(No Model.) 3 Sheets—Sheet 1.

A. C. LAUBER.

PORTABLE HOUSE OR TENT.

No. 490,205. Patented Jan. 17, 1893.

Fig. 1.

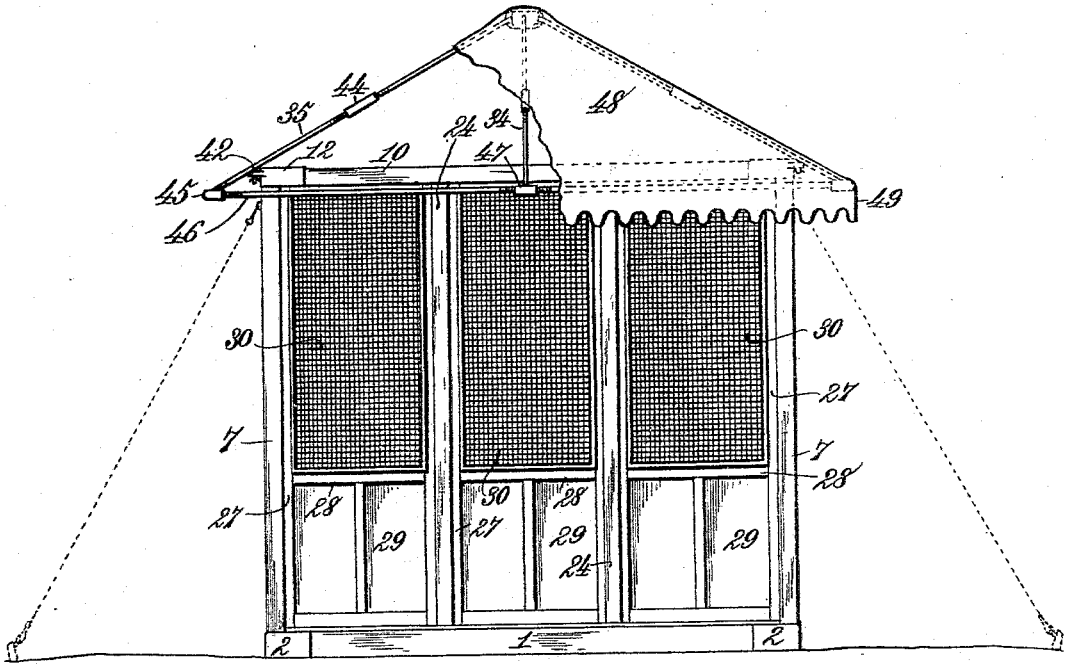
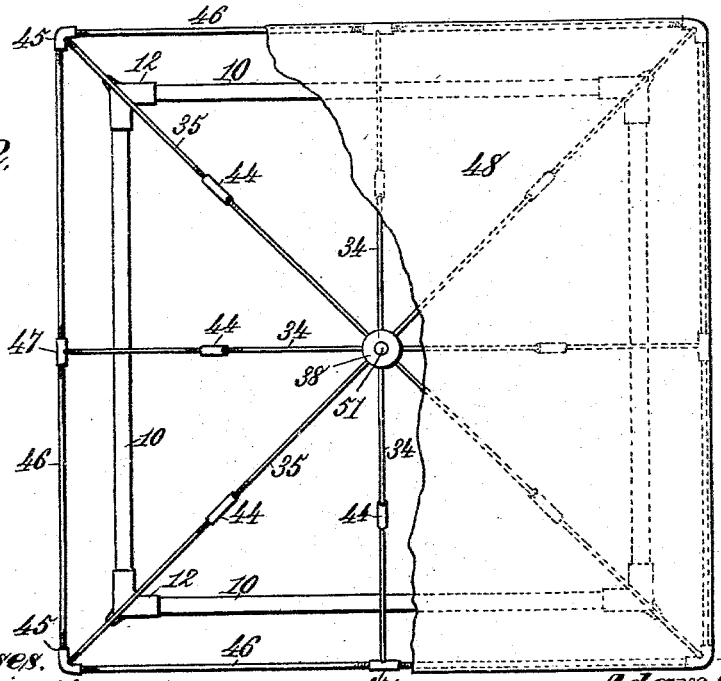


Fig. 2.



Witnesses.
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J. A. Rutherford.

Inventor.
Adam C. Lauber.
By James L. Norris.
Atty.

(No Model.) 3 Sheets—Sheet 2.

A. C. LAUBER.

PORTABLE HOUSE OR TENT.

No. 490,205. Patented Jan. 17, 1893.

Fig. 3.

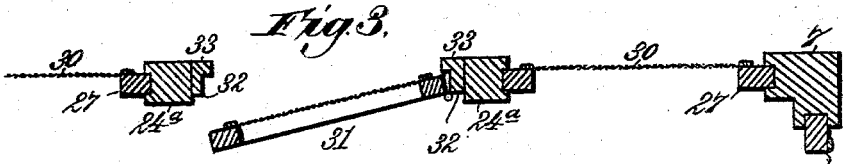


Fig. 4.

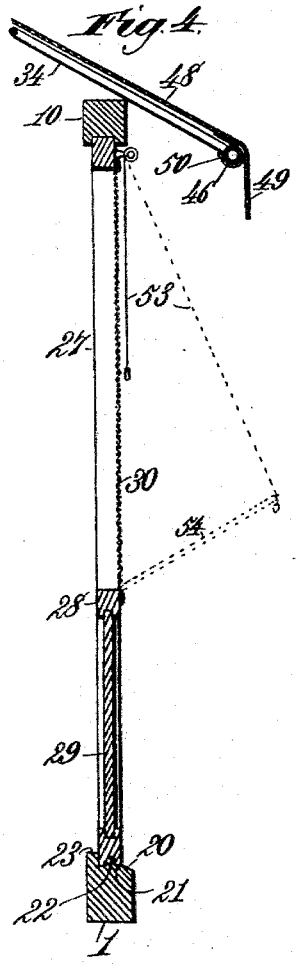
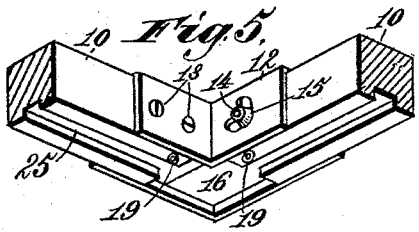
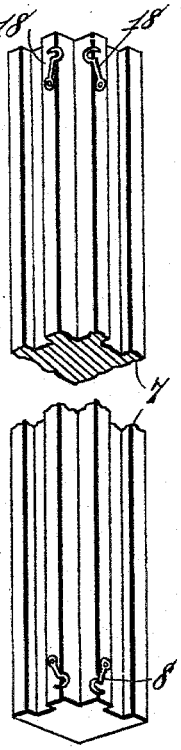
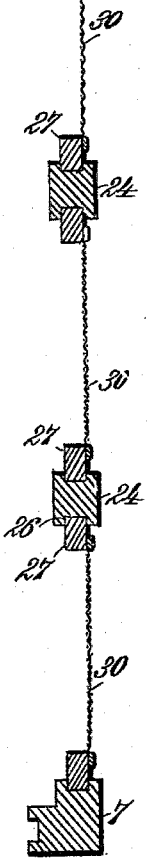
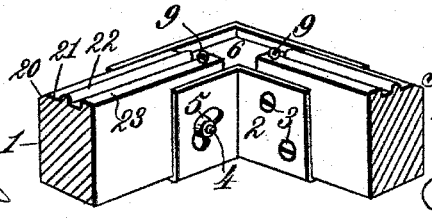


Fig. 5.









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(No Model.) 3 Sheets—Sheet 3.

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Fig. 8

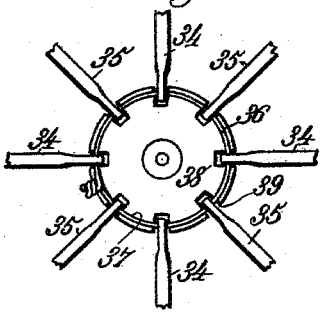


Fig. 7.

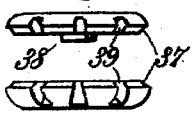
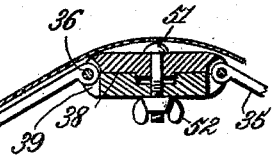


Fig. 6.



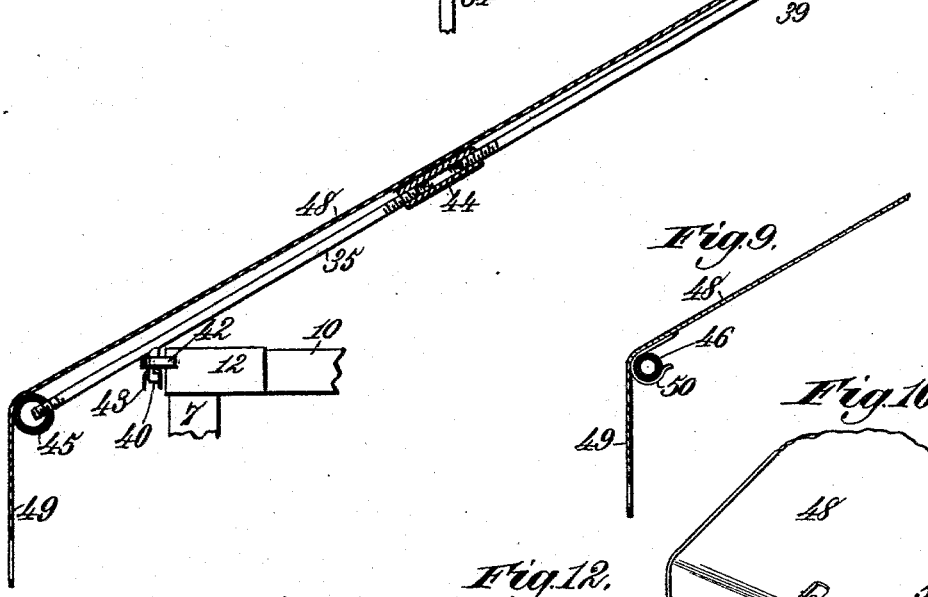


Fig. 9.

Fig. 10.

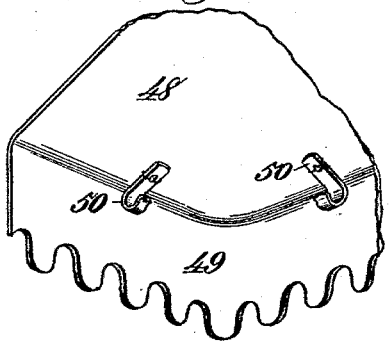


Fig. 11.

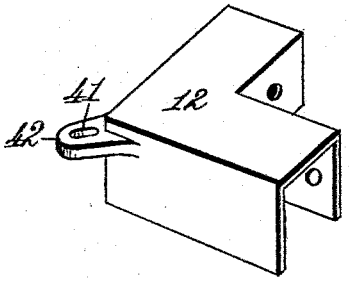


Fig. 12.

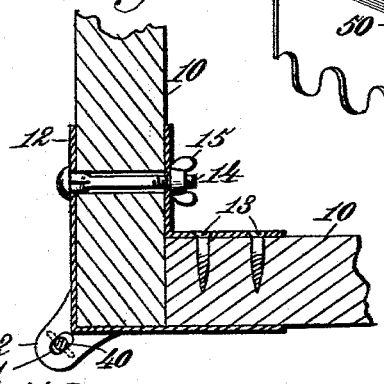
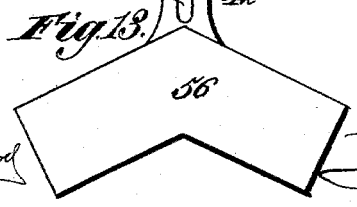


Fig. 13.



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UNITED STATES PATENT OFFICE.

ADAM C. LAUBER, OF CINCINNATI, OHIO.

PORTABLE HOUSE OR TENT.

SPECIFICATION forming part of Letters Patent No. 490,205, dated January 17, 1893.

Application filed July 28, 1892. Serial No. 441,531. (No model.)

To all whom it may concern:

Be it known that I, ADAM CHARLES LAUBER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Portable Houses or Tents, of which the following is a specification.

My invention relates to that class of structures commonly known as portable houses, including in said term any inclosure within walls and beneath a roof which is formed of parts previously constructed and fitted and capable of being rapidly combined with other constituent parts to form a complete, or even a partly completed structure, having a like capacity of being taken apart, or dismembered, and packed in a small space for transportation, or storage.

It is the purpose of my invention to provide a structure of this type which shall comprise—First. A novel, simple and improved construction of the sills of the frame, in combination with angular metallic shells, or castings, whereby they may be easily and quickly connected at the required angle and disconnected with equal facility, each angular shell, or casting, forming a permanent adjunct of one of said sills, to reduce the number of separable parts and avoid the possibility of loss, misplacement, or improper attachment of said parts: Second. A provision in the sills, or in one of the same, for the support of the corner-posts, or similar vertical portions of the frame of the structure, having combined therewith suitable fastenings for the same: Third. Any structure of the type specified having means for the attachment and support of frames containing solid panels, screens, textile fabric, or any other material preferred for the construction of the inclosing walls, and with attachable and removable devices for the proper attachment of one or more doors of suitable construction: Fourth. Means for detachably connecting the ends of the tie-beams, having combined therewith devices for giving a positive fastening and support of the rafters at the ridges, or gables, of the roof, the tie-beams, like the sills, being provided with seats for the upper ends of the corner posts, and with fastenings for the preservation of their respective relations, one to the other: Fifth. A portable structure of the type specified, a roof-frame comprising a crown-terminal and radiating, attachable and detachable rafters, so constructed as to be readily capable of variation in length, the ridge-rafters being positively attachable to the angular castings connecting the tie-bearings and projecting beyond the same to form overhanging eaves: Sixth. A suitable roof-frame and suitable canopy, or inclosing fabric, of any preferred material, positively connected at the eaves and stretched by the longitudinal adjustment of the rafters, the entire structure of the roof being removable from the walls, with or without the canopy, or inclosing fabric, the rafters having a pivotal connection with the crown terminal by which they may be folded into substantial parallelism or, if preferred, wholly separated from said terminal by disconnecting the two parts of the latter.

It is my purpose, finally, to simplify and improve the construction of structures of this class; to provide for the easy and speedy erection of the same of any dimensions, and having any desired form, without requiring skilled labor, or special tools; to reduce the number of essential parts and the weight and bulk of said parts and enable the latter to be stowed, or packed, in a small space, to promote the ease and diminish the expense of transportation; to provide a temporary, or a permanent building of portable character, walls of which, or parts thereof, may be arranged at any desired angle, and to furnish at reasonable expense structures of this type which shall be capable of resisting the weather and practically impermeable by storms.

My invention consists, to these ends, in the several novel features of construction and new combinations of parts hereinafter fully set forth and finally pointed out more definitely in the claims which are annexed to this specification.

To enable others skilled in the art to which my said invention pertains to fully understand and to make, construct and use the same, I will now describe said invention in detail, reference being had for such purpose to the accompanying drawings, in which—

Figure 1 is an elevation showing one form

of a portable house, or tent, embodying my invention—part of the roof being broken away to show the interior. Fig. 2 is a plan view of the same, part of the roof, or covering, being broken away. Fig. 3 is a horizontal section of one wall, or siding, and part of one of the adjoining walls, the section-plane lying in the upper half of Fig. 1. Fig. 4 is a vertical section of one of the walls, including a portion of the roof, or covering. Fig. 5 is a detail perspective of one of the corner-irons, or castings, used to connect the ends of the tie-beams, the end-portions of the latter being shown to illustrate the construction of the seat for the upper end of a corner-post, said post and the lower corner-iron, or casting, being included in the figure, with the ends of the sills engaged therein, to show the seat and fastenings for the lower end of the corner-post. Fig. 6 is a vertical section on an enlarged scale, to show the crown-terminal, one of the ridge-rafters, the positive connection to the upper corner-iron, the canopy, or covering, its connections to the crown-terminal, and eaves, and the means for stretching said canopy. Fig. 7 is a detail elevation of the crown-terminal, disconnected from other parts. Fig. 8 is a plan view of the lower half of the crown-terminal, showing the ends of the rafters connected. Fig. 9 is a detail section of one of the eaves, to show the positive connection of the canopy, or covering. Fig. 10 is a detail perspective of part of the canopy, or covering, showing the inner face of one of the corner-portions. Fig. 11 is a detail perspective of one of the upper corner-irons, showing the lug supporting and giving positive fastening to the ridge-rafter. Fig. 12 is a detail section taken horizontally through the corner-iron shown in Fig. 11 and through the end-portions of the tie-beams. Fig. 13 is a detail view of a corner-iron, or casting, having an angle greater than a right angle, to adapt it to the formation of buildings, or tents, of various forms, or to the construction of bay-windows, bowed-fronts, or other portions of the main-structure, or adjuncts of the same.

In the said drawings the reference-numeral 1 indicates the sills of a portable house, or similar structure. I have shown four of these sills, arranged substantially in the form of a rectangle, this being the simplest form employed, but it is evident that I may vary this form to any degree desired, and arrange the sills at various angles, means being provided for the purpose, as explained in a subsequent portion of this specification. The sills are constructed of suitable timber or other substance, and have dimensions proportioned to the size of the structure which is to rest thereon. They are connected at their ends by corner-irons 2, each of which consists of a cast-iron, or malleable iron structure, in the form of a shell, or housing, of angular form, inclosed upon its lower side, or bottom, and upon both vertical sides, but open at the ends and upon the upper side. In one of the open ends of said corner-irons is inserted the extremity of one of the sills, its square end being placed flush, or substantially so, with the inner surface of the inner, vertical side of the intersecting part of the said corner-iron, in the manner shown in Figs. 5 and 12. Screws 3 are then inserted through a wall of the corner-iron, to fasten it to the end of the sill and make it a permanent adjunct thereof. The end of the adjoining sill is then inserted in the other part of the corner-iron, until its square end abuts against the outer wall of the part in which the permanently attached sill lies, the side-face of the second sill lying against, or close to, the square end of the first sill. The second sill is provided with a temporary fastening consisting of a bolt 4 passing through it horizontally, and through both walls of the corner-iron, one end of said bolt receiving a thumb-nut 5, which is turned up against the corner-iron. At the angle of the corner-iron 2, the upper faces of the sills are cut away sufficiently to form a seat, or shallow socket 6, the horizontal bottom of which lies somewhat below the open top of the corner-iron, as seen in the lower portion of Fig. 5. Within this seat, or socket, is stepped the lower end of a corner-post 7. This corner-post bears, in cross-section, a rough resemblance to a letter L, as seen in the lower, right-hand portion of Fig. 3, this form co-inciding with, or approximating, the shape of the corner-iron at its angle. The length and size of these posts will be governed by the height to be given to the side-walls and to the size of the sills 1. When set in its socket, or seat 6, a temporary, but positive fastening, is provided by means of hooks 8 mounted upon one part and engaging eyes 9 upon the other of said parts, the hooks and eyes being shown, in the present instance, as mounted upon the post and the sills, respectively, and upon the inner, angular margins thereof.

Any preferred form of fastening may be substituted for the devices shown.

The numeral 10 indicates the tie-beams which are parallel with the sills, but preferably of lighter construction. They are connected at their ends by corner-irons 12, which correspond in all essential respects with the corner-irons 2, the main difference being that they are reversed in position, being closed at the top and open at the bottom. The tie-beams are connected to these corner-irons 12 in substantially the same manner as the sills, one of said tie-beams being permanently fastened to the corner-iron by screws 13, and temporarily attached to the other by a bolt 14 and thumb-nut 15. A seat, or socket 16, is likewise formed in the lower faces of the tie-beams, to receive the upper end of the corner-post 7, and fastenings 18 and 19 are provided to connect the vertical and horizontal members of the structure, similar to the fas-

tenings 8 and 9. The constructions thus far described are duplicated at each angle, or corner, of the building or tent, at the lower and upper extremities of the corner-posts, respectively.

The parts thus far described constitute the essential portions of the frame of the structure.

To complete the vertical walls, or sidings, I proceed as follows. The upper faces of the sills 1 are, at their outer margins, flush or nearly so, with the open tops of the corner-irons 2, and from this point each sill is beveled upward and inward, to form an inclined surface 20, (Figs. 4 and 5,) running longitudinally with the sill. At its upper side this bevel, or incline, adjoins a horizontal portion 21, in the center of which, or near the center, is formed a rib, or tongue, 22, running lengthwise of the sill, upon the inner margin of which rises a strip, or flange 23, which is preferably somewhat higher than the tongue 22. Upon the face thus formed, at suitable intervals, are placed the uprights 24, consisting of timbers resembling, in cross-section, the letter H, their lower, square ends being grooved and otherwise so formed that they will rest upon and form a joint with the tongued horizontal portion 21 of the upper face of the sill, and extend down over the bevel 20. These uprights are very nearly as long as the corner-posts, a slight excess of length being given to the latter to enable their ends to enter and fill the seats 6 and 16 in the sills and tie-beams. For the uprights 24 longitudinal channels 25 are formed in the lower faces of the tie-beams, which receive tongues upon the upper ends of the uprights, fastenings of a more positive character being ordinarily unnecessary. In the opposite edges of these uprights and in the plane of the channels 25, are formed grooves, or channels 26, extending from end to end. These grooves receive the lateral members of frames 27, which will, preferably, extend from the sills to the tie-beams, their lower edges being grooved to form suitably close joints with the tongues 22 on the sills, as in Fig. 4. While I prefer to construct these frames each in a single part extending from the tie-beam to sill, I may, and usually do, divide each frame into two portions by means of a horizontal bar 28, inserted at an intermediate point. Below this bar I shall, ordinarily, insert a solid panel 29, formed of wood, metal, or other suitable material, while above the same a fabric 30 such as netting, gauze, whether of wire or other thread, or a textile fabric may be used; or, should the circumstances of any case require, glass may be used, or any construction may be adopted that is preferred by the occupant. The solid panels 29 are intended to exclude water during storms, and to receive the splash of water dripped from the roof. The form given to the upper faces of the sills, also, is adapted to exclude rain and to provide for the drainage of moisture gathering upon the exterior.

At one or more suitable points in the vertical wall, or walls, are placed doors 31, which are of any known or preferred construction. To provide for the hanging of such a door, I use posts, or uprights 24^a, shown in Fig. 3, separated by a suitable interval, and having their adjacent vertical faces plane-surfaced, the grooves 26 being omitted. Upon these faces are tacked, screwed, or otherwise attached L-shaped strips 32, having one leg, or portion 33, lying next to, or flush with, the outer faces of the posts 24^a, and each extending toward the opposite side of the doorway. The door 31 is hinged to close, at its hinged edge, in the angle formed by one of said strips, while its free edge swings into the angle of the other strip. The angular parts 33 thus form battens for the joints at the two vertical edges, and any suitable form of weather-strip, or other protector, may be used at bottom, and, if necessary, at the top, also.

The roof, or covering, for the structure thus far described, consists of a frame of rafters 34 and ridge-rafters 35, which I construct, for the sake of obtaining the maximum strength and lightness, of metallic pipe, or of similar tubular formations, common gas-pipe being a very good material for the purpose. At one end each rafter and ridge-rafter is slightly flattened (Figs. 6 and 8) and perforated, to receive a wire 36, or other similar connection giving a pivotal support, said wire being laid in a groove, or channel, 37, formed in the edge of a two-part crown-terminal 38. Notches, or recesses, 39, are formed at suitable intervals intersecting the groove, or channel, to receive the ends of the rafters, which radiate from the terminal at such intervals as may be necessary to give adequate support to the roof, canopy, or other covering.

In the rectangular form of building, tent, or other structure shown in the drawings, four of the rafters run from the crown terminal 38 to the corner-irons 12, and constitute the ridge-rafters, as they support the four ridges, or angles, of the roof, or covering. A positive attachment for these ridge-rafters is provided by means of a finger 40, dropped from the ridge-rafter and entering a slot, or opening 41, in a lug 42, which projects outward from the angular edge of the corner-iron 12, substantially in the same direction as the ridge-rafter. The attachment is completed by means of a key 43, of any suitable form, inserted in a cross-aperture in the finger 40, below the lug 42. The latter being placed a little below the upper edge of the corner-iron 12, it permits the ridge-rafter to drop down and rest upon said corner-iron and remove its weight from the lug. Each rafter and ridge-rafter is divided into two parts, which are united by a turn-buckle 44, the right and left female threads of the latter engaging the oppositely threaded ends of the parts of the

rafter, thus affording a convenient means for varying the length of the rafter. The end of the latter extends beyond the corner-iron, inclining at an angle which is governed by the elevation of the crown-terminal. The projecting end is tapped into, or otherwise fastened to, a coupling 45, which forms a support for the ends of the eaves-rods 46. One or more rafters 34, intermediate of the ridge-rafters 35, are provided, their construction being similar to that of the latter. These rafters 34 rest upon the tie-beams and have at their ends collars 47, which receive the eaves-rods 46. Over the roofing-frame thus formed I lay a canopy, or covering 48, composed of textile fabric, water-proof leather, rubber, wire-gauze or other netting, or any other material, of any kind, suited to the purpose. The choice of this material will doubtless be, in some measure, regulated by the climate and season of the year, as well as by the particular use to which the structure is to be put. For ordinary purposes of shelter, where the house or tent is used as an office, residence, dormitory, or other analogous use, I ordinarily employ in temperate climates and during the milder seasons of spring, summer, autumn, &c., a textile fabric like canvas, which is preferably water-proofed, though not necessarily so. This canopy is usually formed in one piece to cover the crown-terminal and extend to the eaves, its margin being provided with a drop-edge 49. At the angle between the canopy-covering 48 and this drop-edge, I attach hooks, or other equivalent fastenings 50 to the interior faces, their construction being such as to adapt them to engage the eaves-rods 46, as seen in Fig. 9. These or other fastenings are placed at suitable intervals along the eaves, and when the canopy is in place it may be stretched to any suitable degree by adjusting the length of the rafters and ridge-rafters by means of the turn-buckles 44.

In order to disconnect the rafters 34 and 35 from the crown-terminal, without removing the wire 36 from the ends of said rafters, I make the said crown-terminal in two parts, as shown in Figs. 6, 7, and 8, the line of division passing through the circumferential channel or groove 37. The two parts are united by a central bolt 51 and thumb-nut 52.

To render the interior of the house secure during storms, I propose to mount upon rolls, which are engaged beneath the eaves upon the outside, curtains 53, of canvas or other suitable material, which may at any time be drawn down to cover the exterior face of the screened portion of the siding, or vertical wall, suitable fastenings being provided to hold the lower edge of said curtain. I may use, in place of the latter, Venetian blinds, or other suitable protection, which will lie against, or adjacent to, the exterior surfaces of the walls, the essential requirements being the capacity for easy and speedy extension of said protectors, in case of storms, and their removal and storage in a small space, when not required. I may also use these curtains, or other protectors, as a species of awning by simply extending the same in an inclined, or horizontal position, their free ends, or edges, being sustained by suitable braces, or booms.

In some cases I employ stays, to anchor the structure during very high winds, fastening the same by ordinary snap-hooks to a staple, or ring, in the corner-posts, or uprights, or in both, the other end of said stay being connected by a similar snap-hook to a staple, or ring, in a post strongly anchored in the soil.

In those structures where irregular forms are desired, or wherein bay-windows, bowed-fronts, or other forms are required involving angles greater or less than a right angle, I provide corner-irons, or angle-irons 56, having the angles needed, but in all other respects being identical with the forms described herein. One such corner-iron is shown in Fig. 13, merely as a single example, or illustration of what is meant, its angle being about one hundred and thirty-five degrees, but this angularity I shall vary, as may be desired.

What I claim is:—

1. A portable house or tent, comprising sills connected at their ends by angular corner-irons inclosing the lower and the two vertical faces of said ends, each of said angular corner-irons being permanently attached to one of said sills, substantially as described.

2. A portable house or tent, comprising a frame resting upon sills which are connected at their ends by angular corner-irons, formed, each, in a single piece, to receive and inclose the lower and the two vertical faces of the ends of the said sills, and corner-posts stepped, or inserted in seats, or sockets, formed in the upper faces of the sills at the angles of the corner-irons, substantially as described.

3. A portable house, or tent, comprising sills connected at their ends by angular corner-irons each consisting of a single piece so formed as to inclose the lower and the two vertical faces of said sills, the latter having seats, or sockets, formed in the upper, exposed faces of both sills, to receive the ends of corner-posts, and positive fastenings connecting the corner-posts and sills, substantially as described.

4. In a portable house, or tent, the combination with sills connected by corner-irons of corner-posts resting in seats, or sockets, at the angle formed by said sills, positive fastenings connecting said corner-posts to the sills, and tie-beams connected at their ends by corner-irons and having sockets, or seats, to receive the upper ends of the corner-posts upon which the tie-beams rest and to which they are positively connected, substantially as described.

5. In a portable house, or tent, the combination with the sills and the tie-beams of uprights the ends of which have a tongue and

groove connection with the said sills and tie-beams, and frames the lower edges of which lie between longitudinal bevels, or inclines, on the outer margins of the sills and parallel lips, or flanges, upon the inner margins thereof, substantially as described.

6. In a portable house, or tent, the combination with the vertical frame of a roof-frame, consisting of rafters and ridge-rafters radiating from a detachable crown-terminal and connections between the ridge-rafters and the vertical frame at the angles of the latter, only, substantially as described.

7. In a portable house, or tent, the combination with a frame comprising tiebeams united at their ends by corner-irons each having a projecting lug at the angular edge, of a roof-frame composed of rafters and ridge-rafters connected at one end to a crown-terminal, the ridge-rafters being provided with drop-fingers entering slots, or openings in the projecting lugs of the corner-irons and fastened thereto, substantially as described.

8. In a portable house, or tent, the combination with a vertical-frame of a roof-frame composed of rafters and ridge-rafters pivotally connected at one end to a crown-terminal and radiating therefrom to different parts of the frame, their other ends projecting beyond the same and provided with couplings and supports for eaves-rods, substantially as described.

9. In a portable house, or tent, the combination with a vertical frame of a roof-frame composed of rafters and ridge-rafters variable in length, their ends connected to a crown-terminal and eaves-rods, respectively, and a canopy, or covering, connected positively to the eaves-rods and stretched by the extension of the rafters and ridge-rafters, substantially as described.

10. In a portable house, or tent, the combination with a vertical frame of a roof-frame composed of rafters and ridge-rafters each formed in two connected parts, one pivotally connected to a wire lying in a circumferential groove in a two-part, separable crown-terminal and the other connected to the eaves-rod, a canopy or covering having hooks, or other fastenings connecting it to the eaves-rods, and means for varying the length of the rafters and ridge-rafters, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

A. C. LAUBER. [L. S.]

Witnesses:
WM. A. EASTERDAY,
J. A. RUTHERFORD.