

Oct. 26, 1954

T. F. CONNOR

2,692,408

PREFABRICATED BUILDING CONSTRUCTION

Filed Nov. 16, 1948

11 Sheets-Sheet 1

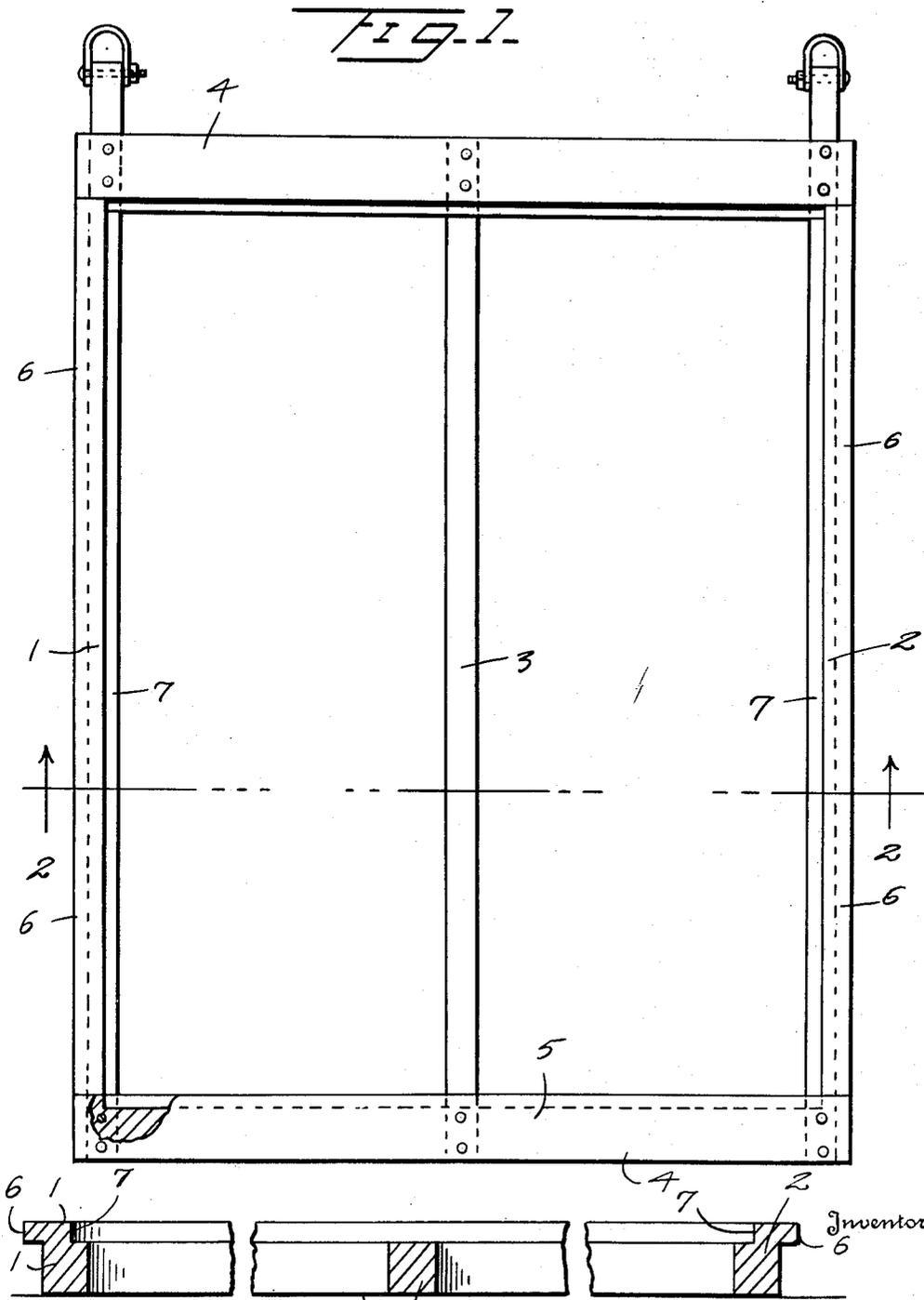


FIG. 2. 4 3

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FIG. 3

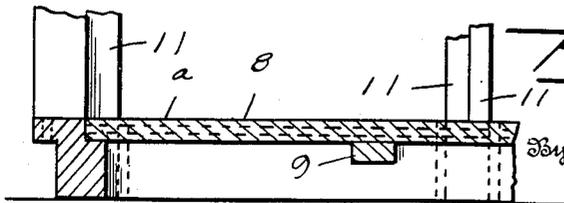
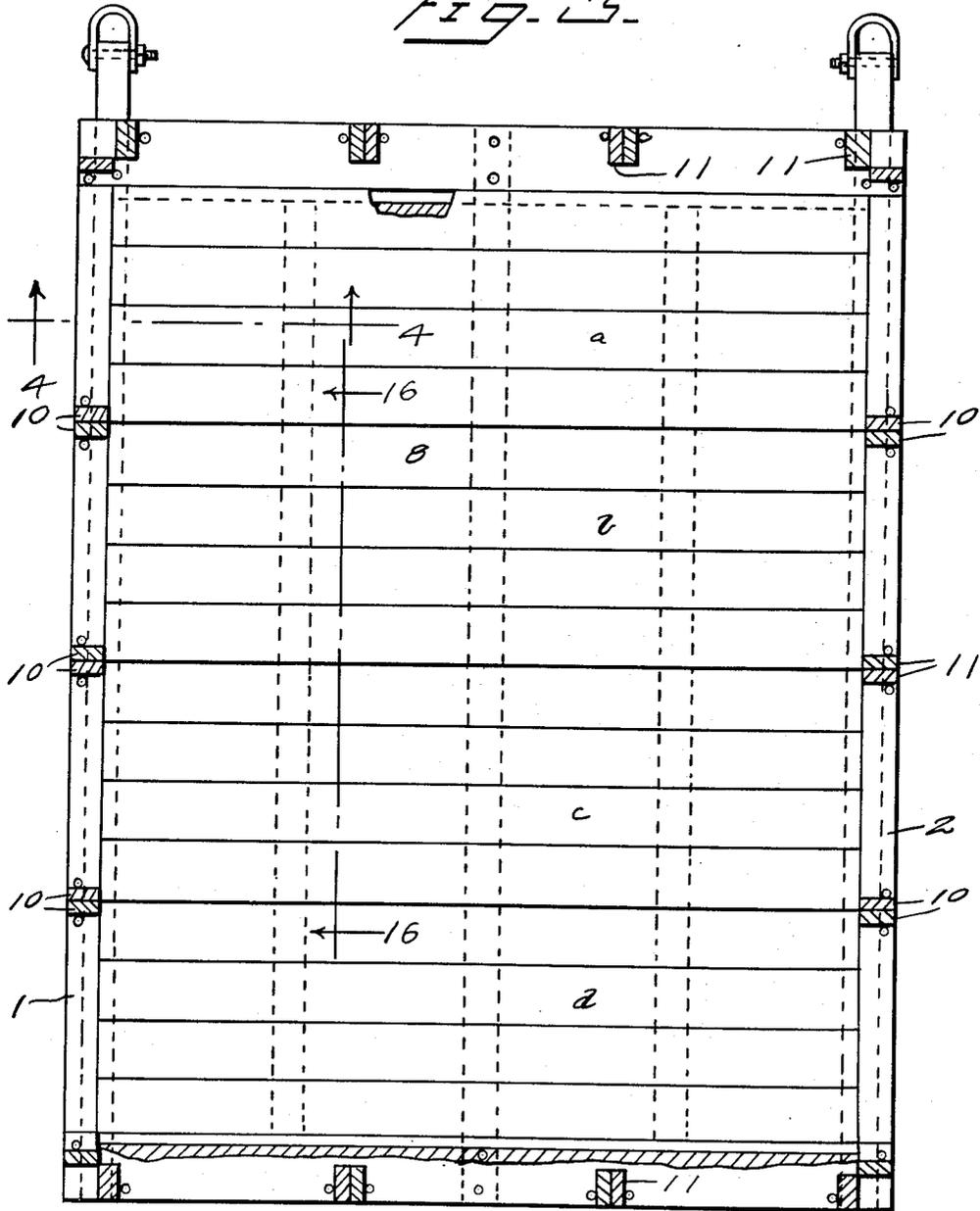


FIG. 4

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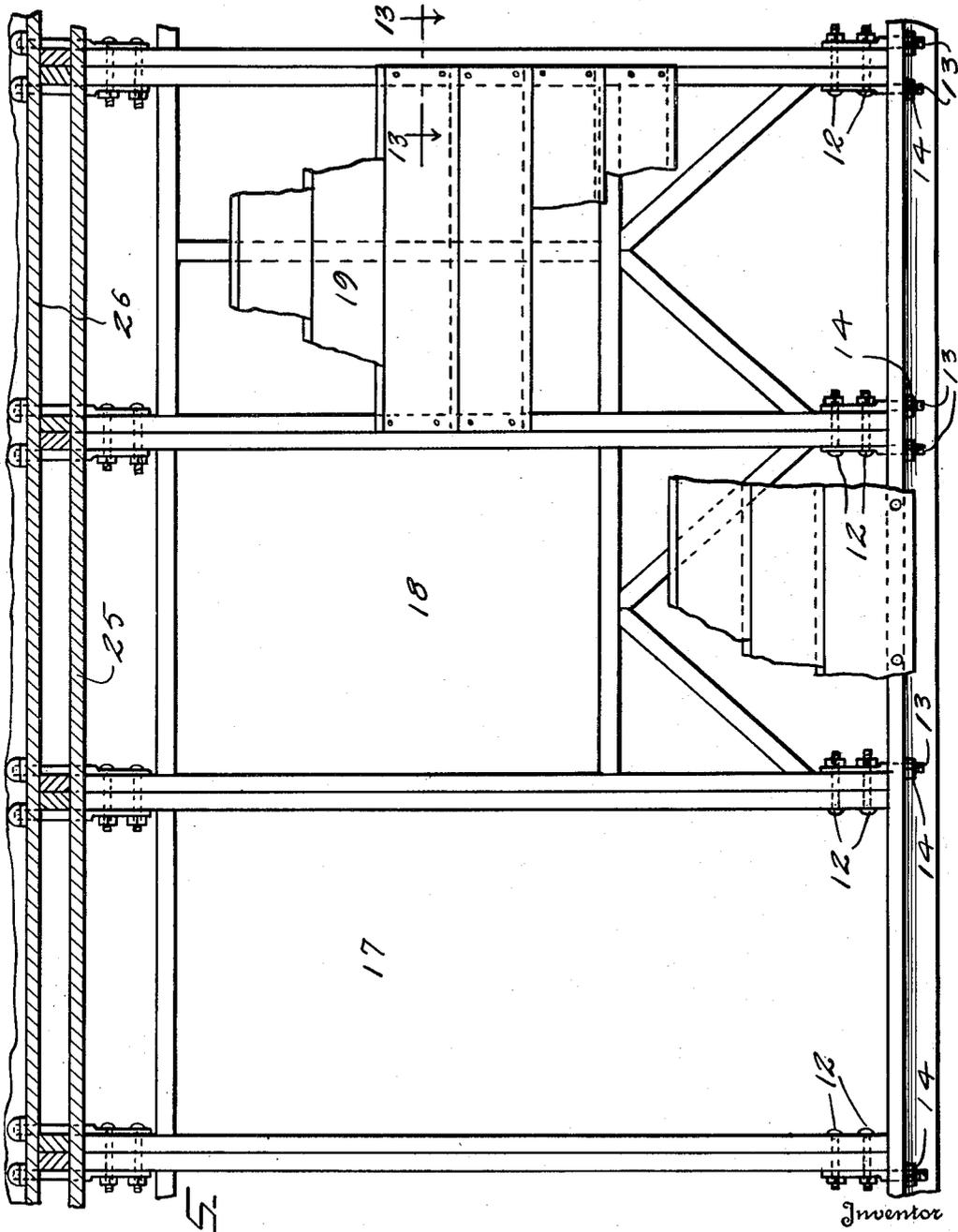


FIG. 5

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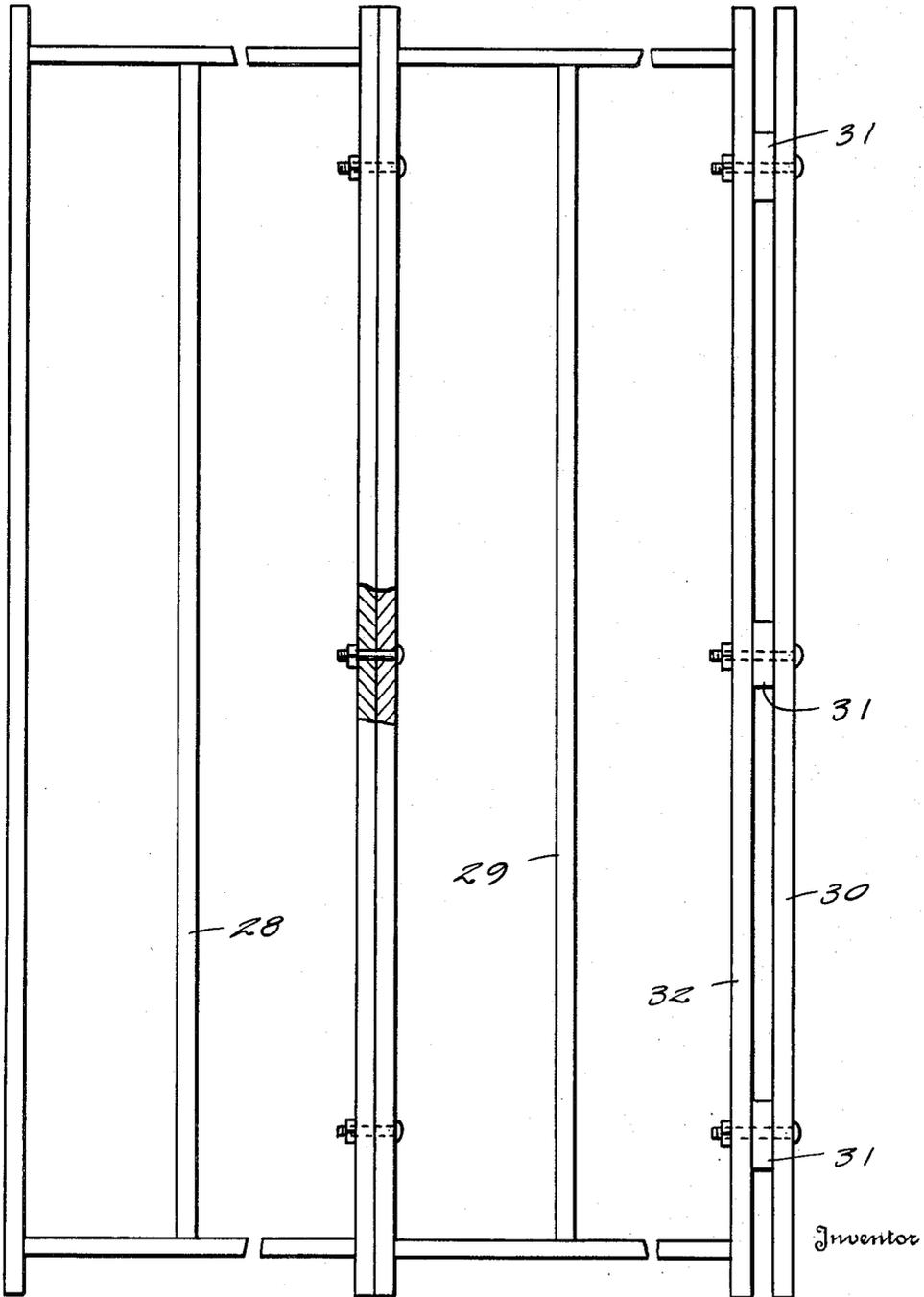


FIG. 6.

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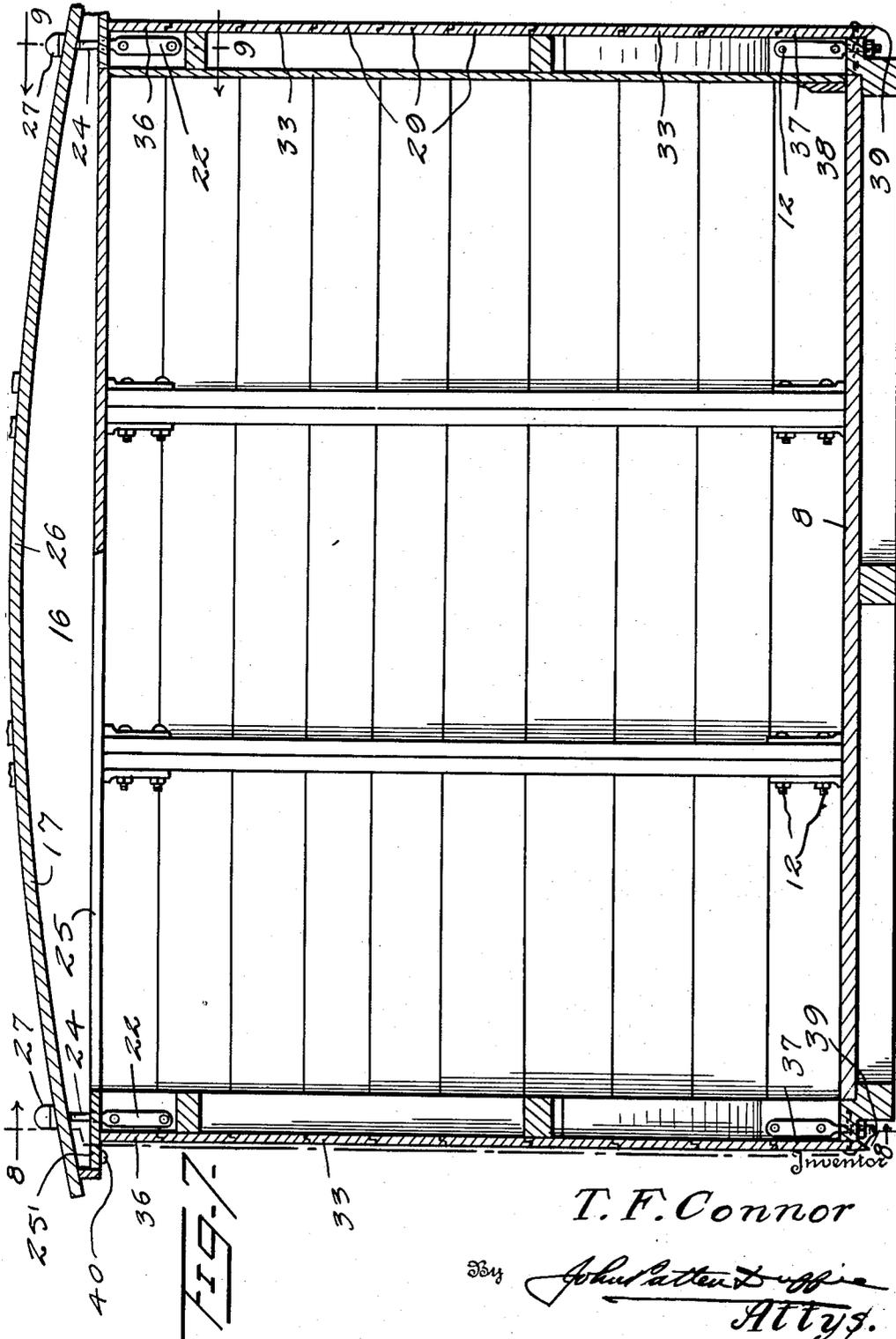
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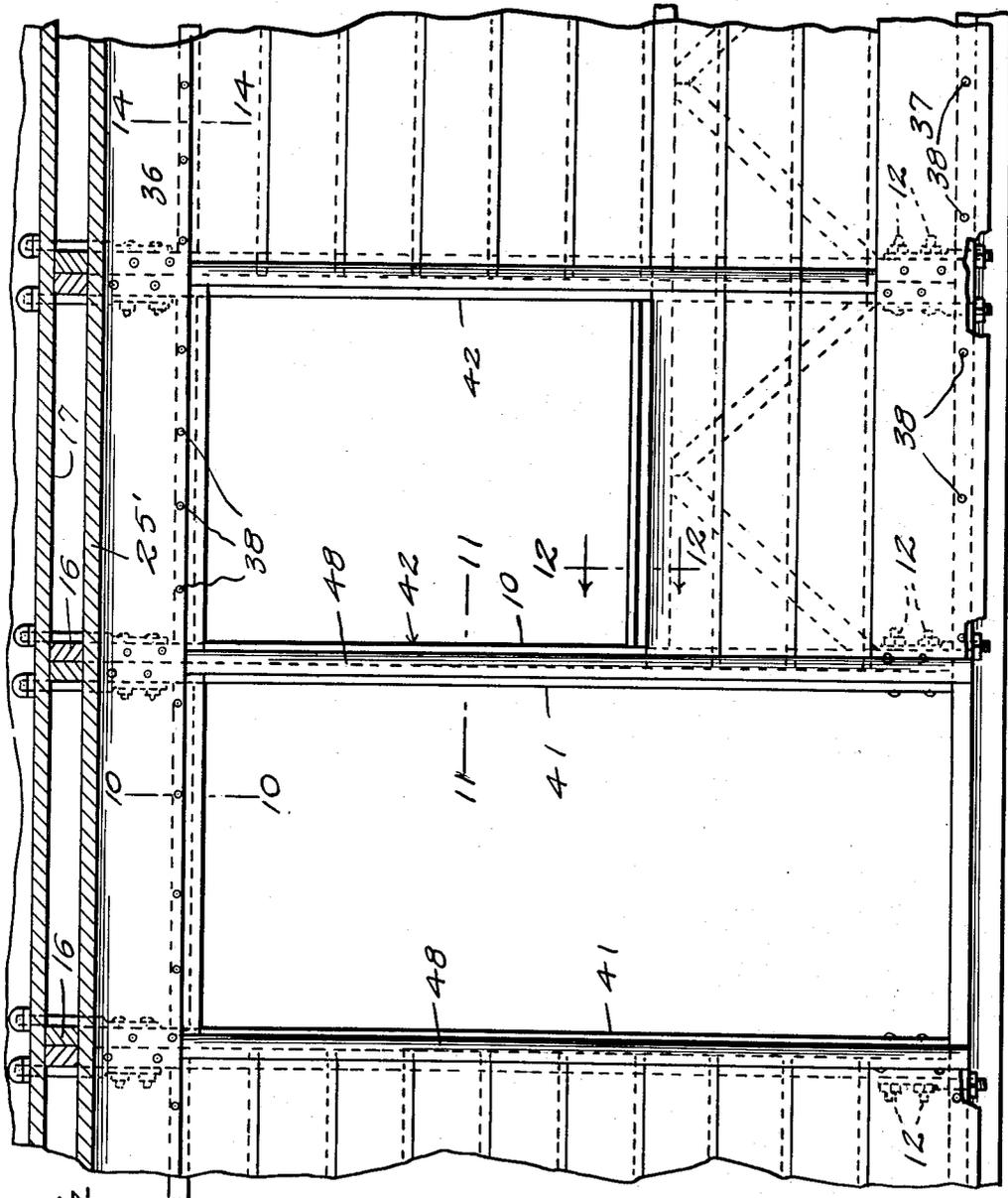


FIG. 8

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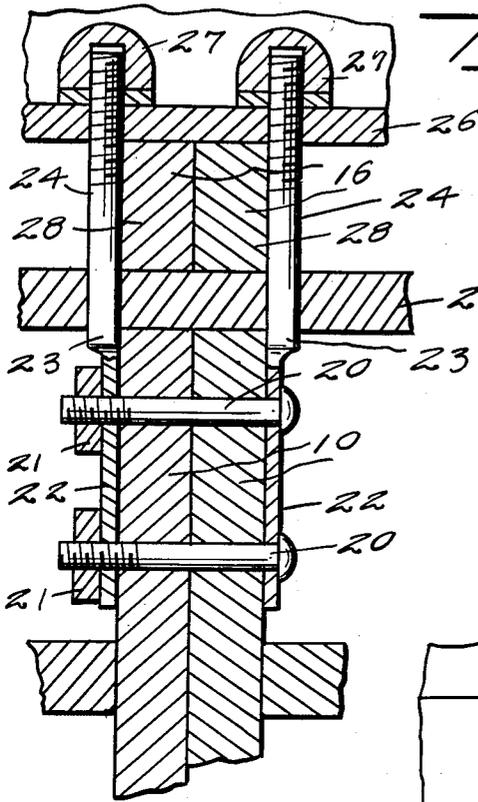
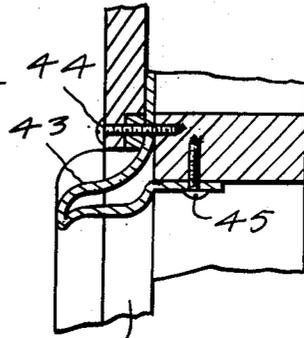


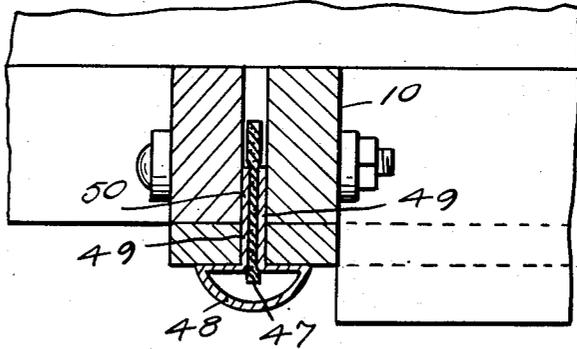
FIG. 9.

FIG. 10



29

FIG. 11



48 47

FIG. 12.

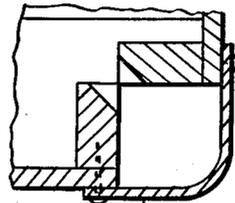
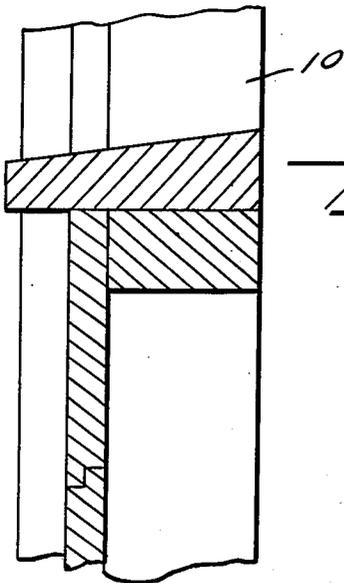


FIG. 19.A

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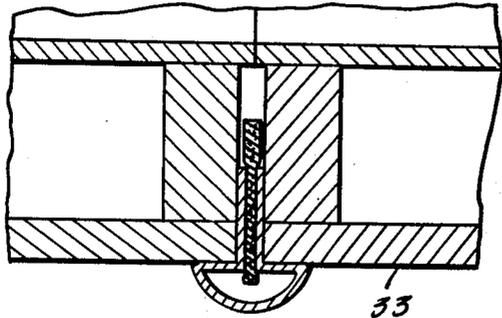


FIG. 13

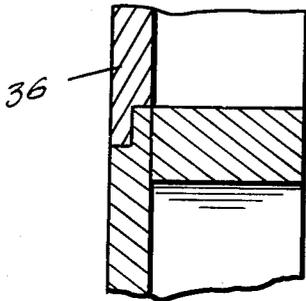


FIG. 14

FIG. 15

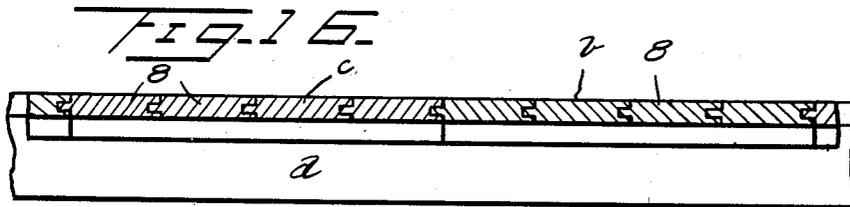


FIG. 16

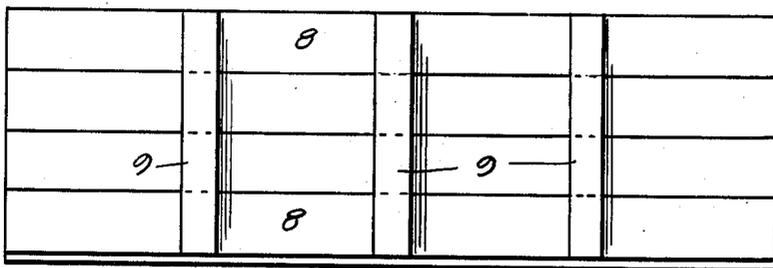


FIG. 17



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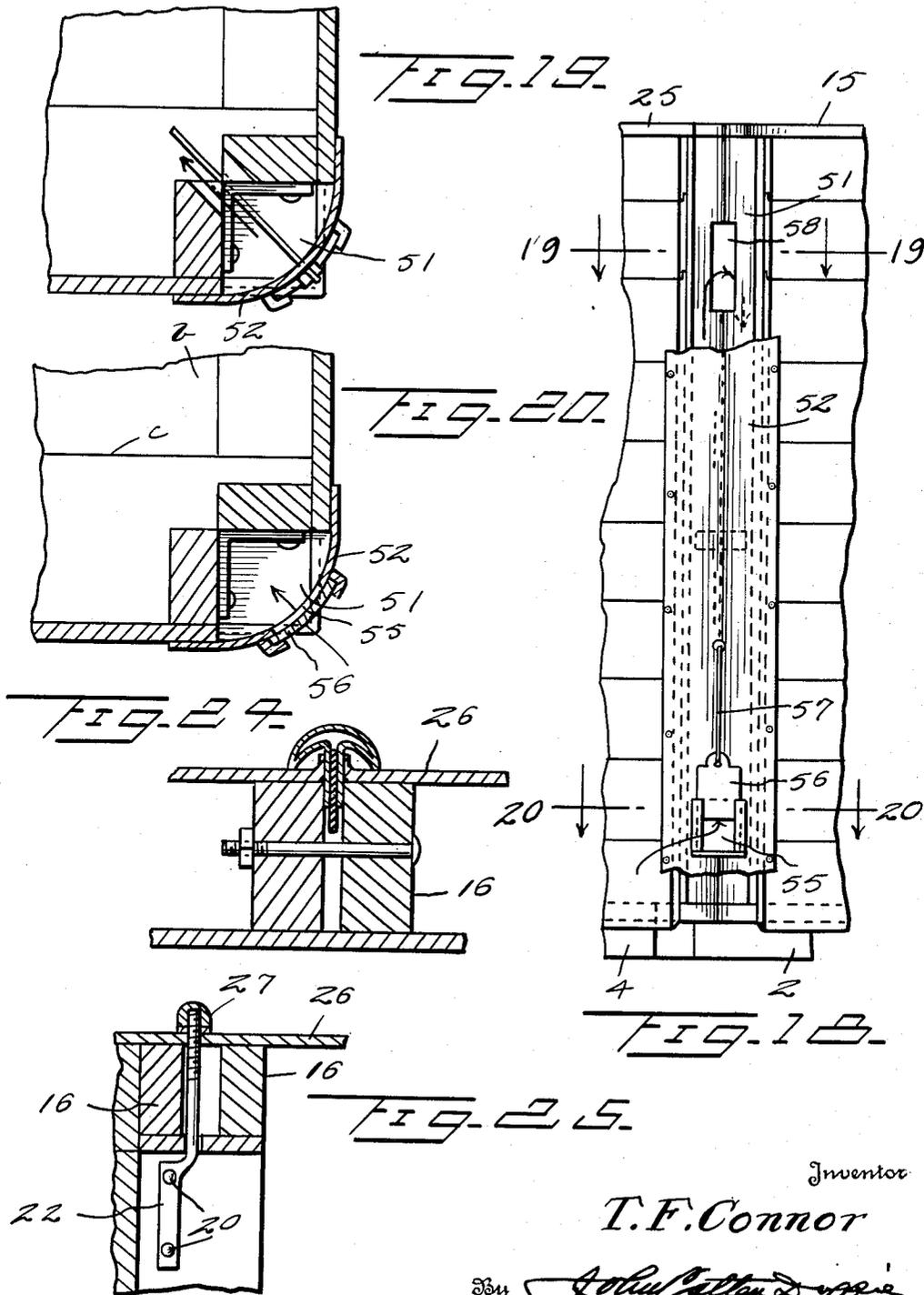
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FIG. 21.

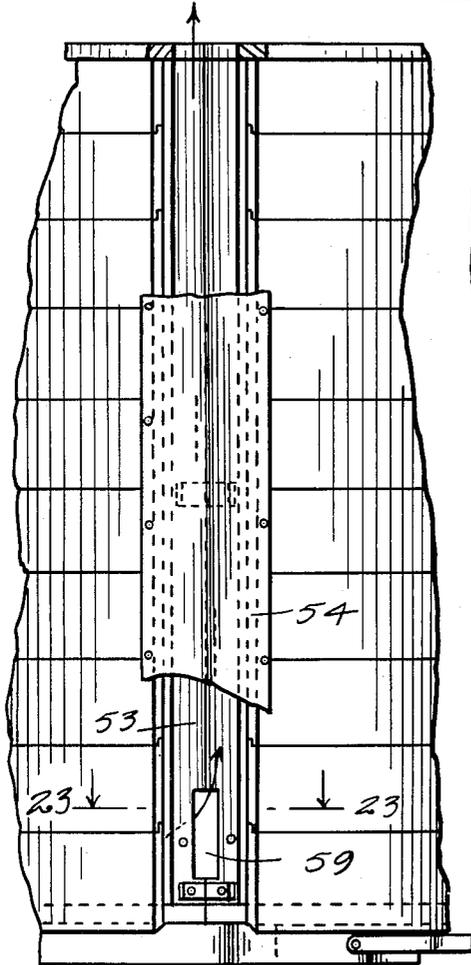


FIG. 22.

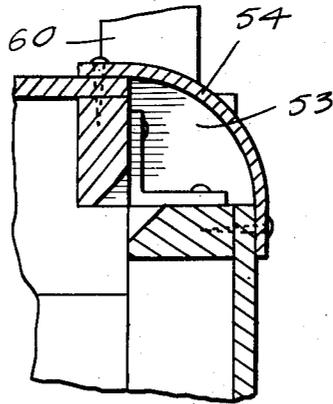
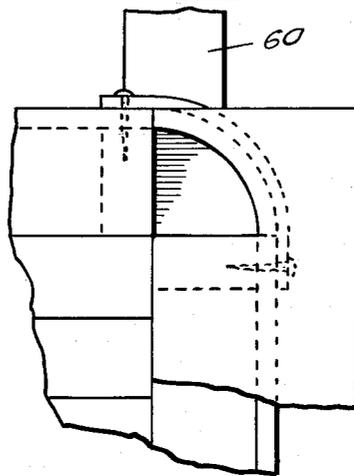


FIG. 23.

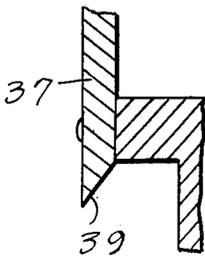


FIG. 26.

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FIG. 27

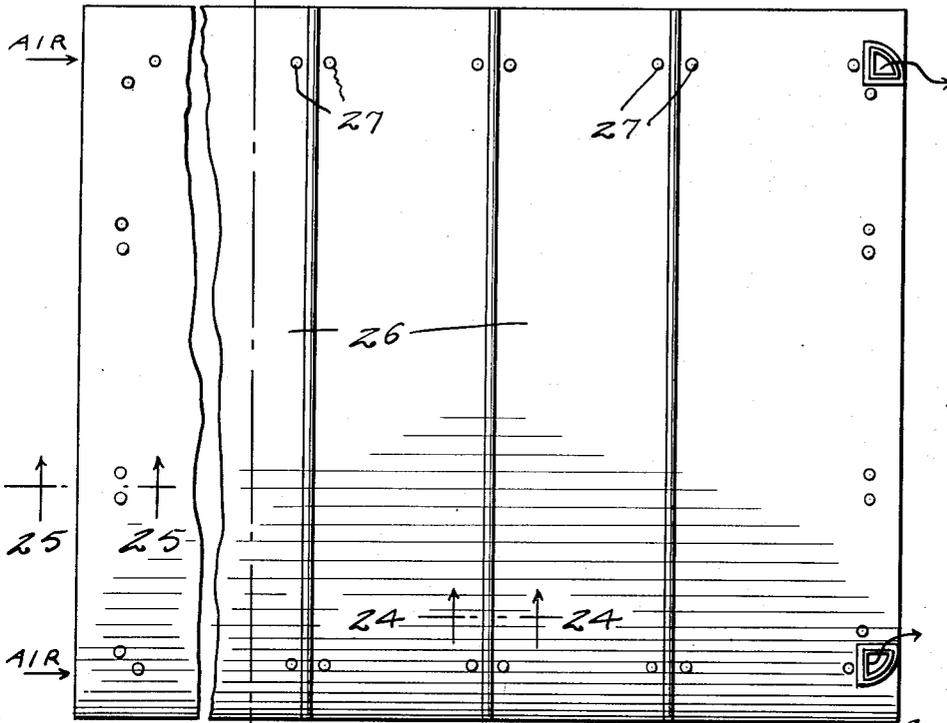
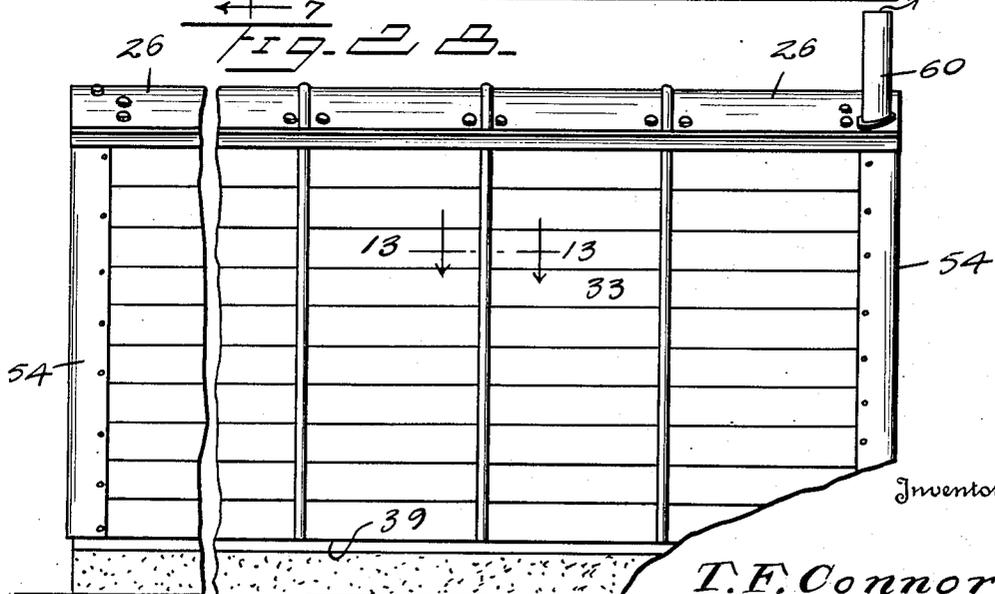


FIG. 28



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UNITED STATES PATENT OFFICE

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PREFABRICATED BUILDING CONSTRUCTION

Thomas F. Connor, Decorah, Iowa

Application November 16, 1948, Serial No. 60,307

12 Claims. (Cl. 20—2)

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This invention relates generally to housing, and more especially to novel prefabricated building construction.

The primary object of my invention is to provide a novel building construction, in which the prefabricated foundation parts, wall, partition, roof section and other units may be built with precision at the factory by mass production methods, and shipped to and assembled for temporary or permanent use at the building site or lot, with the aid of a hammer, wrench and screw driver, and without the need of employing skilled labor.

A further object of my invention is to provide a foundation, sill, skid, joist and floor assembly which will eliminate old and inefficient methods of building construction, and is designed to accommodate associated parts in an improved and substantial manner.

A still further object of my invention is to provide sectionally built wall sections which are mounted on and attached to the foundation in a novel improved way.

Still another object of my invention is to provide a foundation and wall assembly in which corner posts are eliminated, and corner space utilized for ventilation, air conditioning and heat regulation.

Still yet another object of my invention is to provide a sectionally combined joist rafter assembly which permits a plain ceiling surface and a curved roof surface.

Another object of my invention is to provide a novel prefabricated building construction, in which the foundation, side walls and roof are artistically harmonized and readily adjustable and demountable.

A further object of my invention is to provide novel ventilating, air conditioning and heat regulating means.

Another object of my invention is to provide for the introduction of flanged batten or weather strips on and between the wall and roof sections, and to provide novel means for securing the aforesaid weather strips in operative and removable position.

Another object of my invention is to provide a novel studding cap for use over end wall sections, with projecting frieze.

A further object of my invention is to provide a beveled edge water drip, at appropriate points.

Another object of my invention is to provide means for closing and rendering air and water tight, all joint openings that are caused by the drying and seasoning of the wood after the erection of the building.

Finally, the purpose of my invention is to accomplish the above objects with a material saving in materials, time, labor and cost.

With the foregoing and other objects in view that will appear as the nature of my invention is better understood, the same consists in the novel features of construction, combination and arrangement of parts illustrated in the accom-

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panying drawings and more particularly pointed out in the appended claims.

In the accompanying drawings, which are for illustrative purposes only and are therefore not drawn to scale:

Figure 1 is a plan view of the foundation and associated parts.

Figure 2 is a vertical transverse section, taken on line 2—2 of Figure 1.

Figure 3 is a horizontal section, taken above the foundation and flooring.

Figure 4 is a vertical transverse section, taken on line 4—4 of Figure 3.

Figure 5 is a side elevation, partly in section.

Figure 6 is a plan view of the roof frame.

Figure 7 is a vertical transverse section, taken on line 7—7 of Figure 27.

Figure 8 is a similar view, taken on line 8—8 of Figure 7.

Figure 9 is a detail vertical transverse section, taken on line 9—9 of Figure 7.

Figure 10 is also a vertical transverse section, taken on line 10—10 of Figure 8.

Figure 11 is a detail horizontal section, taken on line 11—11 of Figure 8.

Figure 12 is a detail vertical transverse section, taken on line 12—12 of Figure 8.

Figure 13 is a detail horizontal section, taken on line 13—13 of Figure 28.

Figure 14 is a detail vertical transverse section, taken on line 14—14 of Figure 8.

Figure 15 is a vertical transverse section, taken on line 15—15 of Figure 8.

Figure 16 is a horizontal section, taken on line 16—16 of Figure 3.

Figure 17 is a bottom plan view of one floor section.

Figure 18 is a face view, partly in section, of one rear corner of the building, showing the air intake of the ventilating system.

Figure 19 is a horizontal section, taken on line 19—19 of Figure 18.

Figure 19-A is a similar view, showing a modified form of cornice.

Figure 20 is a horizontal section, taken on line 20—20 of Figure 18.

Figure 21 is a face view, partly in section, of front corner of the building, showing the corresponding air outlet duct of the ventilating system.

Figure 22 is a plan view of the air outlet duct and associated parts.

Figure 23 is a horizontal section, taken on line 23—23 of Figure 21.

Figure 24 is a detail vertical transverse section, taken on line 24—24 of Figure 27.

Figure 25 is a similar view, taken on line 25—25 of Figure 27.

Figure 26 is an enlarged detail view of the lower auxiliary strip and corresponding foundation rails.

Figure 27 is a plan view, partly broken away, of the assembled building, and Figure 28 is a side elevation, partly broken away, of the assembled building.

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Referring to the drawings for a more particular description of my invention, and in which drawings like parts are designated by like reference characters throughout the several views, A designates the foundation, comprising the longitudinal sills 1 and 2 arranged at opposite sides thereof, the central longitudinal supporting beam 3 and the transverse end strips 4 and 5. The sills 1 and 2 are formed with the longitudinal outwardly projecting flanges 6, and are recessed along their inner side edges, as at 7, to receive the ends of the matched or interlocking tongue and grooved floor boards 8. The sills 1 and 2 and end strips 4 and 5 are bolted or otherwise fastened together at the corners of the foundation. The floor boards 8 are preferably assembled in independent sections, *a*, *b*, *c* and *d*, respectively, consisting each of four boards or units joined together by the transverse bottom cleats 9, and attention is invited to the fact that the upper faces of the floor boards are flush with the upper surfaces of the aforesaid sills and flanges, thus presenting a continuous unbroken floor surface and a greater floor area. The foundation may be assembled on the ground for portable or temporary use or on a cellar wall for permanent use.

The lower ends of the vertical studding 10 of the side walls rest on the sills 1 and 2, and the lower ends of the vertical studding 11 of the end walls are supported on the end strips 4 and 5. The lower ends of the studding 10 and 11 are fastened together by the cross bolts 12 and secured to the sills 1 and 2 and the end strips 3 and 4 by the bolts 13 and nuts 14. As shown, the shanks 15 of the fastening bolts 13 pass through corresponding openings 16 in the aforesaid sills and end strips, adjacent the corresponding vertical studding, and are fastened in place by the nuts 14, under the bottom faces of these parts.

Figure 5 of the drawings show a sectionally constructed side wall, in which 17 is the door opening, 18 the window opening and 19 a solid wall section.

The upper ends of the studding are fastened together by the cross bolts and nuts 20 and 21, respectively. The aforesaid cross bolts and nuts 20 and 21, also provide means for securing the flat elongated heads 22 of the vertical bolts 23 to the upper ends of the studding. As shown, the shanks 24 of said perpendicular bolts 23 extend upwardly through the studding caps 25 and top 26 of the roof, and the latter is held in place by the nuts 27.

Figure 6 of the drawings shows the supporting frame of the roof, which rests on top of the studding and comprises the body and end sections 28 and 29, respectively. In order to provide that the end sections 29 conform to end roof requirements, the strips 30 are bolted in spaced relation, through the use of the filler blocks 31, to the outer rails 32 of said end sections 29, with their outer faces flush with the end frame-work.

Interlocking wooden strips 33 are attached to the studding to form the side and end walls of the house, except at the top and bottom of said side and end walls, to allow openings 34 and 35 to facilitate adjustment of the bolts 13 and 23. These openings are then closed by the wooden strips 36 and 37, respectively, which are secured in place by the screws 38. The bottom edges of the strips 37 are beveled, as at 39, to facilitate the discharge of drip water. The strips 33 may be assembled and fastened to the studding at the factory, while the strips 36 and 37 are shipped in bundles and applied at the building site.

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The studding caps 25 are held firmly in place between the upper ends of the corresponding studding and the corresponding rails of the roof frame by tightening the cap nuts 27. The projecting frieze forming portions 25' of the studding caps may be fastened to said rails by the screws 40, or other equivalent means.

Particular attention is invited to the fact that by tightening the nuts of the perpendicular bolts 13 and 23, an air and water tight seal will be effected between the joints or abutting parts, and that further tightening of the aforesaid nuts may be made from time to time to compensate for any crevices or openings caused by the drying and seasoning of the wood.

In practice, the door and windows are provided with filler strips 41 and 42, respectively, and at the top with suitable water drips 43, which may be formed of sheet metal bent into the desired form, as illustrated in Figure 10 of the drawings, and fastened in place by the screws 44 and 45. The window ledge 46 is also beveled and extended outwardly, as shown in Figure 12 of the drawings, to facilitate the discharge of water, sleet, ice, etc.

Weather strips 47 are placed between all section joints to exclude cold air and rain. Each of these strips comprises the outer bead 48 of semi-circular shape in cross section, formed with a pair of inwardly extending parallel flanges 49, between which is interposed and carried a strip 50 of suitable insulating material. As shown in Figure 11, the flanges and insulating strip 50 of the weather strips 47 are inserted in the corresponding joints or openings, with the beads fitting against the outer faces of the adjacent parts.

An important feature of my invention is the ventilating system utilized for the introduction of fresh air into the interior of the building and the subsequent discharge of the stale or vitiated air to the outside. In carrying out these objects, the corners at one end of the building are provided with perpendicular air ducts 51, which are formed by the adjacent right-angularly disposed studding covered by the curved cornice strips 52 to permit the ingress of the fresh air into the interior of the building, and the corners at the opposite end of the building are provided with perpendicular air ducts 53 to facilitate the discharge of the stale or vitiated air to the outside, said air ducts 53 also being formed by the adjacent right-angularly disposed studding covered by the curved cornice strips 54. The lower ends of the cornice strips 52 are formed with openings 55 adapted to be closed by the sliding shutters 56, operated by cords or flexible elements 57 extending into the interior of the building within convenient reach of the operator. The upper ends of the perpendicular air ducts 51 are formed with vents 58, which permit the passage of the fresh air from the former into the interior of the building. The perpendicular air ducts 53 are provided at their lower ends with transverse vent openings 59, which receive the stale vitiated air which passes upwardly along said air ducts and finally discharges to the outside through the flanged stacks 60. The stacks 60 increase the draft and hence, increase the circulation of the air into and out of the building. The openings 55 may be closed or opened by the shutters 56 as desired and hence, the circulation of the fresh air into the building is at all times under the control of the operator. In this way, the air in the building may also be conditioned and the temperature controlled within certain limits.

It will be understood that the several component parts will be formed and joined together in

such a way as to create the most artistic and harmonious effect, and with a view of saving time, labor and expense.

From the foregoing description taken in connection with the drawings, it is thought that the construction, operation and advantages of my invention will be readily understood, without requiring a more extended explanation.

Various changes in the form, proportions and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of my invention, as defined in the appended claims.

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

1. A prefabricated building comprising a floor member, a roof member, side and end wall members having a vertical stud element at each end of said side and end wall members respectively, a foundation member adapted to support said floor member and form an air-excluding juncture therewith and adapted to support said side and end wall members, said side and end wall members being disposed at right angles to each other in a manner such that said vertical stud elements form a vertical, exterior, right angle void at each corner of said building, a cover plate member attached to said end and side wall members and covering said voids to form a duct at each of said corners, means for admitting atmospheric air to at least one of said ducts, means for admitting said atmospheric air from said first-mentioned duct to the interior of said building, means for discharging vitiated air from the interior of said building to at least one of said ducts at the opposite end of said building relative to said first-mentioned duct, means for discharging vitiated air from said second-mentioned duct to the atmosphere, means for attaching said side and end wall members to said foundation member and means for attaching said roof member to said side and end wall members.

2. A structure in accordance with claim 1 wherein said means for admitting atmospheric air to said first-mentioned duct is a manually operated shutter positioned in the lowermost portion of said cover plate member, said means for admitting atmospheric air from said first-mentioned duct to the interior of said building is an opening in the uppermost portion of said stud elements, said means for discharging vitiated air from the interior of said building to said second-mentioned duct is an opening in the lower portion of said stud elements, and said means for discharging vitiated air from said second-mentioned duct to the atmosphere is a stack positioned over the upper end of said second-mentioned duct.

3. A structure in accordance with claim 1 wherein said cover plate member is an outwardly curved vertical strip.

4. A structure in accordance with claim 1 wherein said side and end wall members comprise a plurality of sheathed rectangular sections having a vertical stud element at each side thereof and include means for attaching said sections together to form unitary end and side wall members and sealing means disposed between each of said centrally located sections to exclude air.

5. A structure in accordance with claim 4 wherein said sealing means comprise outer beads of semicircular form in cross section formed with inwardly extending parallel spaced flanges with compressible insulating strips interposed between and carried by said flanges.

6. A structure in accordance with claim 1 wherein said foundation member comprises end and side elements and said end and side elements have outwardly projecting flanges in the upper portion thereof adapted to receive said means for attaching said side and end wall members to said foundation member and expose said attaching means to the exterior of said building and having inner recesses in the upper portion of said side and end elements adapted to receive and support said floor member and form a flush juncture with said floor member at the upper surface thereof.

7. A structure in accordance with claim 6 wherein said means for attaching said side and end wall members to said foundation member are bolt means attached to said side and end wall members, passing through said flanges of said side and end elements, and terminating in adjustable nuts at the outside bottom of said building.

8. A structure in accordance with claim 1 wherein said means for attaching said roof member to said side and end wall members are bolt means attached to said end and side wall members, passing through said roof member, and terminating in adjustable caps at the outside top of said building.

9. A structure in accordance with claim 1 wherein said roof member comprises a plurality of curved sheathed sections and includes means for attaching said sections together to form a unitary roof member and sealing means disposed between each of said centrally located sections to exclude air.

10. A structure in accordance with claim 9 wherein said roof member is attached to said side and end wall members through a frieze-forming plate resting on the upper end of said side and end wall members.

11. A structure in accordance with claim 9 wherein said sealing means comprise outer beads of semicircular form in cross section formed with inwardly extending parallel spaced flanges with compressible insulating strips interposed between and carried by said flanges.

12. A structure in accordance with claim 1 wherein said floor member comprises a plurality of fitted rectangular sections and includes means for attaching said sections to each other to form a unitary floor member.

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