

No. 618,851.

Patented Feb. 7, 1899.

E. E. DUNBAR.
PORTABLE BUILDING.

(Application filed Apr. 18, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

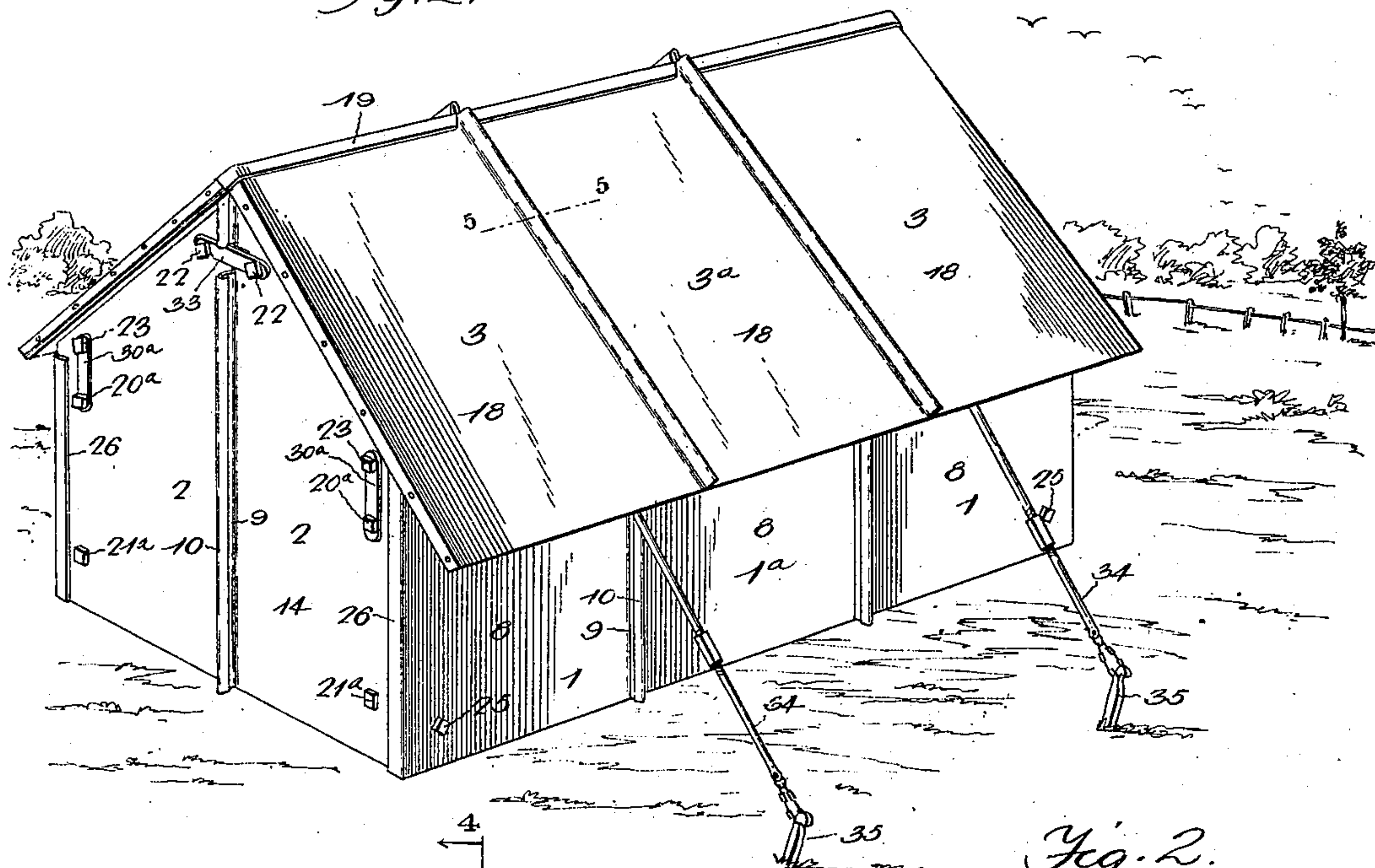
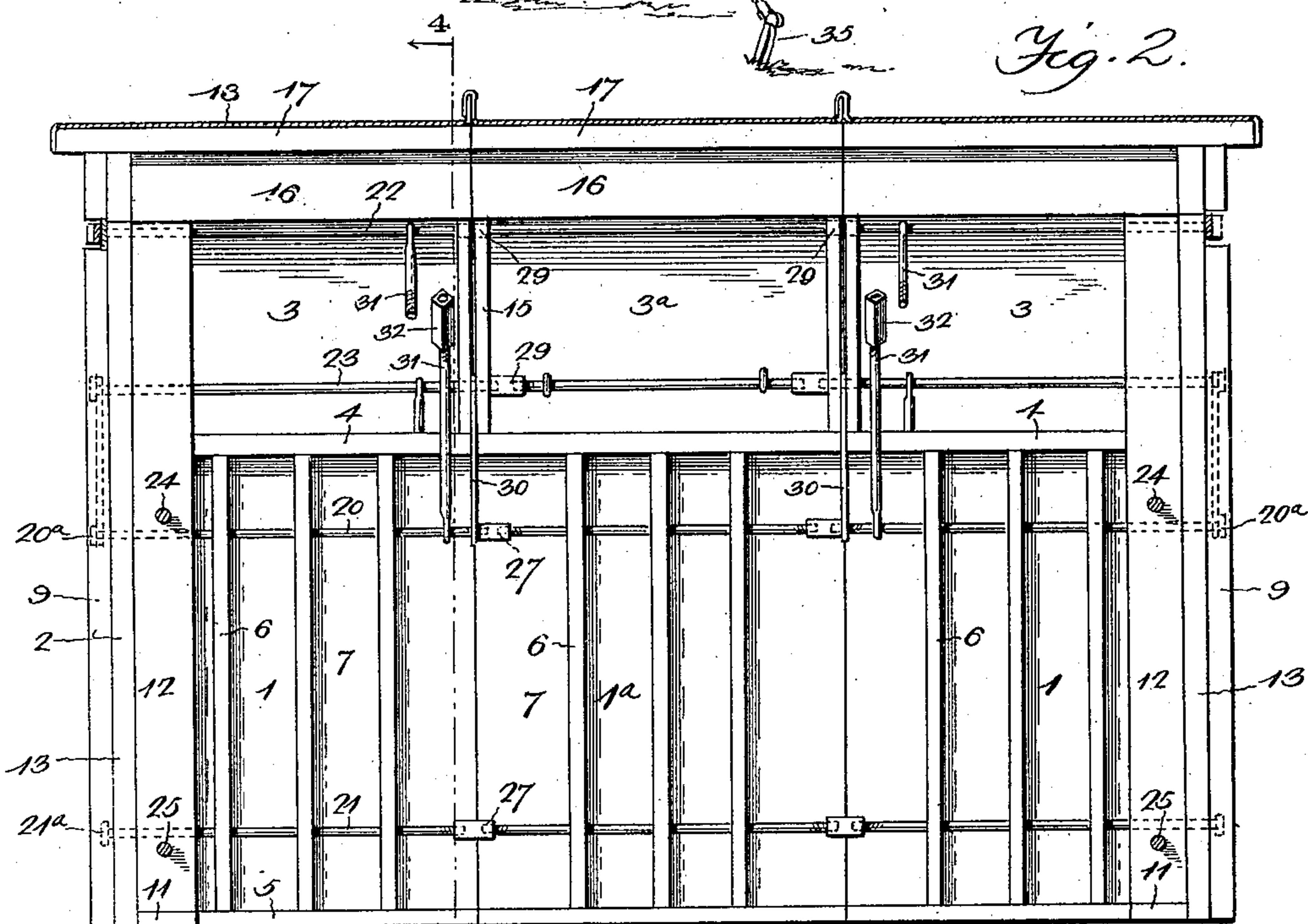


Fig. 2.



Witnesses

J. Gauphulverwell.

By 7175 Attorneys,

Emmerson E. Dunbar, Inventor,

C. A. Snow & Co.

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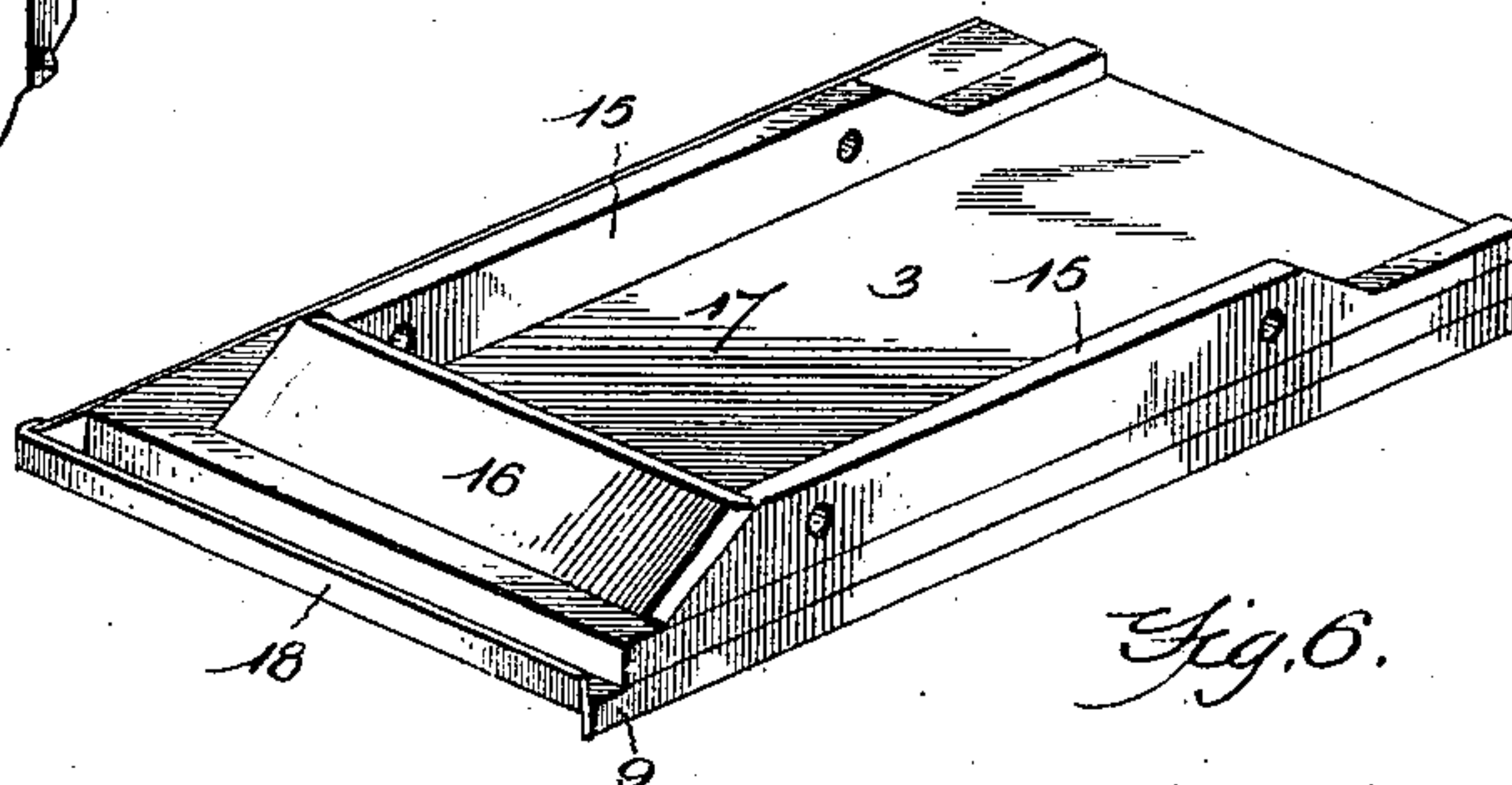
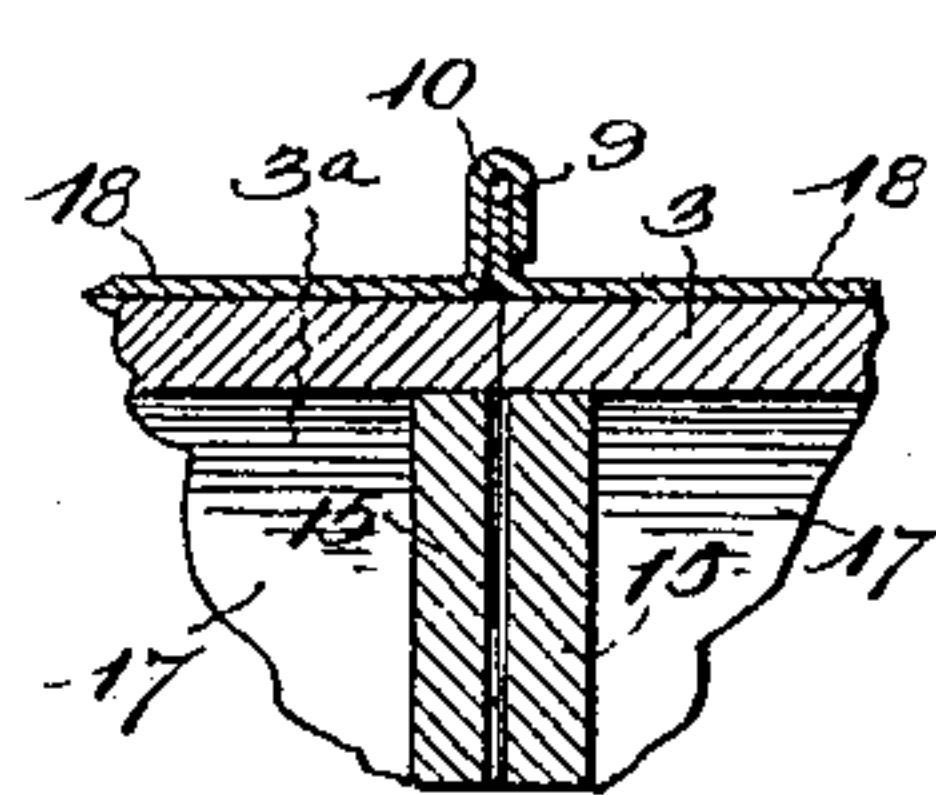
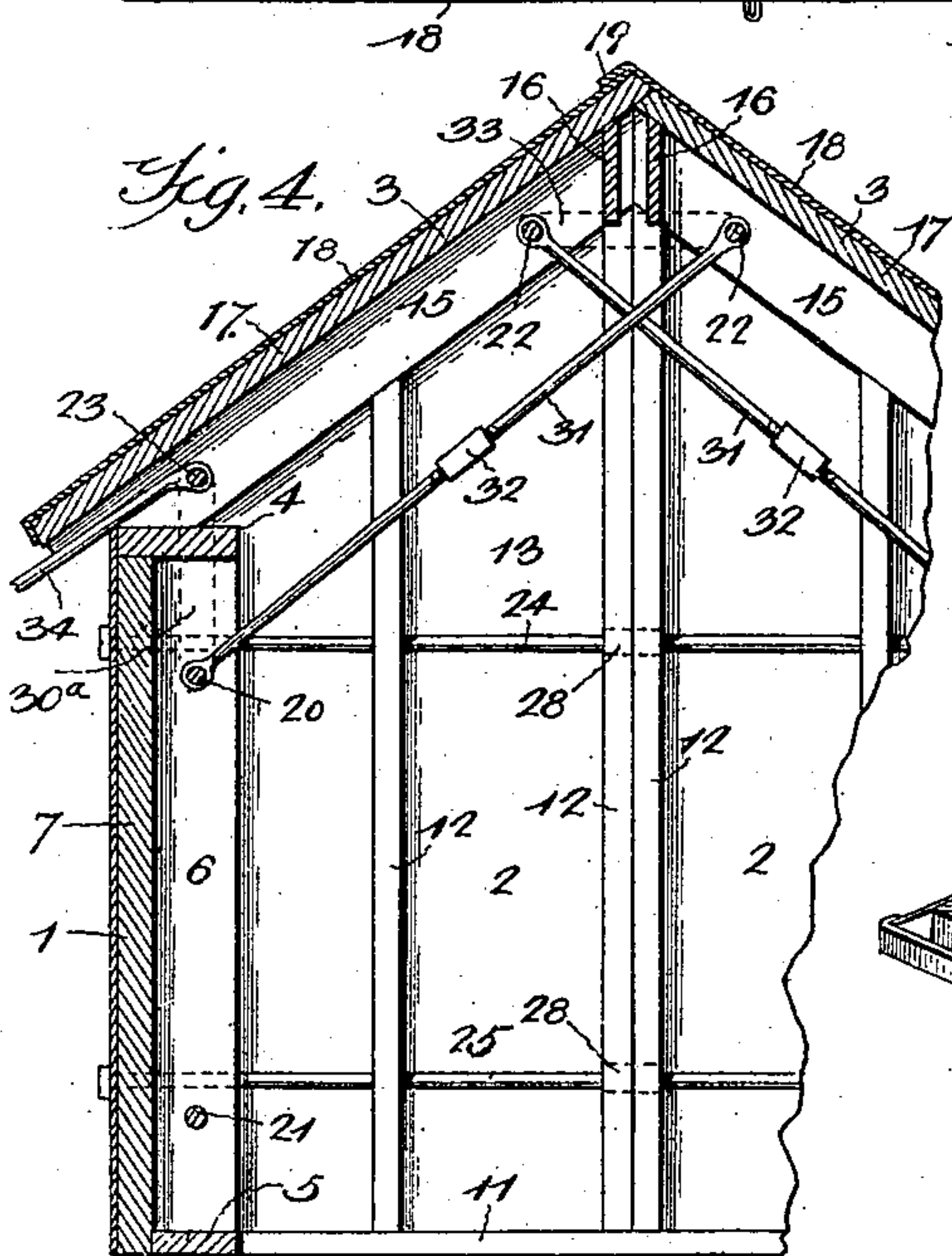
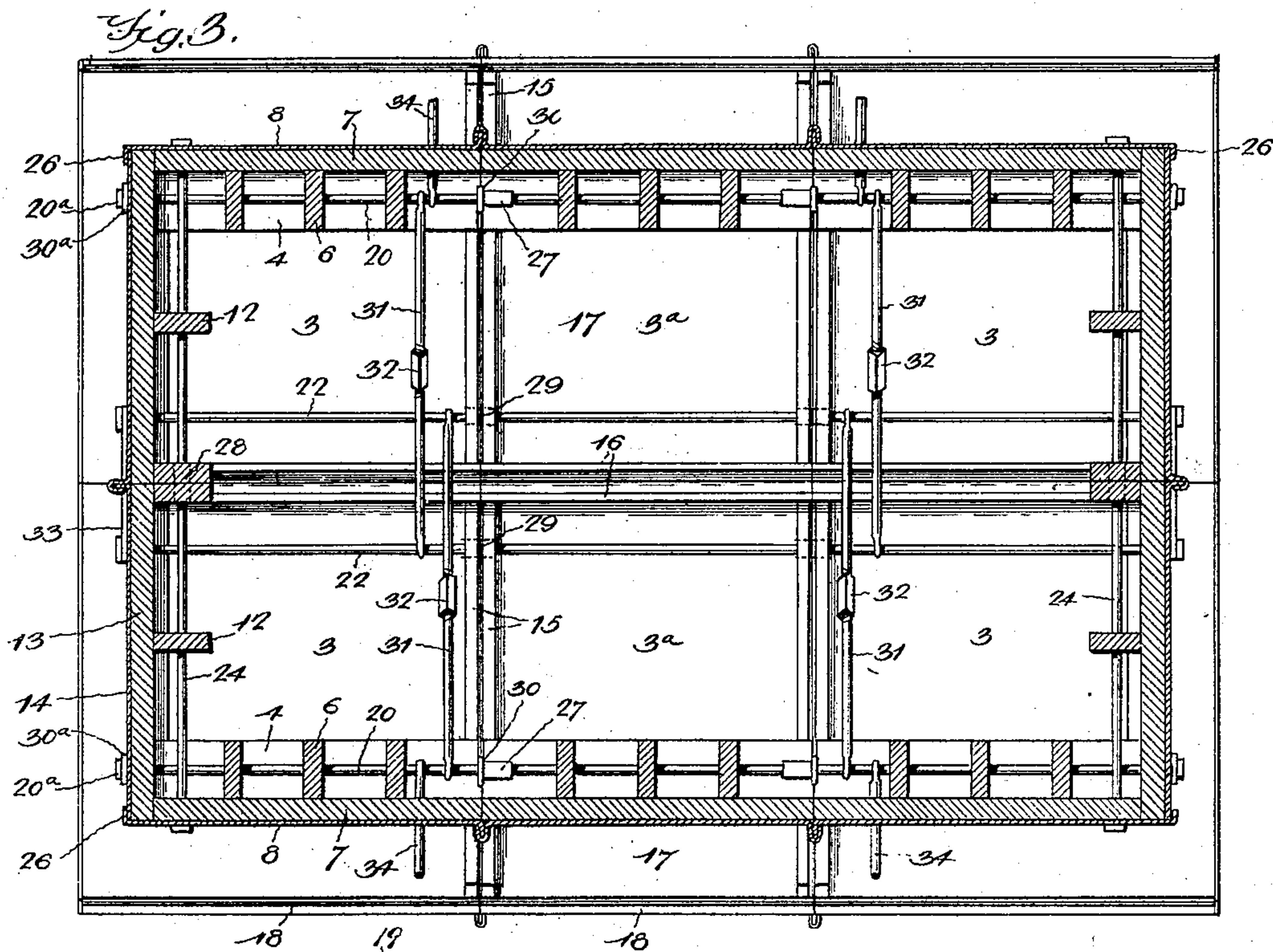
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2 Sheets—Sheet 2.



Witnesses

J. Frank Culverwell.

By His Attorneys.

Emmerson F. Dunbar, Inventor.

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

EMMERSON E. DUNBAR, OF DELTA, OHIO, ASSIGNOR OF ONE-HALF TO
STEPHEN A. LUTHY, OF SAME PLACE.

PORTABLE BUILDING.

SPECIFICATION forming part of Letters Patent No. 618,851, dated February 7, 1899.

Application filed April 18, 1898. Serial No. 678,022. (No model.)

To all whom it may concern:

Be it known that I, EMMERSON E. DUNBAR, a citizen of the United States, residing at Delta, in the county of Fulton and State of Ohio, have invented a new and useful Portable Building, of which the following is a specification.

My invention relates to building construction, and has for its object to provide a portable sectional building adapted to be assembled, knocked down, and transported with facility, the parts being so braced and connected as to be mutually supporting and to effectually exclude rain, snow, and wind.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a building constructed in accordance with my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a horizontal inverted section taken in the plane of the upper side-wall tie-rods, as indicated by the line 3 3 of Fig. 2. Fig. 4 is a partial transverse vertical section on the line 4 4 of Fig. 2. Fig. 5 is a detail longitudinal section of the joint between two contiguous roof-sections on the line 5 5 of Fig. 1. Fig. 6 is an inverted perspective view of one of the roof-sections.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The structure embodying my invention consists of sectional side and end walls secured together with interlocking joints at their meeting edges, a sectional roof having its members similarly interlocked at their contiguous edges, and suitably-overhanging plates at the upper edges of the side walls to exclude wind and rain and give a suitable amount of ventilation. In the construction illustrated the building is of the gable type, as being specially adapted for the purposes for which my invention is designed; but it will be understood that I do not desire to be limited strictly either in this feature or as to the number of sections employed in the construction of the several walls of the building.

Referring to the drawings, the side walls consist of terminal sections 1 and an intermediate section 1^a, it being understood that any desired number of intermediate sections may be employed to suit the size of the building which is to be constructed. The end walls consist of sections 2 and the roof of terminal and intermediate sections 3 and 3^a.

Each side-wall section comprises a frame-work consisting of a plate 4 and a sill 5, connected by vertical studs 6, and a light boarding 7 or the equivalent thereof, said boarding being preferably covered exteriorly by a sheathing 8, of sheet metal or the equivalent thereof. The sheathing-sections at the contiguous edges of adjoining wall-sections are provided with interlocking edges, formed in the construction illustrated by upturning the edges and folding one of the edges to receive the other. For instance, the edge of one of two adjoining sheathing-sections is upturned to form a flange 9, and the edge of the other sheathing-section is also upturned, but is doubled upon itself to form a parallel walled groove 10, in which the flange of the first-named section is fitted to break the joint, and thus exclude air and moisture.

The end-wall sections are constructed similarly to the side-wall sections, with the exception that the plates are omitted, said walls thus comprising sill-sections 11, studding 12, boarding 13, and exterior sheathing 14, the contiguous edges of adjoining end-wall sections being interlocked, as hereinbefore described in connection with the side-wall sheathing-sections.

The roof-sections consist of rafters 15, connected at their beveled upper ends by ridge-pole sections 16, boarding 17, and sheathing-sections 18, said rafters being shouldered contiguous to their lower ends to rest upon the side-wall plates 4, as in the ordinary building construction. The contiguous edges of the sheathing-sections 18 are also interlocked, as hereinbefore described in connection with the side-wall sheathing-sections, and the upper edges of the sheathing-sections 18 are so constructed as to break joint at the comb of the roof. The construction which is illustrated in the drawings embodies the termination of the sheathing-plates on the roof-sections.

tions of one side of the roof flush with the upper edges of the roof-boarding 17, while the sheathing-plates on the roof-sections of the other side of the roof are extended beyond the upper edge of the boarding and are flanged, as shown at 19, to overlap and break joint with the upper edges of the sheathing on the first-named roof-sections. The upper edges of the boarding on the second-named sections, however, abut against the under surfaces of the boarding of the first-named sections. This constitutes a double break-joint, which I have found to be effective in connection with construction of this class.

The means which I employ for maintaining the above-described wall and roof sections in their proper relative positions include longitudinal upper and lower side-wall tie-rods 20 and 21, longitudinal upper and lower roof tie-rods 22 and 23, and upper and lower transverse or end-wall tie-rods 24 and 25. The corresponding side and end wall tie-rods are arranged in contiguous horizontal planes, with their remote extremities extending through the walls of the structure and headed to bear against the exterior surfaces thereof. For instance, the side-wall tie-rods extend through registering openings in the side-wall studding and also through aligned openings in the end-wall sections and are headed, as shown at 20^a and 21^a, and the end-wall tie-rods extend through aligned openings in the studding 12 and in the side-wall sections and are correspondingly headed in contact with the exterior surfaces of the side walls. Correspondingly, the upper and lower roof tie-rods extend through registering openings in the rafters and also through aligned openings in the end-wall sections and are terminally headed in contact with the exterior surfaces of said section. This system of tie-rods thus has the effect of securing the absolute alignment of the several sections comprising each wall of the structure and also the proper maintenance of the outer edges of the side and end wall sections in operative contact, and by flanging the outer edges of the terminal side-wall sheathing-plates, as shown at 26, to overlap the contiguous edges of the end-wall sheathing-plates an effective break-joint is formed, which excludes moisture and wind at those points. It is desirable, however, to so construct the tie-rods as to provide for their manufacture at a minimum cost and at the same time facilitate their engagement and disengagement in the operation of assembling and disconnecting the members of the structure. In order to accomplish this, I construct the tie-rods in sections, which belong to and are carried, respectively, by the several wall and roof sections. For instance, each side-wall tie-rod consists of a plurality of tie-bolt or tie-rod sections, corresponding in number with the side-wall sections, and upon each intermediate side-wall section is arranged a plurality of right and left threaded nuts 27, into which

the inner threaded extremities of the outer tie-bolt sections are fitted. These nuts may be and preferably are carried by the intermediate tie-bolt sections, into which the extremities of said intermediate sections are threaded in order that additional adjustment may be made at these points; but under any circumstances said nuts are connected by intermediate tie-bolt sections, whereby when the terminal tie-bolt sections are engaged with the nuts and are tightened by adjustment exteriorly of the walls of the structure the strain applied to the members of the structure is the same as though a continuous tie rod or bolt were to be used extending from one wall of the building to the diametrically opposite wall. In other words, the advantage of this arrangement is that the boarding and sheathing are relieved of strain, and the only strain which is applied to the wall-sections is to the frames thereof by the terminal bearing of, for instance, the end-wall sections against the extremities of the side walls. This provides for forcing the contiguous edges of the several side-wall sections into close contact, and thus insuring an efficient bearing of the sections at their meeting edges. The end-wall tie-bolts are correspondingly constructed, with the exception that, as illustrated, the tie-bolt sections extending inwardly from opposite side walls of the building are threaded into a common right and left threaded nut 28, located contiguous to the meeting edges of the end-wall sections. In the same way the sectional construction of tie-rods is applied to the roof-sections of the structure, each intermediate roof-section carrying right and left threaded nuts 29, attached to the extremities of the intermediate tie-bolt sections and adapted to be engaged by the contiguous ends of the terminal tie-bolt sections in order that when the tie-bolts are tightened by the adjustment of the terminal sections a practically continuous rod will be formed, extending from one end wall to the other.

The lower edges of the roof-sections are anchored by means of links 30, having terminal eyes, which are fitted, respectively, upon the upper side-wall tie-rods 20 and the lower roof tie-rods 23, said links in the construction illustrated being arranged in the planes of the joints between the side-wall and roof sections; but it will be understood that while this is a convenient arrangement it is possible to materially vary these positions in order to secure the desired results in connection with buildings of different sizes and designed for different purposes without varying the principle of the construction. In addition to the anchor-links which are arranged within the building I also preferably employ auxiliary links 30^a, connecting the tie-rods 20 and 23 in contact with the exterior surfaces of the end walls, as shown.

The upper ends of the roof-sections are anchored by means of tensile roof-braces 31, which are of sectional construction and are

terminally attached, respectively, to the upper side-wall tie-bolts 20 at one side of the building and the upper roof tie-bolts 22 at the opposite side of the building, the contiguous ends of the brace-sections being threaded into right and left threaded nuts 32 or being otherwise connected by means adapted for varying the tension of the braces. The above-described arrangement of the roof-braces applies the strain thereof to each upper roof tie-bolt in a direction approximately perpendicular to the plane of those roof-sections by which said tie-bolt is carried, whereby any outward strain applied to the roof-sections will be resisted directly by the roof-braces, with no tendency to twisting and without subjecting them to any transverse strain. As additional means for insuring the proper relative positions of the roof-sections I preferably connect the upper roof tie-bolts by means of tie-links 33, which in the construction illustrated are arranged interiorly of the end walls, but may be disposed between said bolts at any other preferred points; also, under some circumstances it is desirable to employ anchor-rods 34, extending from the lower roof tie-bolts to anchor-pins 35, arranged exteriorly of the structure, as shown in Fig. 1.

From the above description it will be seen that the structure embodying my invention may be knocked down for storage or transportation by the disconnection of the several tie-bolts and roof-braces and may be reassembled at the desired point without the use of tools other than a wrench or the equivalent thereof for securing the desired tension of said bolts and braces, and, furthermore, that the number of sections into which the several wall and roof members of the building may be divided in order to secure the desired facility of erection and transportation may be varied to suit the dimensions of the structure, and that various other changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a portable building, the combination with side walls and a roof composed of separable sections, of tie-bolts arranged parallel, respectively, with the walls and roof members, and adjustable tensile braces connecting upper wall tie-rods with the roof tie-rods, substantially as specified.

2. In a portable building, the combination with walls and a roof composed of separable sections, the roof being of pitched construction, of tie-bolts arranged respectively parallel with the walls and roof members, anchor-links connecting the wall tie-bolts with the lower roof tie-bolts, and adjustable tensile braces connecting the wall tie-bolts with upper roof tie-bolts, substantially as specified.

3. In a portable building, the combination with a roof and walls each composed of a

plurality of separable sections, and having frames respectively including rafters and studs, of tie-bolts extending through registering openings in said frame members and having bearings against exterior surfaces of opposite walls, and connections between the tie-rods of the wall-sections and those of the roof-sections, substantially as specified.

4. In a portable building, the combination with a roof and side walls each composed of separable sections, of sectional tie-bolts arranged respectively parallel with the roof and wall sections, the remote extremities of the terminal tie-bolt sections being headed for contact with the exterior surfaces of opposite walls, and the contiguous extremities of adjoining tie-bolt sections being connected by engaged adjusting devices, and connections between the tie-bolts of the side walls and those of the roof-sections, substantially as specified.

5. In a portable building, the combination with a roof and walls each composed of separable sections, of tie-bolts arranged respectively parallel with the roof and walls, and each composed of a plurality of sections corresponding in number with the respective walls, the intermediate wall and roof sections carrying permanently-attached tie-bolt sections, provided with terminal adjusting-nuts for engagement with the contiguous ends of terminal tie-bolt sections, and means for connecting the tie-bolts of the wall-sections with those of the roof-sections, substantially as specified.

6. In a portable building, the combination of a roof and walls each composed of a plurality of separable sections, each section having a frame and an exterior sheathing, tie-rods parallel with the planes, respectively, of the wall and roof sections for connecting the same in series, and roof-securing devices connecting the tie-bolts of the walls with those of the roof, the sheathing-sections being interlocked at their contiguous edges, substantially as specified.

7. In a portable building, the combination of a roof and walls each composed of a plurality of separable sections, each section having a frame and an exterior sheathing, tie-rods parallel with the planes, respectively, of the wall and roof sections for connecting the same in series, and roof-securing devices connecting the tie-bolts of the walls with those of the roof, the sheathing-sections being provided at their contiguous edges respectively with flanges and flange-receiving grooves, substantially as specified.

8. In a portable building, the combination of a roof and walls each composed of a plurality of separable sections, each section having a frame and an exterior sheathing, tie-rods parallel with the planes, respectively, of the wall and roof sections for connecting the same in series, and roof-securing devices connecting the tie-bolts of the walls with those of the roof, the sheathing-sections being pro-

vided with interlocked contiguous edges, and the sheathing-sections at the cone of the roof having overlapping flanges, substantially as specified.

5 9. In a portable building, the combination of side and end walls, and a roof, each composed of a plurality of separable sections, upper and lower tie-bolts arranged respectively parallel with the wall and roof sections,
10 anchor-links connecting the upper side-wall tie-bolts with the lower roof tie-bolts, and tensile braces connecting the upper side-wall tie-bolts with the upper roof tie-bolts, the braces extending from opposite sides of the structure
15 being disposed in intersecting planes, and consisting of adjustable sections connected by threaded adjusting devices, substantially as specified.

10. In a portable building, the combination

with sectional side and end walls and a sectional hipped roof, of longitudinal and transverse tie-bolts arranged respectively parallel with and engaging the framework of the side and end wall sections, upper and lower tie-bolts connecting the roof-sections, anchor-links connecting side-wall tie-bolts with the lower roof tie-bolts, adjustable tensile braces connecting side-wall tie-bolts with upper roof tie-bolts, and tie-links transversely connecting the upper roof tie-bolts, substantially as
20 specified. 25 30

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EMMERSON E. DUNBAR.

Witnesses:

GEO. A. EVERETT,

N. F. CARMON.