner unit in place on the sills.

Fig. 10 is an isometric view of a portion of a sectional building embodying certain features of my invention, including the roof and gable construction.

Fig. 11 is a vertical sectional view through a building embodying certain features of my invention, including a gable end, the left hand portion of the roof showing a side edge view of a roof section and the right hand portion of the roof being sectioned through a roof section intermediate its reinforcing side pieces.

Fig. 12 is an isometric view of a part of one of the metal members 65, as seen in inverted position.

Referring to the drawings in a more particular description, it will be seen that my invention contemplates in the construction of sectional buildings an extensive use of wall units 20 to form the regular intermediate portions of exterior or interior walls between corner units 21 or other special units. These wall units 20, shown particularly in Figs. 1 and 2, are composed of several horizontal strips of wood 31, to which are secured the outer boards or sheathing 32 preferably matched together as shown and arranged vertically, and on the inner side of said strips are secured thereto the inner boards or ceiling boards 33. It will be understood that these sections will be made up at the factory or mill in permanent fashion as by the sheathing and ceiling being nailed to the strips 31.

These wall units 20 furthermore are adapted to readily interlock along their vertical edges with adjacent wall units 20 or corner units 21. This is accomplished by reason of the fact that at one vertical edge such as the left-hand edge as viewed in Fig. 2 the horizontal strips 31 do not extend to

the edge of the sheathing 32 or ceiling 33, resulting in a vertical recess 34 at that edge of the unit, while at the other or right-hand edge of the unit a tongue-piece 35 projects out from between the sheathing and ceiling so as to be adapted to fit in an obvious manner into a vertical recess 34 of a unit located adjacent thereto. A convenient form of securing this tongue-piece in position is that shown particularly in Fig. 2, by having the horizontal pieces 31 fail to reach to the edge of the sheathing or ceiling, thus affording a seat to receive about one-half of the tongue-piece, which is permanently secured to the section as by nails through the sheathing and ceiling into the tongue-piece. The upper horizontal strip 31 in these wall units 20 is located several inches down from the upper edge of the section, leaving a horizontal and upwardly-opening recess 36 for a purpose to be hereinafter explained. At the lower edges of the wall units 20 the lower horizontal strip 31 is located a short distance up from the lower edge of the ceiling 33, leaving a horizontal and downwardly-opening recess 37 between the ceiling 33 and the sheathing 32, whereby the wall sections are fitted to the sill units as hereinafter described. Preferably as shown the sheathing on the wall units will extend down several inches beyond the ceiling boards 32 in order to protect the sills and further aid in securing a rigid building.

The corner units 21 are in appearance two relatively narrow wall units placed at a right angle to each other and rigidly secured to each other in that position. The corner units 21 are, however, originally constructed as a separate and complete unit, with their two angularly-arranged wings or parts each composed of inner or ceiling boards 33 and outer or sheathing boards 32 both vertically arranged as in the wall units and secured to the intermediate horizontal strips 31. The wings of the corner units have their horizontal strips 31 extended into the corner of the corner unit, where the projecting portions of said strips on the same level are fitted on to each other as by a common half-and-half joint and then rigidly secured to each other. The corner is further reinforced or stiffened by vertically arranged timbers 38 of the same thickness as the horizontal strips 31 and so fitting into the space between the sheathing and ceiling and extending vertically from one horizontal strip 31 to the next. These strips 38, however, are in the aggregate wider than the space between the sheathing and ceiling and so extend from the corner out into each wing of the corner unit, operating when securely fastened to the rest of the unit to considerably add to the rigidity of the corner. The wings of the corner unit are of sufficient width, say a foot wide, so as to hold the corner upright when placed on end upon the sills. Each wing of a corner unit is of the same construction as a wall unit, in that one wing has a vertical recess 34 at its outer or free edge, while the other wing has a tongue-piece 35 extending out from its outer or free edge, thus allowing wall sections 20 to be fitted thereto in an obvious manner. It will be understood furthermore that the wings of the wall sections are of the same thickness as the wall sections so that when wall sections are added to corner units there will be no difference in the appearance of the structure and the corner units will not extend out into the building on the inside nor extend without the building any farther than does the wall sections.

The wings of the corner units 21 will have at their upper edge an upwardly-opening recess 36 and at their lower edge a downwardly-opening recess 37 similar in formation and extent to those already described with regard to the wall sections 20 and for a similar purpose.

Sills 39 are provided of sufficient strength but of relatively light weight and in such form as to readily coöperate with the wall and corner units to be placed thereon and also to readily receive thereon the joists 40 for the floors 41. This is done by forming the sills 39 of two parts, the outer one preferably being a plank 42 on edge, to the lower inner surface of which is secured the inner part 43, which can be a timber of less width. In the sill sections shown in Fig. 3 the second member 43 is shown as being laid flatwise and secured to the part 42 as by nails extending through the plank 42 into the part 43. The joists 40 rest upon the second member 43 of the sill unit 39 and may be readily held in place thereon by having the ends of said joists rest between cleats 44 and 45 secured in spaced relation along said sill unit where needed. The sill extending at right angles to the one already described may be similar thereto or may be as 39^a shown in Fig. 4 composed of similar timbers with the plank 42 on edge and with the second part likewise on edge as 43^a.

The sills 39 are brought together at the corner of the building as shown in Fig. 5 and there are rigidly secured in position by means of a strong angle iron 46 placed in the corner inside the building and fastened to the two sills as by bolts 47 inserted through the sills from outside and then through the angle iron, where they receive nuts 48.

Assuming the sills 39 have been placed in the proper position upon a suitable foundation or other support, the corner units 20 will be placed at the corners of the building in upright position. The planks or first members 42 of the sills will fit into the lower recesses 37 so that the weight of the corner

units 20 and wall units 21 will be carried by the lower horizontal strips 31 of said units resting upon the upper edge of the sill members 42. The adjacent depending portion of the sheathing 32 will cover the outer surface of the sills, while the shorter depending portion of the ceiling 33 will project partway down over the inner surface of the first member or plank 42 of the sills. It will be obvious that this fitting of the lower edge of the corner units 20 and wall units 21 upon the upper edge of the sills will effectively hold the said units in place upon the sills. It will be understood that the joist-supporting cleats 44 and 45 do not extend upward far enough to interfere with the corner or wall sections being placed upon the sills.

After one or more corner units 21 have been erected successive wall units 20 are set up at either side, fitting upon the sill units and with their edges interfitting with the edges of the corner units and preceding wall units through the vertical tongue-pieces 35 being slipped into the coöperating vertical recesses 34. The building will thus be extended to the right size by the necessary number of wall units and corner units fitting together. It will be noted particularly that my form of corner unit is especially adapted to coöperate with the wall units of the class described and is particularly adapted to form a tight corner and a tight connection between the corner unit and the adjacent side units. As each corner unit is a solid portion at the corner a true and tight corner is formed and no difficulty is experienced either in setting up the building or in subsequent use thereof from the corner being or getting out of line or out of weather-tight condition. Furthermore, since the corner is formed in the same way as the wall sections and is fitted to the sills and to the wall sections in the same way as the wall sections fit the sills and each other, it will be seen that the different sections will coöperate with each other much better than where the corner is formed simply from two side units coming together at an angle or where on the other hand the corner unit is of a different form and supported in a different way from the wall units.

After the walls of the building have been set up with the use of the proper number of wall units and corner units, the building is tied together about the upper edge of the wall by inserting in each side or end of the building a strip of wood extending the length or width of an ordinary building. This member 50 is inserted in the recess 36 left in the upper edge of each corner unit and each wall unit and extends from one corner section through the wall units of one wall and into the other corner unit upon that wall. Thereupon bolts 75 are inserted through the upper portion of each corner unit and the portion of the long member 50 inclosed therein, nuts 74 being applied to the threaded ends of the bolts. In this way each side or end of the building is kept from expanding lengthwise and the different units are held more securely in alinement, it being understood that the long member 50 is substantially as wide as the recess 36 into which it fits. The members 50 occupy the lower part of the recesses 36 at the upper ends of the corner units 21 and the wall units 20, but do not extend when secured thereon to the top of the said recess, thus leaving part of said recess 36 above the members 50.

This remaining portion of the recess 36 above the members 50 is utilized to fit the roof sections 22 to the building and also to fit on to the ends of the building the slanting gable sections 23, which may be used when the building is to be provided with a gable roof.

The gable units 23 are so shaped in side elevation as to raise the end walls of the building as hereinbefore described to a peak slanting down toward both side walls, whereby the building may be provided with a roof, each part sloping from the ridge pole down to the side walls in the ordinary form of buildings. As shown in Figs. 10 and 11 the gable unit 23 is of a length sufficient to form one gable at an end wall. It will be obvious, however, that these gable units on a large building may be only of a length sufficient to extend half-way across the entire end of the building or may on a large building extend for less than half the width of the building. The gable unit herein shown, however, sufficiently discloses the construction of said gable unit.

The gable unit 23 is composed of vertically arranged inner or ceiling boards 33 and outer or sheathing boards 32, between which and fastened thereto is the horizontal or lower strip 52, the horizontal upper piece 70 and the slantingly arranged piece 53. Said pieces 52 and 53 are arranged at a proper angle to give the desired slope to the roof. The lower part of the horizontal strip 52 is of the same thickness as the horizontal strips 31 and is adapted to fit down into the upper part of the recess 36 upon the corner and wall units that remain above the tie members 50. The member 52 fits down into the upper part of said recess by reason of the fact that the ceiling boards 33 do not come to the bottom of the strip 52, but rest upon the upper edges of the wall or corner unit ceiling boards, and by reason further of the fact that the upper part of the strip 52 is provided with an outstanding shoulder 52^a, to which is secured the sheathing 32. The shoulder 52^a is of a width equaling the thickness of the sheathing boards and the lower edge of said shoulder rests over the

upper edge of the sheathing boards 32 of the wall or corner units, while the lower ends of the sheathing boards upon the gable unit extend down a short distance outside the upper part of the sheathing boards upon the end wall. The details of this construction are particularly shown in Fig. 10. It will thus be seen that the gable units 23 are thus adapted to be readily placed upon the upper edge of the end walls of the structure and easily fitted thereto. The fitting of the lower part of 52 into the recess 36 and the fitting of the upper ends of the wall and corner unit sheathing into the recess provided below the shoulder 52ª very securely hold the gable units in position. It will be understood that the upper or slanting strips 53 of the gable units are of a width equal to the widest portion of the strips 52, and the same is true of the piece 70.

After the gable units have been placed in position a rigid timber or timbers 54 is placed in position and supported from near the peaks of the gable ends so as to provide a support for the ridge ends of the roof sections 22. Such ridge supports 54 may conveniently be formed of two planks of proper thickness and width to provide the necessary strength.

The roof units 22 are of a length sufficient to reach from the ridge to such a distance beyond the side walls as to provide the desired overhang. Said roof units are constructed upon a framework comprising side pieces 55 reaching from the ridge support to the top of the side walls and horizontally extending crosspieces 56. On this framework are placed the roofing boards 57 which are preferably of matched wood and may conveniently be sheathing such as used for the outer side of the units already mentioned. The roof boards 57 extend over the side pieces 55 and come flush with the outer edge of said side pieces. Preferably over the roof boards 57 is placed a layer of relatively light water-proof material such as strong roofing paper 58 which likewise extends to the extreme edges of the roof units. Along the two side edges of each roof unit and immediately over the side strips 55 is placed an upwardly extending cleat 59, which helps to securely hold the roof paper to the roof units.

The lower crosspieces 56 upon the several roof units rest down into the recess 36 immediately above the tie members 50, thus supporting the wall end of each of the roof units and aiding to prevent the roof units sliding down from the ridge support.

The uppermost horizontal cross member 56 on each of the roof units 22 is placed at the upper edge of the roof unit and rests on top of the ridge support timber 54. It will be understood that the lower surfaces of the upper and lower crosspieces 56 are level so as to rest securely upon the tie members 50 and the ridge supports 54, while the upper surfaces of all the crosspieces 56 preferably are at an angle similar to the angle of the roof in order to provide as wide and firm a support for the roof boards 57 as possible. After the roof units 22 are in place cleats 60 may be secured to the outer surfaces of the ridge supports 54 extending up immediately outside the outer surface of the upper crosspieces 56, thus preventing any displacement of that edge of the roof members relative to the ridge support. If desired, nails or other fastening members may be inserted through the upper part of the cleat 60 extending through into the adjacent part of the crosspiece 56, effectively holding the roof down upon the building. For a similar purpose screws or other fastening members 61 may be inserted through the upper part of the ceiling 33 of the side wall and corner units extending through into the lowermost crosspiece 56 on the roof units.

The roof units 22 at the ends of the building overlap the upper edge of the end walls or the gable units 23. Notches 72 are provided in the gable units for the upper and intermediate crosspieces 56 to pass through the gable unit so that the roof unit may rest flat down upon the top of the gable unit. A notch 63 is provided in the sheathing at the upper outer corner of the end angle or wing of the corner unit so that the lowermost crosspiece 56 may extend out beyond the tie member 50 over the sheathing of the end wing of the corner unit.

Upon the outer edge of the roof units 22 that are to be at the ends of the building is placed an edge strip 64 fastened to the adjacent side piece 55, the edge of the roof boards 57 and the adjacent cleat 59 and operating to strengthen this edge of the roof and make the same weathertight.

The meeting edges of adjacent roof sections 22 are securely fastened to each other by bolts 73 passing through adjacent pieces 55 and are further rendered tight by means of a channel-shaped metal member 65, the occasional upright fins of which 66 extend down between the enlarged meeting edges of adjacent roof units, while its upper part extends out over the cleats 59 of the two roof units engaged and then the said upper or winged portion is provided at each side with a down-turned flange 68 extending down along the edges of said cleats away from the edge engaged by the upright portions 66. When these channel-shaped members 65 have been placed in position the bolts 73 are inserted through the side pieces 55 of the adjacent roof units and then the downwardly-extending parts 66 of said metal member 65 are turned over beneath the pieces 55 thus holding said capping member 65 securely down upon the roof members and

securely tying said roof members together with a water-proof joint.

What I claim as new and desire to secure by Letters Patent is:

1. In sectional building construction, a two-winged rigid corner unit composed of vertically arranged outer or sheathing boards and inner or ceiling boards and fastened thereto therebetween in each wing a plurality of horizontal strips extending across each other into the angular space between the apices of the angles formed by the sheathing boards and the ceiling boards respectively.

2. In sectional building construction, a two-winged rigid corner unit composed of vertically arranged outer or sheathing boards and inner or ceiling boards and fastened thereto therebetween in each wing a plurality of horizontal strips extending across each other into the angular space between the apices of the angles formed by the sheathing boards and the ceiling boards respectively and there rigidly fastened to adjacent strips of the other wing.

3. In sectional building construction, the combination of a two-winged rigid corner unit composed of vertically arranged outer or sheathing boards and inner or ceiling boards and fastened thereto therebetween in each wing a plurality of horizontal strips extending across each other into the angular space between the apices of the angles formed by the sheathing boards and the ceiling boards respectively, the top horizontal strips being spaced from the top of the vertical boards whereby a recess is provided in the unit above said top strips and a gable unit composed of inner and outer vertical boards and therebetween a horizontal lower strip and an upper inclined strip, said gable lower strip extending down into the recess at the top of the corner unit and having the lower edge of its inner boards resting on the upper edge of the corner unit ceiling boards.

4. In sectional building construction, the combination of a two-winged rigid corner unit composed of vertically arranged outer or sheathing boards and inner or ceiling boards and fastened thereto therebetween in each wing a plurality of horizontal strips extending across each other into the angular space between the apices of the angles formed by the sheathing boards and the ceiling boards respectively, the top horizontal strips being spaced from the top of the vertical boards whereby a recess is provided in the unit above said top strips and a gable unit composed of inner and outer vertical boards and therebetween a horizontal strip and an upper inclined strip, said gable lower strip extending down into the recess at the top of the corner unit and having the lower edge of its inner boards resting on the upper edge of the corner unit ceiling boards, said gable unit having its cross strips thicker than the cross strips of the corner unit whereby the outer boards of the gable unit lap over the upper edge of the sheathing of the corner unit.

In witness whereof I have affixed my signature this 29th day of Feb., 1916.

WILLIAM H. WELLS.