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3,375,831

PLASTIC COVERING STRUCTURE

Filed July 13, 1966

2 Sheets-Sheet 1

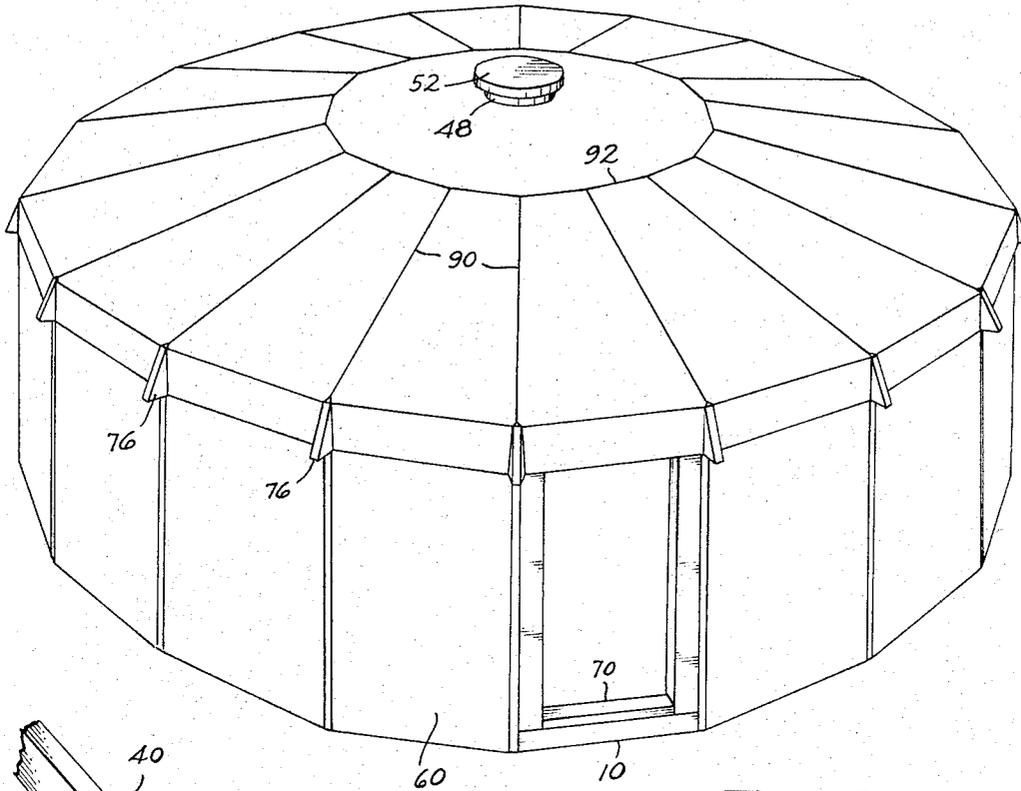


Fig. 1.

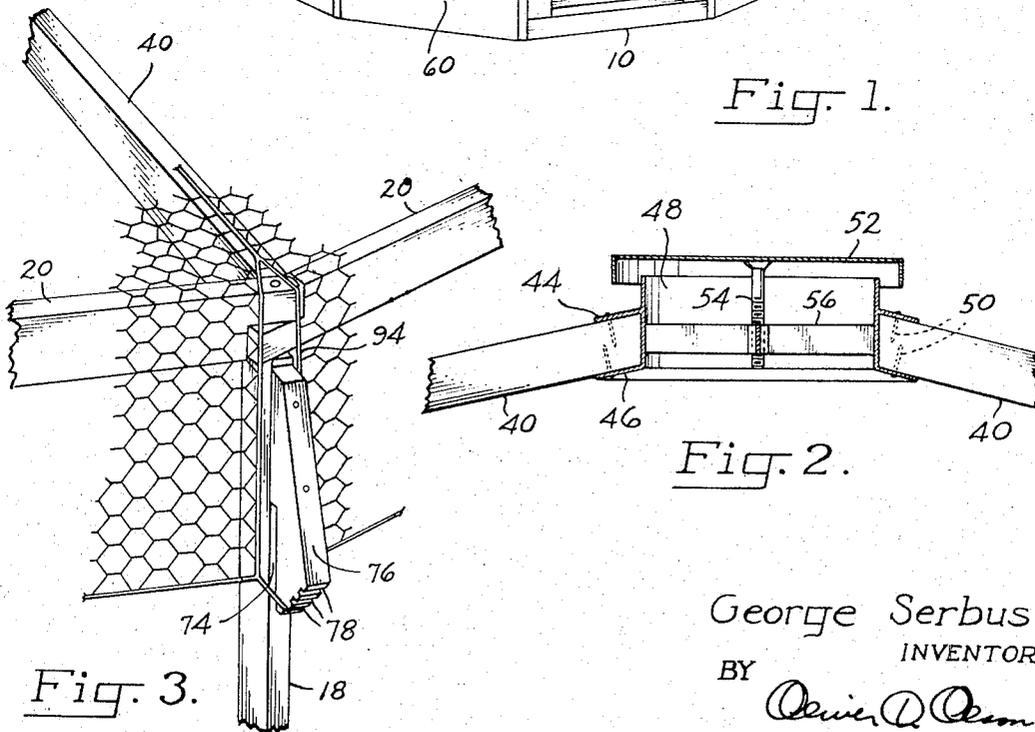


Fig. 2.

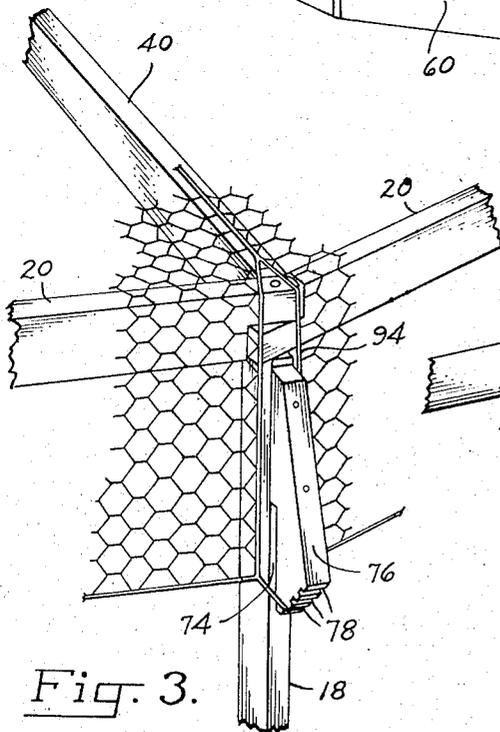


Fig. 3.

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2 Sheets-Sheet 2

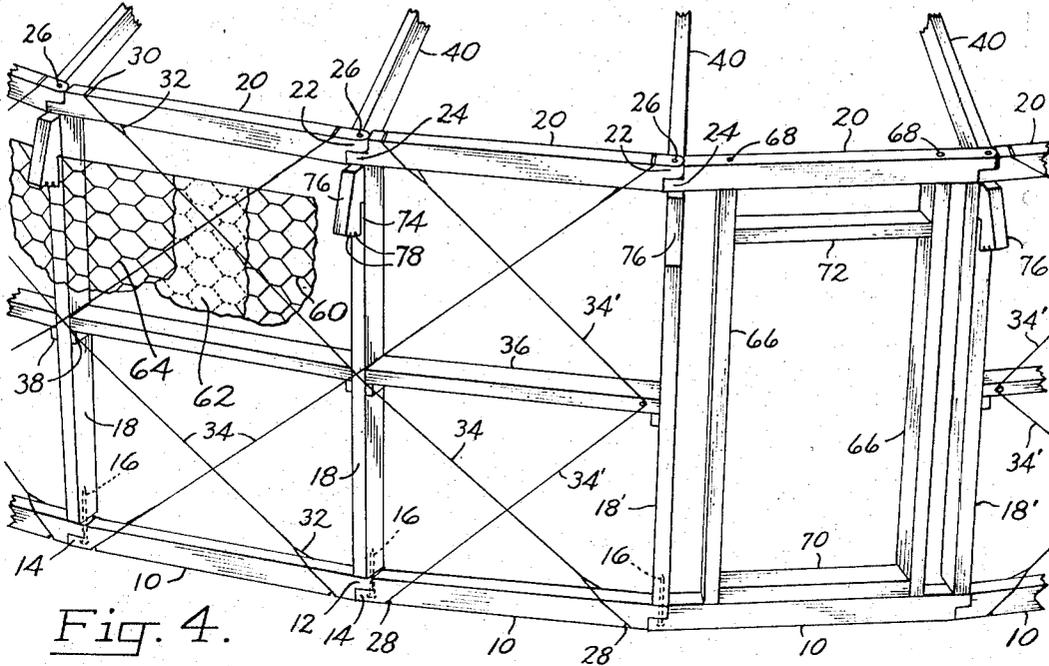


Fig. 4.

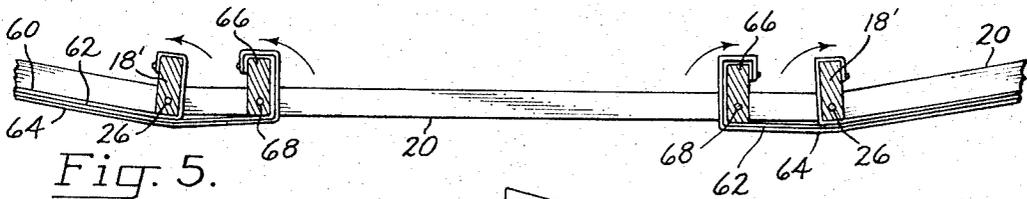


Fig. 5.

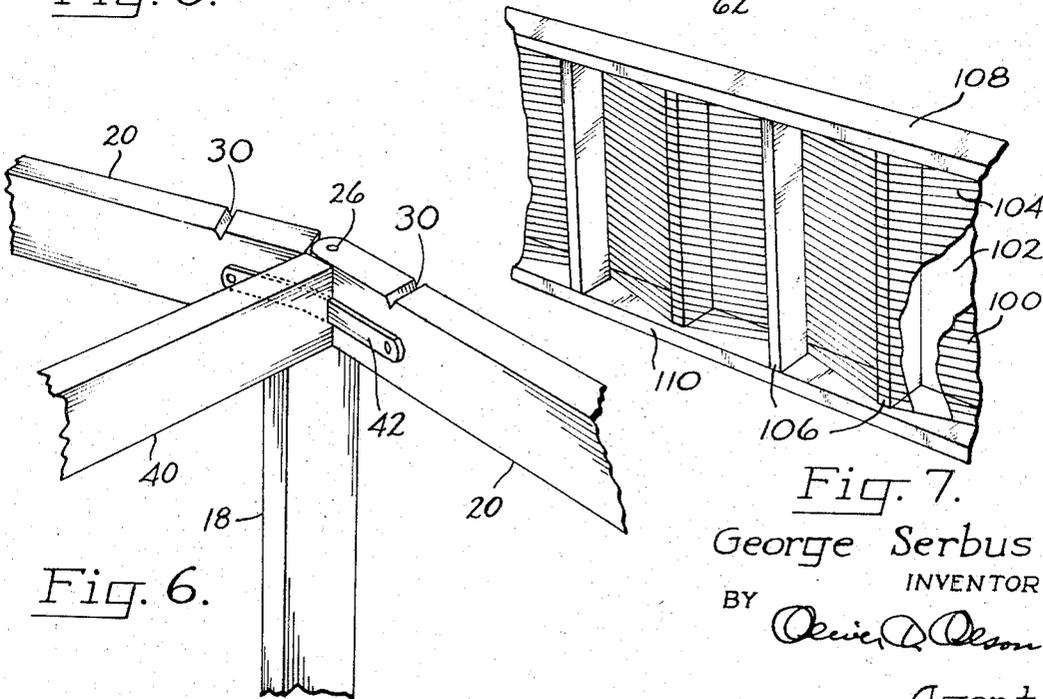


Fig. 6.

Fig. 7.

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ABSTRACT OF THE DISCLOSURE

A lamination of inner and outer layers of wire netting and an intermediate layer of thin gauge plastic sheeting is wrapped about and bears against the edges of a skeletal framework to form a covering structure which may include a side wall and a roof.

This invention relates to covering structures, and more particularly to a weatherproof structure which utilizes thin gauge, disposable plastic sheeting.

It is the principal object of the present invention to provide a multi-purpose covering structure incorporating novel reinforcing means which accommodates the use of thin gauge, inexpensive plastic sheeting as a weatherproof barrier.

Another important object of this invention is the provision of a covering structure of the class described which is of light weight, skeletal construction accommodating assembly and disassembly with speed and facility.

Still another important object of the present invention is the provision of a building of the class described incorporating a novel eave construction which accommodates adjustment for varying degrees of ventilation.

A further important object of this invention is the provision of a building of the class described which is of simplified construction for economical manufacture.

The foregoing and other objects and advantages of this invention will appear from the following detailed description, taken in connection with the accompanying drawings in which:

FIG. 1 is a perspective view of a building embodying the features of this invention;

FIG. 2 is a fragmentary vertical section showing construction details of the central portion of the roof.

FIG. 3 is a fragmentary perspective view illustrating structural details accommodating adjustment of the building eave portion;

FIG. 4 is a fragmentary perspective view illustrating details of assembly of the skeletal structure of the building;

FIG. 5 is a fragmentary plan view illustrating details of construction accommodating the installation of the reinforced plastic wall on the skeletal structure;

FIG. 6 is a fragmentary perspective view illustrating a manner of attachment of the skeletal roof structure to the skeletal wall structure; and

FIG. 7 is a fragmentary perspective view of a privacy screen embodying the features of the present invention.

The covering structure of the present invention is exemplified in the drawings by a building structure. This structure incorporates a skeletal framework which, in the embodiment illustrated, includes a skeletal upstanding wall structure. This wall structure comprises a multiplicity of relatively short lengths of horizontal bottom stringers 10 provided at their opposite ends with oppositely facing lap tongues 12 and 14 by which adjacent stringers may be joined together (FIG. 4). These bottom stringers are arranged in end-to-end, lapped relation to define the bottom periphery of the enclosing wall. The lapped ends are secured together pivotally by means of upstanding elongated pins 16 which extend through aligned openings in the lapped ends. These pins project

upwardly beyond the bottom stringers and are received in longitudinal openings in the bottom ends of the plurality of vertical stud members 18. These define the height of the building wall.

Top stringers 20, identical in construction to the bottom stringers, are joined together at their lapped ends 22, 24 and secured pivotally by means of elongated, downwardly projecting pins 26. These pins extend through aligned openings in the lapped ends of the top stringers and project into longitudinal openings in the upper ends of the vertical stud members.

Adjacent the opposite ends of each bottom stringer on the underside thereof, there are provided transverse notches 28. Similar notches 30 are provided in the upper side of the top stringers. These notches serve to anchor the looped ends 32 of the diagonal tensioning wires 34. Each wire interconnects the far ends of one top stringer and one bottom stringer disposed on opposite sides of a common vertical stud member. These tensioning wires thus form a criss cross pattern, each crossing a vertical stud member intermediate its ends and on the outer side thereof.

One or more horizontal spacer stringers 36 may be positioned intermediate the bottom and top stringers. In the embodiment illustrated, one such intermediate stringer is provided, being supported upon cleats 38 secured to the vertical stud members.

In assembling the wall structure, one looped end 32 of each wire 34 is engaged in a notch 28 adjacent each end of each bottom stringer member 10. The latter and the stud members 18 then are joined together pivotally by the pins 16 which are received loosely in the openings provided in said members. Preparatory to installing the top stringer members 20 the stud members 18 are tilted alternately inward and outward, by flexing the pivot joints at the lower stringer members 10. The upper looped end of each wire 34 then is engaged in a notch 30 of each top stringer member 20 and the latter then are lapped and pinned loosely to the upper ends of stud members.

It is by means of the tilting of the stud members that the distance between anchor notches 28, 30 for each wire is shortened sufficiently to allow installation of the wire. Thereafter, the stud members are adjusted to vertical position, tensioning the wires and drawing the stringer member 10, 20 and stud members 18 together. Spacer stringers 36 are installed to prevent rotation of the stud members.

The bottom stringer and stud assembly now is secured against displacement, as by means of stakes driven into the ground and secured either to the stringers or to the stud members.

The framework of the building illustrated also includes a skeletal roof structure. This is made up of a multiplicity of elongated rafters 40, equal in number to the vertical stud members 18. The outer end of each rafter rests upon the upper end of the associated stud member, and is secured to the adjacent top stringers by such means as the strap 42. The strap is secured at its opposite ends to the adjacent top stringers and intermediate its ends to the rafter.

The inner end of each rafter is received in the annular space defined by the vertically spaced annular rings 44 and 46 projecting outward and angularly downward from the hub member 48 (FIG. 2). Nails 50 or other fasteners may be employed to secure each rafter against displacement. In the embodiment illustrated, the rafters incline radially inward to the hub which thus forms the apex of the roof.

The hub preferably is hollow to provide ventilation, and is covered by the upwardly spaced cap 52. The cap

is supported in position by the post 54 which is threaded into a bore in the hub of the spider member 56. This spider member is secured to the hub 48, as by welding. The threaded post permits a degree of vertical adjustment of the cap relation to the hub 48, to achieve varying degrees of ventilation.

In the alternative, the hub may be provided as a solid cylinder of wood or other suitable material, with the rings 44 and 46 formed as circular discs secured to the top and bottom ends, respectively, of the hub.

Having thus assembled the basic skeletal wall and roof structures, the weatherproof wall now may be installed. In accordance with the present invention this is provided in the form of a lamination of an inner layer of wire or other perforate netting 60, an intermediate layer of imperforate, thin gauge plastic sheeting 62 and an outer layer of netting 64. The inner layer of netting first is applied by securing one vertical end to one of the vertical stud members 18' which, in the illustration, is intended to form one side of a doorway. The netting then is wrapped around the skeletal wall structure and its opposite vertical end is secured to the adjacent vertical stud member 18' which defines the opposite side of the doorway.

Having first removed, or not yet installed, the intermediate spacer stringers 36 abutting the doorway-defining vertical stud members 18', the latter now may be rotated about their pivot pins, as indicated by the arrows in FIG. 5. The end portions of the inner layer of netting thus are caused to be wound upon the stud members, thereby stretching the netting about the skeletal wall structure. The intermediate spacer stringers 36 then are secured in place to prevent rotation of the stud members 18'.

Short tensioning wires 34' are secured at one end to the spacer stringers 36 adjacent the stud members 18' and are anchored at their opposite, loop ends in the notches 28 and 30 provided at the far ends of the adjacent bottom and top stringer members 10 and 20, respectively. These wires 34' counteract the horizontal forces applied to the central portion of the stud members 18'. The wires also hold the adjacent top and bottom stringers against the abutting ends of the stud members 18'.

Next, an elongated strip of thin gauge plastic sheeting 63, such as polyethylene or other suitable type of synthetic plastic, is rolled up with an elongated outer layer of netting 64 in such manner that the sheeting will be interposed between the inner layer of netting 60 and the outer layer 64 when the latter is applied. The outer layer of netting 64 first is secured along one vertical edge to one of the auxiliary stud members 66. In the embodiment illustrated, these auxiliary stud members serve as the side jambs for a door. They are mounted pivotally between the bottom and top stringers, as by means of the pins 68, inwardly of and adjacent the stud members 18'. The assembly of sheeting 62 and outer layer of netting 64 then is wrapped about the skeletal wall structure, over the inner layer of netting 60, and the opposite end of the netting 64 is secured to the other auxiliary stud member. With the horizontal door jamb spacers 70 and 72 removed, the auxiliary stud members then are rotated (FIG. 5) to draw the outer layer of netting 62 thus is held firmly in place. The door jamb spacers then are installed between the auxiliary stud members to prevent their rotation.

It is by means of the inner and outer layers of netting that the thin gauge, inexpensive plastic sheeting is rendered weatherproof. It has been found for example, that 20 gauge, 2 inch wire mesh netting reinforces 4 mil gauge polyethylene sheeting sufficiently to render it capable of withstanding high winds, rain and substantial snow load without rupture.

In the embodiment illustrated, the weatherproof wall assembly terminates at its upper edge below the top string-

ers 20, to provide a peripheral air space above it. This upper peripheral portion of the wall structure is received in the notches 74 provided on the lower inner portion of the eave vent adjustment members 76 (FIG. 3). One of these is secured to and projects outwardly from the upper end of each vertical stud member. Each vent adjustment member is provided on its lower outwardly extending edge with a plurality of outwardly spaced anchor notches 78. These function in a manner described in detail hereinafter.

The weatherproof roof assembly is similar to the wall assembly, in that it comprises an underlayer of perforate netting 80, an intermediate layer of plastic sheeting 82 and an outer layer of perforate netting 84. These layers are cut to the shape of the skeletal roof structure, preferably as radially split annular rings so that they may be conveniently rolled up to small packages for storage and shipping. Each layer then is applied by unrolling it around the rafters, overlapping its ends to form an annular ring. The overlapped ends of the plastic sheeting are taped or otherwise sealed together to form a water tight joint. The inner opening of said ring fits closely about the hub member 48, over the upper annular flange 44, and there may be secured against displacement in any suitable manner.

The layers of roof netting 80 and 84 are provided with notches at the peripherally spaced positions of the vent adjustment members 76, to receive the latter therein. The intermediate layer of plastic sheeting overlies the vent adjustment members to prevent rain from entering at these points. The layers of netting also are provided with reinforcing wires 86 and 88, respectively, which bound their outer peripheries and span the notches therein. The portions of these wires that span the notches are receivable in the anchor notches 78 in the eave members 76. Thus, the angular extension of the eave portion of the roof assembly may be adjusted by securing both peripheral wires in any desired one of the anchor notches.

Added protection against displacement of the roof assembly may be provided by the hold down wires 90 which radiate outwardly from an inner wire ring 92 and are secured at their outer looped ends 94 by engaging the latter in anchor notches 78 in the vent adjustment members.

FIG. 7 illustrates the use of the laminated assembly of inner layer of perforate netting 100, intermediate layer of plastic sheeting 102 and outer layer of perforate netting 104 in the construction of a privacy screen or fence. The layers of perforate netting are secured at their opposite vertical edges to the end posts of the fence structure. Between these end posts there are a plurality of intermediate, vertical slats 106 secured between top and bottom rails 108 and 110. The inner vertical edges of these slats face alternately in opposite directions and extend beyond a common vertical plane within the sides of the rails. The laminated assembly is woven through the spaced slats in a zig-zag pattern. The plastic sheeting 102 thus is held firmly between the layers of netting, particularly along the vertical areas at which the netting layers abut the inner edges of the slats.

The rectilinear surface structure of FIG. 7 also may be disposed substantially horizontally to provide a flat or pitched roof covering for a patio, carport or other area.

From the foregoing it will be appreciated that the present invention provides a simplified, light weight covering structure which may be utilized for a multiplicity of purposes, among which are Quonset type houses, green houses, play houses, swimming pool covers, utility shelters, privacy screen, fences, etc. A variety of decorative effects, as well as light and heat control, may be achieved by utilizing plastic sheeting of various colors. The size and shape of building structures may be varied as desired by appropriate adjustments in the number and angular positions of stringers and stud members. Replace-

ment of the inexpensive, disposable plastic sheeting may be effected simply by removal and replacement of the outer layer of netting. Since the plastic sheeting is held in place merely by the pressure of the netting layers, open ventilating areas may be provided wherever desired.

It will be apparent to those skilled in the art that various changes may be made in the size, shape, number and arrangement of parts described hereinbefore without departing from the spirit of this invention and the scope of appended claims.

Having thus described my invention and the manner in which it may be used, what I claim as new and desire to secure by Letters Patent is:

- 1. A covering structure comprising
 - (a) a skeletal framework,
 - (b) a flexible cover assembly supported by and wrapped about and bearing against the edges of the framework and including
 - (c) inner and outer layers of perforate netting material, and
 - (d) an intermediate layer of synthetic plastic sheeting confined between said layers of netting material.
- 2. The structure of claim 1 wherein the skeletal framework includes a confining wall comprising
 - (a) a plurality of bottom and top horizontal stringer members,
 - (b) a plurality of vertical stud members supporting the stringers in vertically spaced apart relation,
 - (c) means interconnecting said stringers and stud members, and
 - (d) tensioning means interengaging at least some of the stringers, each tensioning means extending between a top stringer and a bottom stringer disposed on opposite sides of a common stud member.
- 3. The structure of claim 1 wherein the skeletal framework includes a confining wall comprising
 - (a) a plurality of bottom and top horizontal stringer members arranged in end to end overlapping relation,
 - (b) a plurality of vertical stud members supporting the stringers in vertically spaced apart relation and disposed at the overlapping portions of said stringers,
 - (c) pivot means interconnecting said stringers and stud members for rotational movement of each stud member on a vertical axis, and
 - (d) tensioning means interengaging at least some of the stringers, each tensioning means extending between a top stringer and a bottom stringer disposed on opposite sides of a common stud member.
- 4. The structure of claim 1 wherein
 - (a) the skeletal framework includes a confining wall comprising a plurality of bottom and top horizontal stringer members, a plurality of vertical stud members supporting the stringers in vertically spaced apart relation, and means interconnecting said stringers and stud members,

- (b) at least two adjacent stud members are supported for rotational movement on vertical axes,
- (c) a pair of auxiliary stud members are positioned between said two adjacent stud members and supported for rotational movement on vertical axes,
- (d) the opposite ends of the inner layer of netting material are secured one to each of said two adjacent stud members,
- (e) the opposite ends of the outer layer of netting material are secured one to each of said auxiliary stud members,
- (f) whereby rotation of the stud members effects tightening of the netting material layers about the skeletal structure, and
- (g) means is included for securing the rotatable stud members releasably against rotation.

5. The structure of claim 1 wherein the skeletal framework includes a confining wall and a roof, and there is included therewith

- (a) a plurality of eave forming members extending outwardly from the wall adjacent the upper end thereof at peripherally spaced positions,
- (b) a plurality of anchor members on each eave forming member disposed in outwardly spaced apart relation,
- (c) the roof cover assembly extending outwardly beyond the periphery of the wall, and
- (d) means on the outer periphery of the roof cover assembly engageable with a selected one of the anchor means on each eave forming member for securing the extending portion of the roof cover assembly in a predetermined spaced relation with respect to the wall cover assembly.

6. The structure of claim 5 wherein the securing means on the outer periphery of the roof cover assembly comprises a peripheral reinforcing wire on each layer of netting material.

7. The structure of claim 5 including hold down means overlying the roof cover assembly and comprising

- (a) inner and outer peripheral wires, and
- (b) a plurality of spaced transverse wires interconnecting the inner and outer peripheral wires,
- (c) the outer peripheral wire being engaged with a selected one of the anchor means on each eave forming member.

References Cited

UNITED STATES PATENTS

353,168	11/1886	Shaw	-----	135—1
1,052,960	2/1913	Rasmussen	-----	52—63
1,065,237	6/1913	Graham	-----	52—63
1,258,773	3/1918	Hoffmann et al.	-----	52—63
2,256,050	9/1941	Hansen	-----	52—82
3,328,926	7/1967	Reinhard	-----	52—63

55 REINALDO P. MACHADO, Primary Examiner.