



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
30.04.2008 Bulletin 2008/18

(51) Int Cl.:
E04H 12/22 (2006.01) E04B 1/24 (2006.01)
E04H 1/12 (2006.01)

(21) Application number: **07020698.2**

(22) Date of filing: **23.10.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(72) Inventor: **Maguire, Raymond**
5 Glenwood Gardens
Enniskillen
County Fermanagh BT74 5LT (GB)

(30) Priority: **24.10.2006 GB 0621097**

(74) Representative: **Wallace, Alan Hutchinson et al**
F. R. Kelly & Co.
4 Mount Charles
Belfast BT7 1NZ,
Northern Ireland (GB)

(71) Applicant: **Maguire, Raymond**
5 Glenwood Gardens
Enniskillen
County Fermanagh BT74 5LT (GB)

(54) **A building structure**

(57) A stanchion comprises a coupling at one end thereof and means for fixing the coupling to a ground

surface. The fixing means is adapted to permit rotation of the coupling about a longitudinal axis of the stanchion when the coupling is in contact with the ground surface.

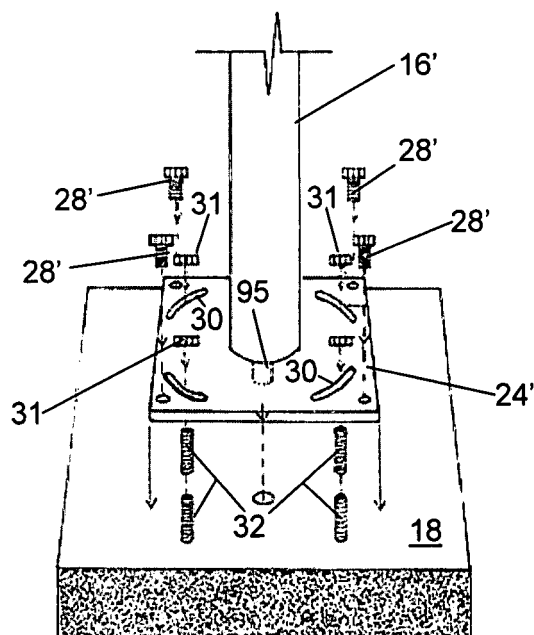


Fig. 16

Description

Field of the Invention

[0001] The present invention relates to a building structure. In particular, the invention relates to a building structure for a sun room.

Summary of the Invention

[0002] A first aspect of the invention provides a stanchion having a coupling mechanism, the coupling mechanism being engagable with a ground surface and allowing rotational movement of said stanchion about a substantially vertical (in use) axis relative to said ground surface.

[0003] Preferably, said coupling mechanism comprises first and second plates, one of said plates carrying at least one lug, the other of said plates having at least one arc-shaped, or curved, slot for receiving said at least one lug.

[0004] Preferably, means for securing the stanchion in a desired position relative to the ground surface is provided.

[0005] A second aspect of the invention provides a roof assembly comprising at least two ring beams and a plurality of rafters, the rafters being engaged between the ring beams when in use.

[0006] In a preferred embodiment, batons are connectable to the rafters, engaging adjacent rafters. Preferably, roof tiles are attachable to the batons.

[0007] A third aspect of the invention provides a building structure comprising a plurality of stanchions of the first aspect of the invention and the roof assembly of the second aspect of the invention, the stanchions, in use, being load bearing and supporting the roof assembly.

[0008] According to a fourth aspect of the invention there is provided a method for constructing the building structure of the third aspect of the invention, the method of construction comprising the steps of: preparing the ground surface; engaging the stanchions with the ground surface; positioning the stanchions as desired; attaching a ring beam of the roof assembly to the stanchions; and repositioning the stanchions if necessary to align the stanchions with the ring beam.

[0009] In a preferred embodiment, the method of construction comprises the steps of: preparing the ground surface; engaging the stanchions with the ground surface; positioning the stanchions as desired; attaching a first ring beam to the stanchions; repositioning the stanchions if necessary to align the stanchions with the first ring beam; attaching rafters to the first ring beam; attaching a second ring beam to the rafters; positioning and securing walls and windows in the space between adjacent stanchions; attaching batons to the rafters; attaching roof tiles to the batons; and attaching a skylight to the second ring beam.

[0010] Further advantageous aspects of the invention

will become apparent to those ordinarily skilled in the art upon review of the following description of a specific embodiment and with reference to the accompanying drawings.

Brief Description of the Drawings

[0011] An embodiment of the invention is now described by way of example and with reference to the accompanying drawings in which like numerals are used to indicate like parts and in which:

FIGURE 1 shows side and perspective views of a stanchion embodying a first aspect of the invention;

FIGURE 2 shows the stanchion of Figure 1 and a roof structure embodying a second aspect of the invention, incorporated into a building structure embodying a third aspect of the invention;

FIGURE 3 shows a side view of the stanchion, first and second ring beams and rafters included in the building structure of Figure 2;

FIGURE 4A shows a plan view of the first ring beam included in Figures 2 and 3;

FIGURE 4B shows a plan view of a guide member for use with the first ring beam;

FIGURE 5A shows a perspective view of a rafter attached to the second ring beam;

FIGURE 5B shows a perspective view of means for attaching a rafter to the second ring beam;

FIGURE 6 shows a perspective view of a lantern style skylight;

FIGURE 7 shows plan, side and sectional views of a building structure embodying the third aspect of the invention;

FIGURE 8A shows a perspective view of a wall included in the building structure of Figure 7;

FIGURE 8B shows a side view of a wall attached to a stanchion;

FIGURE 9 shows an alternative building structure embodying the third aspect of the invention;

FIGURE 10 shows a side view of a building structure embodying the third aspect of the invention and a roof panel;

FIGURE 11 A illustrates the coupling of the roof panel of Figure 10 with the first and second ring beams;

FIGURE 11B shows a partial view of the second ring beam;

FIGURE 12 shows a side view of floor joists and a floor panel;

FIGURE 13A illustrates a marking guide;

FIGURE 13B illustrates a fixing means suitable for the guide of Figure 13A;

FIGURE 14 illustrates a ground mould;

FIGURE 15A illustrates the first ring beam placed on the ground during construction of the building structure;

FIGURE 15B shows a guide included in Figure 15A;

FIGURE 15C shows an attachment means coupled to the ground;

FIGURE 16 is a perspective view of a first end of a stanchion according to a second embodiment of the invention;

FIGURE 17 shows a plan view of a guide member for use with the stanchion of Figure 16; and

FIGURE 18 shows a perspective view of a ring beam and a second end of the stanchion of Figure 16.

Detailed Description of the Drawings

[0012] Referring now to Figure 1 of the drawings, there is shown, generally indicated as 16, a stanchion embodying a first aspect of the invention. The stanchion 16, in use, is engaged with a ground surface 18 by a coupling mechanism, or attachment means 20 described in more detail below. In a preferred embodiment, the stanchion 16 comprises a shaft 22 having a first plate 24 attached to one end of the shaft 22. The shaft 22 is attached to a first face 25 of the first plate 24. The coupling mechanism 20 comprises a second plate 27, a first face (not visible) of which is, in use, engaged with the ground 18 by fixings 28 such as screws or bolts. The ground 18 to which the coupling mechanism 20 is engaged preferably comprises a reinforced concrete foundation. In use, a second face (not visible) of the first plate 24, opposite to the first face 25, is engaged with a second face 29 of the second plate 27. The coupling mechanism 20, in use, allows the stanchion 16 to be rotated about the axis indicated as A-A'. To allow for rotational movement of the stanchion 16, in the preferred embodiment, the first plate 24 comprises at least one arc shaped aperture 30 through which at least one lug 32 provided on the second plate 27 is received. In use, the stanchion 16 and first plate 24 are rotated relative to the second plate 27 and lug 32 about

the axis A-A' as indicated by arrows B. When the stanchion 16 is rotated into a desired position, the stanchion 16 and first plate 24 are secured relative to the second plate 27 and lug 32 by securing means or fixings 31, such as a nut threaded onto the lug 32 so that the nut abuts against the first face 25 of the first plate 24.

[0013] Adjusting bolts 28' are threaded through respective holes in the first plate 24 to bear against the upper surface of the second plate 27. Adjusting the bolts 28' allows the stanchion 16 to be aligned relative to the ground 18, in order to achieve vertical alignment. To achieve a desired alignment in the preferred embodiment, the stanchion 16 and first plate 24 are, in use, angled relative to the second plate 27 and lug 32. When the stanchion 16 is adjusted to the desired alignment the stanchion 16 and first plate 24 are secured relative to the second plate 27 and lug 32 by the securing means 31. In a preferred embodiment, the adjusting bolts 28' may be arranged such that adjustment of a respective bolt 28', i.e. turning clockwise or anticlockwise, consequently angles the stanchion 16 and first plate 24 relative to the second plate 27 and lug 32. This mechanism of adjustment may be used, for example, when the ground surface 18 is not horizontal. Furthermore, the coupling mechanism 20, in use, allows the stanchion 16 to be raised and lowered relative to the ground 18. To achieve a desired height in the preferred embodiment, the stanchion 16 and first plate 24 are, in use, raised relative to the second plate 27 and lug 32. When the stanchion 16 is adjusted to the desired height the stanchion 16 and first plate 24 are secured relative to the second plate 27 and lug 32 by the securing means 31 and adjusting bolts 28'. In a preferred embodiment, the adjusting bolts 28' may be arranged such that adjustment of the adjusting bolts 28', i.e. turning clockwise or anticlockwise, consequently raises and lowers the stanchion 16 and first plate 24 relative to the second plate 27 and lug 32. This mechanism of adjustment may be used, for example, when the ground surface 18 is not level. It is envisaged that the stanchion 16 may be collectively rotated about the axis A-A', aligned relative to the ground 18 and/or raised and lowered relative to the ground 18 to find a desired position.

[0014] Referring now to Figure 2 of the drawings, there is shown, generally indicated as 14, a roof assembly, embodying a second aspect of the invention. Referring to Figures 2 to 6, the illustrated roof assembly 14 comprises first and second ring beams, 40 and 42 respectively, and a plurality of rafters 44 engagable between the first and second ring beams 40, 42. In a preferred embodiment, the first and second ring beams 40, 42 both comprise planar frames. The first and second ring beams 40, 42 are typically similar in shape but the second ring beam 42 is dimensioned to define a smaller ring than the first. Referring to Figure 11A, the cross section of the first ring beam 40 is preferably substantially square or rectangular. Referring to Figure 11B, the cross section of the second ring beam 42 preferably comprises three flanges 99 engaged in an adjacent manner about their

longitudinal edges. Two of the flanges 99a and 99c are arranged in parallel spaced apart relationship and one of the flanges 99b bridges the two flanges 99a, 99c. The rafters 44 comprise first and second ends, 46 and 48 respectively, whereby the first end 46 is attachable to or adjacent the first ring beam 40 and the second end 48 is attachable to or adjacent the second ring beam 42 such that, in use, a frame for a typical pitched roof is created.

[0015] The first and second ends 46, 48 of the rafters 44 are connectable to the first and second ring beams 40, 42 by any suitable, conventional fixings or engagement means. In a preferred embodiment, the first end 46 of the rafters are connectable to the first ring beam 40 such that they create an overhang. In a preferred embodiment, the second end 48 of the rafters are connectable to the second ring beam 44 by way of a male and female slidable coupling device 49 as illustrated in Figure 5B.

[0016] In a preferred embodiment, the first and second ring beams 40, 42 are manufactured from lightweight material, e.g. steel or aluminium.

[0017] In a preferred embodiment, the rafters 44 are manufactured such that they are lightweight. It is envisaged that the rafters 44 may be made from lightweight steel or aluminium.

[0018] In a preferred embodiment, shown in Figure 4A, the first ring beam 40 is sectional whereby substantially straight sections of the ring beam 40 are inter-connectable by male and female connector or engagement means. Preferably, the male and female engagement means, when in use, is secured in place by fixings 41, for example bolts or screws.

[0019] In a preferred embodiment, the roof assembly 14 is covered in roof tiles 50 (illustrated in Figure 7) and/or roof windows 52 (illustrated in Figure 7). In figure 7, the roof tiles 50 are provided between the first and second ring beams 40, 42 and roof windows 52 are provided above the second ring beam 42. Alternatively the roof assembly 14 may be completely covered in roof tiles 50 or windows 52. Referring to Figure 3, the roof tiles 50 are attachable between the first and second ring beams 40 by way of a plurality of batons 54 which, in use, are engaged between adjacent rafters 44. The batons 54 are attached to the rafters 44, and typically extend transversely across the rafters 44, substantially parallel with one another. The roof tiles 50 are attachable to the batons 54 in any convenient conventional manner. A membrane (not shown), preferably waterproof and breathable is engagable with the roof assembly 14. Referring to Figure 6, the roof windows 52, in a preferred embodiment, take the form of a skylight. In the illustrated embodiment, the skylight is of a lantern style.

[0020] In a preferred embodiment, the roof tiles 50 are manufactured such that they are lightweight.

[0021] In a preferred embodiment, the roof windows 52 are provided as a preformed skylight.

[0022] In an alternative embodiment, the roof assembly 14 is covered in a plurality of roof panels 82 (illustrated

in Figure 10). A respective roof panel 82 is provided between the first and second ring beams 40, 42. Referring to Figure 10, the roof panel 82 comprises a plurality of rafters 44', a plurality of batons 54 and a plurality of roof tiles 50. A membrane, preferably waterproof and breathable, is engagable with the roof panel 82. Lead flashing may be provided around the roof panel 82. Preferably, the roof panels 82 are preformed. In use, the roof panels 82 are positioned between further rafters 44 engaged between the first and second ring beams 40, 42. As shown in Figure 10, the rafters 44 engaged between the first and second ring beams 40, 42 are preferably positioned at angled sections of the first and second 40, 42 ring beams.

[0023] Referring to Figures 7, there is shown generally indicated as 10, a building structure embodying a third aspect of the invention. The building structure 10 comprises the stanchions 16 of the first aspect of the invention and the roof assembly 14 of the second aspect of the invention. In use, the stanchions 16 are positioned such that they form a skeleton frame for the building 10. In the embodiment illustrated in Figure 7, as an example, the building 10 comprises twelve stanchions 16 positioned at intervals along the perimeter of the building structure 10 to create a frame for a room that extends from an existing wall 12. It is envisaged that this type of room is similar to a typical sun room or conservatory. The number and position of the stanchions 16 determines the size and shape of the building structure 10. It will be appreciated that the building structure 10 may alternatively be a freestanding structure. In use, the stanchions 16 are load bearing and support the roof assembly 14. The first ring beam 40 is shaped and dimensioned such that, in use, it corresponds to the position of, and is attachable to, a second end 33 of the stanchions 16. The first ring beam 40 is connectable to the second ends 33 of the stanchions 16 by any suitable coupling mechanism. In a preferred embodiment, sockets or housings 35 are provided on the first ring beam 40, shaped and dimensioned to accept the second end 33 of the stanchions 16. The housings 35 may extend from or be recessed within the first ring beam 40. In a preferred embodiment, means for securing the first ring beam 40 to the stanchions 16, such as screws, bolts or other fixings are provided. It will be appreciated that other conventional attachment means may be used to secure the first ring beam 40 to the stanchions 16.

[0024] The building structure 10 also comprises walls 34 or and/or windows 36. A more detailed description of the walls 34 and/or windows 36 is described hereafter. In use, the walls 34 and/or windows 36 are positioned in the spaces between adjacent stanchions 16. The stanchions 16 are preferably positioned where two adjacent walls 34 and/or windows 36 meet, in particular where two adjacent walls 34 and/or windows 36 which are angled relative to each other meet. Where a particular section of the building structure 10 is over a certain length, a plurality of stanchions 16 may be placed at intervals along

that section. For example in Figure 7, four stanchions 16 are positioned at intervals along the longest walls. In use, the walls 34 and windows 36 are non-load bearing.

[0025] Referring to Figure 8, the walls 34 comprise a combination of dwarf walls 34A and full walls 34B. In a preferred embodiment, the walls 34 are modular. As illustrated in Figure 8, the modular walls 34A, 34B comprise two ring boxes 60 lined with insulation 62. Preferably the ring boxes 60 are arranged to form a cavity type wall. The external face of the wall 34 is covered with a panel 64, preferably manufactured from galvanised steel, and then a mesh 66, preferably manufactured from galvanised metal. Brick slips 68 or plates are fixed to the mesh 66 to create the façade of the wall 34. A range of façades may be provided. The interior face of the wall 34 is covered with a panel (not shown), preferably a sound insulating panel and plaster (not shown). The windows 36 may take the form of conventional window structures. In use, the modular walls 34A, 34B and/or windows 36 are placed in the space between adjacent stanchions 16 and secured to the stanchions 16. As illustrated in Figure 8B the walls 34A, 34B are fixed to the stanchions 16 by corner brackets 70. A full wall 34B is engaged between the ground 18, stanchions 16 and first ring beam 40 while a dwarf wall 34A may be fixed to the ground 18 and stanchions 16 and support a window sill (not shown) and window 36. In a preferred embodiment, a door 72 (shown in Figure 7) is provided, positionable between adjacent stanchions 16.

[0026] Referring to Figure 12, the building structure 10, also comprises floor joists 86. The floor joists 86 are positionable in parallel spaced apart relationship adjacent the ground 18 and are attachable to the walls 34. In use, the floor joists 86 increase the rigidity of the building structure 10. A floor panel 88 or plurality of floor panels 88 are attachable to the floor joists 86 to provide a floor surface. In a preferred embodiment, insulating material (not shown) is provided between adjacent floor joists 86.

[0027] Referring to Figure 13A, a marking guide 90 may be provided for marking the desired cut-out shape on the existing wall. In a preferred embodiment, the guide 90 is formed in detachable sections which may be inter-connectable by male and female engagement means.

[0028] Referring to Figure 14, the building structure 10, also preferably comprises a ground mould 92. In use, the ground mould 92 provides a mould within which the ground 18 is prepared i.e. the concrete foundations. In a preferred embodiment, the ground mould 92 is sectional and the sectional pieces are inter-connectable by a male and female engagement means. As illustrated in Figure 14, the ground mould 92 is preferably shaped and dimensioned to include any steps which may be added to the building structure 10 at doorways. The ground mould 92 is preferably manufactured from aluminium.

[0029] Referring to Figure 9 an alternative building 10 is shown whereby the layout of the building 10 has been altered by simply repositioning the walls 34A, 34B, windows 36 and doors 72 in relation to the stanchions 16. It

is envisaged that multiple building layouts may be created using the components of the first and second aspects of the invention.

[0030] Similarly, it will be seen that the invention is applicable to structures that don't necessarily have a lantern style top portion. For example, the invention can be used for structures having otherwise conventional solid roofs with single ridge beam at the apex of the roof and having the rafters extending up to the ridge beam from the ring beam 40.

[0031] In a preferred embodiment, the building structure 10 described above is provided as a kit, the kit comprising all necessary components to produce the building structure 10. It is therefore envisaged that all the components are preformed or pre-fabricated as standard pieces. In a preferred embodiment, the kit is provided as a "flat pack" kit.

[0032] As an example, it is envisaged that the kit may comprise a plurality of stanchions 16 and coupling mechanisms 20 needed to create a particular size and shape of building 10; first and second ring beams 40, 42, to create a particular size and shape of roof assembly 14, the size and shape of the roof assembly 14 corresponding the layout of the stanchions 16; rafters 44; batons 52; modular full walls 34B, modular dwarf walls 34A, windows 36; doors 72; roof tiles 50 and a skylight 52 plus all attachment and securing means required to assemble the building 10.

[0033] A fourth aspect of the invention comprises a method for constructing the building 10 of the third aspect of the invention. The preferred method comprises the following steps.

[0034] First the ground 18 is prepared. The ground mould 92 is assembled, if needed and is firstly used as a guide for the position, size and shape of the building 10 and thus the area and shape of the ground 18 preparation. Secondly the ground mould 92 is used as a mould in which to prepare the foundations. The ground 18 within and around the building 10 is prepared to create a substantially level and even surface such that the foundations are located directly in line with and, in use, substantially underneath the stanchions 16. Once the ground 18 is prepared the first ring beam 40 is assembled, if needed, and is placed on the foundations and used as a guide for making the shape of the building, in particular where adjacent walls are angled relative to each other and thus the positioning of the stanchions 16. Referring to Figure 4B and 15B, a guide 80 is provided, preferably shaped and dimensioned to define the sections of the first ring beam 40 where the respective stanchions 16 are attachable, in particular, as shown, the guide 80 is shaped to define angled sections of the first ring beam 40. The guide 80 comprises an aperture 43 that corresponds to where the centre of the stanchions 16 engage with the ring beam 40 and thus where the centre of the stanchions 16 must engage with the foundations. The position of the apertures 43 is marked on the ground 18 to indicate the position of the stanchions 16. When the position of stan-

chions 16 is marked, the respective coupling mechanisms 20 are connected to the foundations and the respective stanchions 16 are then connected to the coupling mechanism 20. In a preferred embodiment, the position of the stanchions 16 are marked by boring a hole 98 in the foundations (shown in Figure 15C). The hole 98 is then used to engage the coupling mechanism 20 with the ground 18.

[0035] Once the stanchions 16 are engaged with the foundations, each respective stanchion 16 may be adjusted in position with respect to the ground 18, as described previously, to obtain a desired alignment. When a desired alignment is found each respective stanchion 16 is secured in the desired position. Thus vertical alignment of the stanchions 16 and/or a desired height can be achieved when the ground 18 is uneven or not horizontal.

[0036] The wall attachment 90 is, if applicable, assembled and/or attached to an existing wall 12 such that the building structure 10 is connectable to the existing wall 12. The wall attachment 90 provides a guide which, in use, marks where conventional lead flashing should be engaged with the existing wall 12.

[0037] Once the stanchions 16 are positioned and secured the first ring beam 40 is assembled, if needed, and connected to the second end 33 of the stanchions 16 by the attachment means. If the stanchions 16 have been positioned and aligned correctly the first ring beam 40 and, in particular the attachment means, will automatically align with the second end 33 of the stanchions 16. If the stanchions 16 are not positioned correctly then the first ring beam 40 will not automatically align with the second end 33 of the stanchions 16. If misalignment occurs, a misaligned stanchion 16 may be repositioned as previously described such that the second end 33 of the stanchion is connectable with the first ring beam 40. Thus the stanchions 16 and first ring beam 40 may be assembled without the need to remove and reposition the stanchions 16. Once the first ring beam 40 is engaged with the stanchions 16, the rafters 44 and second ring beam 42 may be attached to create the roof frame. In an embodiment where the building 10 is attached to an existing wall 12 conventional means for securing and sealing the building 10 to the existing wall 12 are used.

[0038] Once the framework of the building 10 is created the walls 34, windows 36 and doors 72 are installed. The walls 34, windows 36 and doors 72 are positioned in the spaces between the stanchions 16 and secured to the surrounding ground 18, stanchions 16 and first ring beam 40 as described above. The combination and layout of the walls 34, windows 36 and doors 72 is determined by the user.

[0039] In one embodiment described above the batons 54 are attached to the rafters 44 and the roof tiles 52 are connected to batons 54. The skylight 50 is then attached and secured to the second ring beam 42.

[0040] In an alternative embodiment, initial rafters 44 are attached and roof panels 82 are engaged between

the rafters 44. Referring to Figure 11A, the roof panels 82 are preferably engagable by way of temporary guides 98, which in use, are positioned between the first and second ring beams 40, 42. Rollers 97 are fitted to the rafters 44' of the roof panel 82 and are engaged with a bearer 96 on the respective guides 98. The rollers 97 on the roof panels 82 are then guided along the bearers 96 such that the roof panel 82 is guided into position and the rafters 44' of the roof panel 82 engage with corresponding attachment means. The attachment means may for example comprise a threaded bar and securing nut or a male and female slidable coupling device 49 as illustrated in Figure 5B. The guides 98 are then removed. The roof panels 82 are first temporarily secured in position to brace the building structure 10 and then permanently secured in place.

[0041] The floor joists 86 are positioned and attached to the walls 34. Insulating material is provided between the joists 86 and the floor panels 88 are secured to the joists 86.

[0042] Once assembled, conventional construction practices may be applied to, for example, seal the joins, prepare the interior floor and walls etc, to finish the building and make it habitable.

[0043] In the above described embodiments, the coupling mechanism 20 has a plate 29 set into the concrete and the lugs 32, which co-operate with the arc-shaped slots 30, project up from the base plate.

[0044] Referring now to Figure 16, in an alternative embodiment, a base plate is not used as it may be considered unstable. Instead, the anchors/lugs 32 are placed directly in the concrete floor surface. To do this, holes are drilled in the set concrete and the anchors 32 are dropped into the holes. These are typically rawl type bolts sometimes referred to as chemical anchors that expand to anchor themselves in the concrete.

[0045] In this embodiment, a spigot 95 is added to the underside of the plate 24' which is in turn attached to the stanchion 16'. The spigot fits into a further hole formed in the concrete floor.

[0046] With the embodiment of Figure 16, mild steel grommets (not shown) can be placed with one closed end into the holes for receiving the adjusting nuts 28' on the base plate 24'. These are released upon tightening the nuts 28' to ensure that the adjusting nuts 28' do not become embedded in the concrete floor when tilting the stanchions 16'.

[0047] Referring now to Figure 17, the guide of Figure 4b is modified to comprise a guide 80' including markings 43' for drilling the holes for receiving the spigot and anchors.

[0048] Referring now to Figure 18, in a variation of the plug/socket 33/35 arrangement of Figure 2, the stanchions 16' include an L-shaped plate 97 on which the ring beam 40 can be located. The plate and beam included threaded holes 98 lying in register with one another allowing toggle bolts 99 to fix the stanchion 16' and ring beam 40 together. Again, this improves structural stabil-

ity.

[0049] The present invention is not limited to the embodiment(s) described herein, which may be amended or modified without departing from the scope of the present invention.

Claims

1. A stanchion comprising a coupling at one end thereof; means for fixing the coupling to a ground surface, the fixing means being adapted to permit rotation of the coupling about a longitudinal axis of the stanchion when the coupling is in contact with the ground surface. 10
2. The stanchion of claim 1 wherein the fixing means comprises at least one lug securable to the ground surface, and a corresponding at least one arcuate slot provided in the coupling for receiving the lug. 15
3. The stanchion of claim 1 or 2 comprising means for tilting the coupling relative to the ground surface when in contact therewith. 20
4. The stanchion of claim 3 wherein the tilting means comprises at least one height adjustable foot extendable from an underside of the coupling. 25
5. The stanchion of any preceding claim wherein the coupling comprises a plate. 30
6. The stanchion of claim 5 wherein the fixing means comprises four lugs and four corresponding arcuate slots provided in the plate. 35
7. The stanchion of any of claims 4 to 6 wherein the at least one height adjustable foot is actuatable from an in use upside of the coupling. 40
8. The stanchion of any preceding claim comprising a spigot/axle projecting from an underside of the coupling. 45
9. The stanchion of claim 8 wherein a longitudinal axis of the spigot/axle is aligned concentrically with a longitudinal axis of the stanchion. 50
10. A building structure comprising a plurality of stanchions according to any previous claim and a roof assembly, said roof assembly comprising at least two ring beams and a plurality of rafters, the rafters being engaged between the ring beams when in use, and the stanchions, in use, being load bearing and supporting the roof assembly. 55
11. A building structure according to claim 10 comprising a plurality of batons connected to the rafters and en-

gaging adjacent rafters.

12. A building structure according to claim 11 comprising roof tiles attached to said batons.
13. A method for constructing a building structure according to claim 10, the method of construction comprising the steps of:
 - preparing the ground surface;
 - engaging the stanchions with the ground surface;
 - positioning the stanchions as desired;
 - attaching a ring beam of the roof assembly to the stanchions; and
 - repositioning the stanchions if necessary to align the stanchions with the ring beam.
14. A method according to claim 13 further comprising:
 - attaching rafters to the first ring beam; attaching a second ring beam to the rafters; positioning and securing walls and windows in the space between adjacent stanchions;
 - attaching batons to the rafters;
 - attaching roof tiles to the batons; and
 - attaching a skylight to the second ring beam.

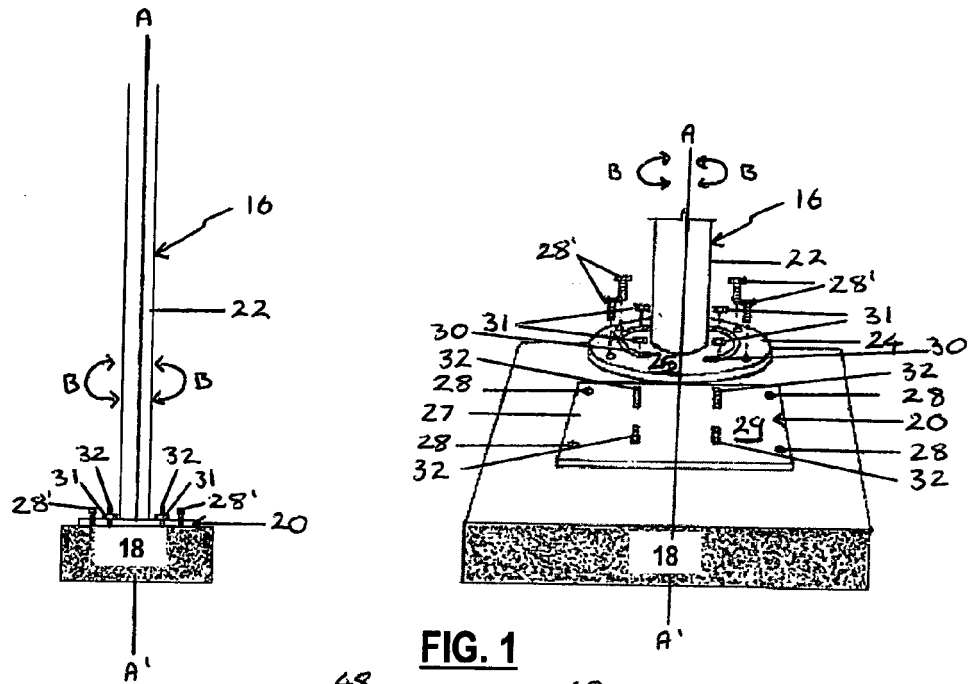


FIG. 1

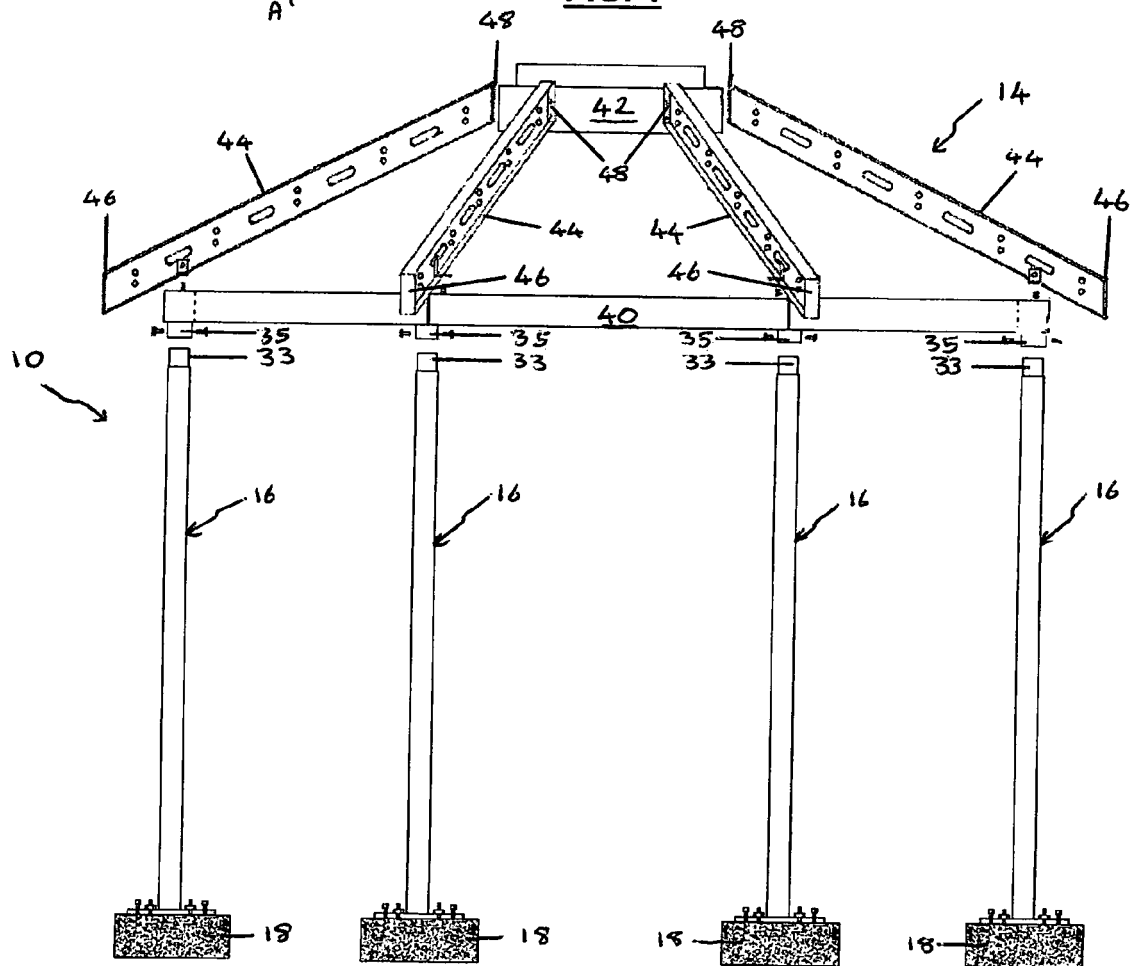


FIG. 2

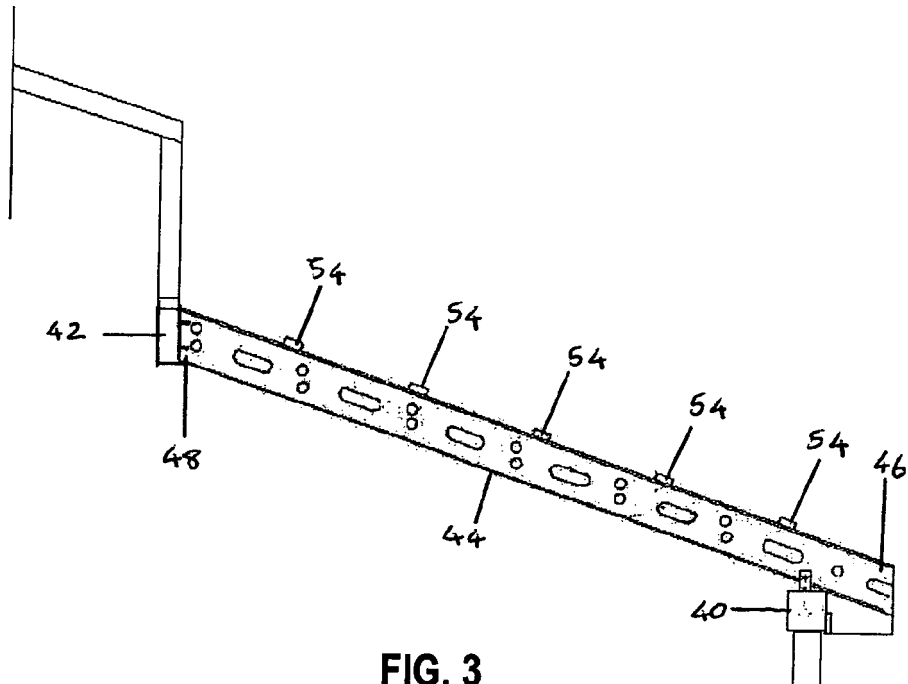


FIG. 3

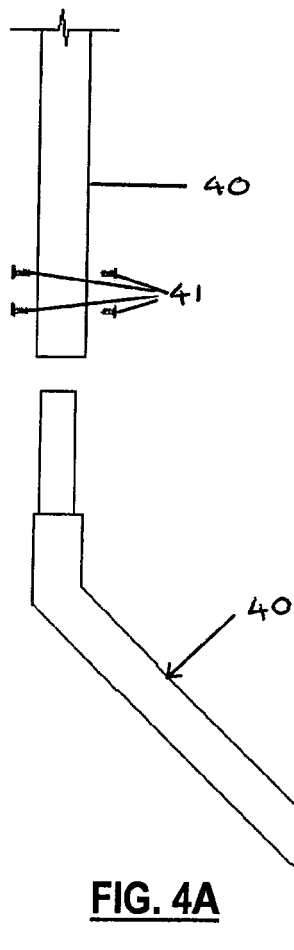


FIG. 4A

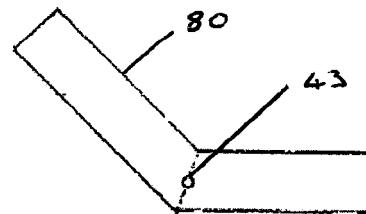


FIG. 4B

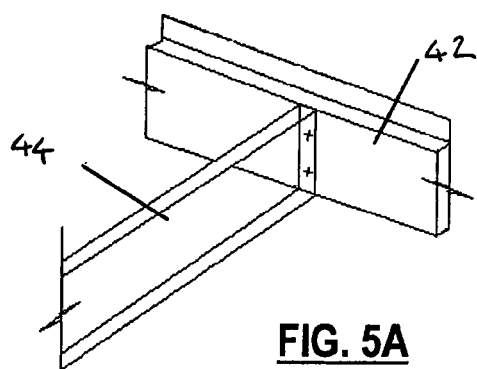


FIG. 5A

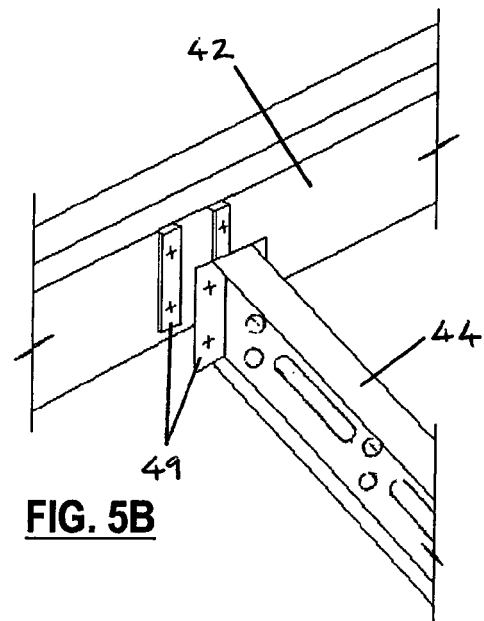


FIG. 5B

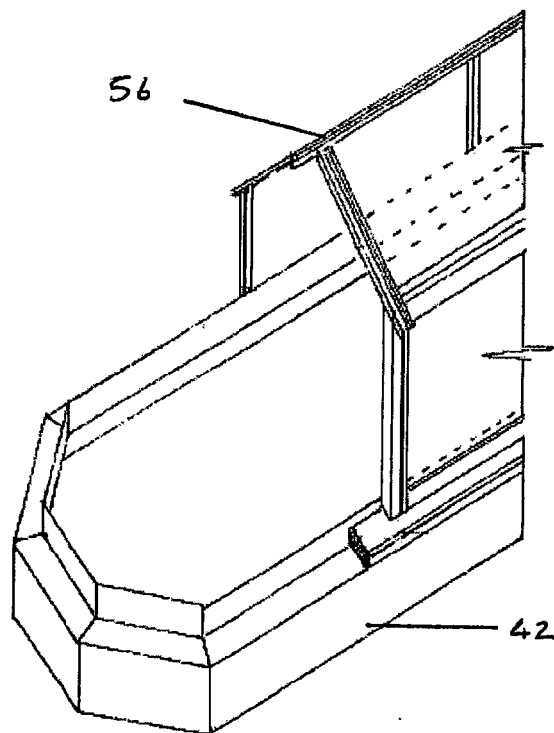


FIG. 6

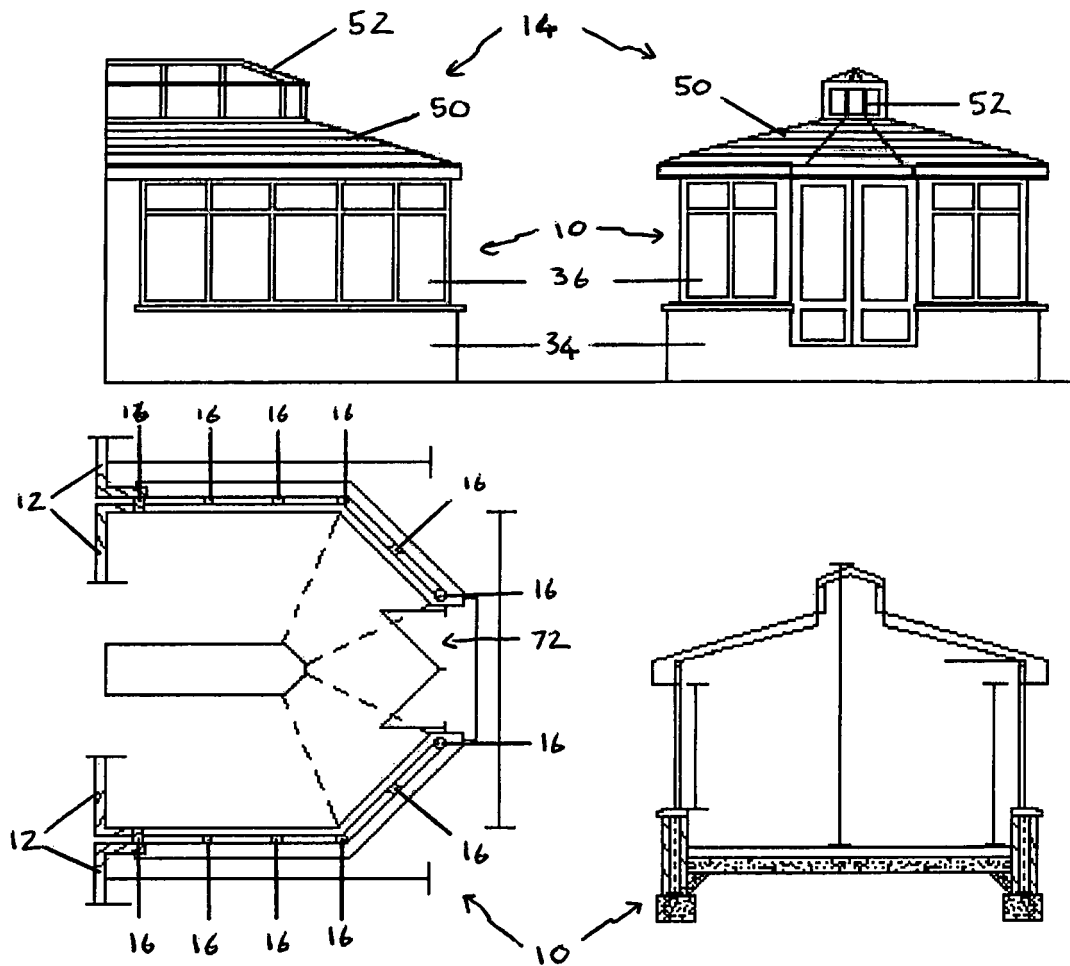
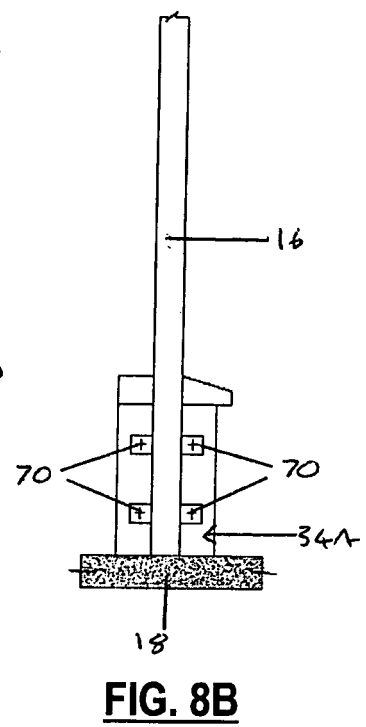
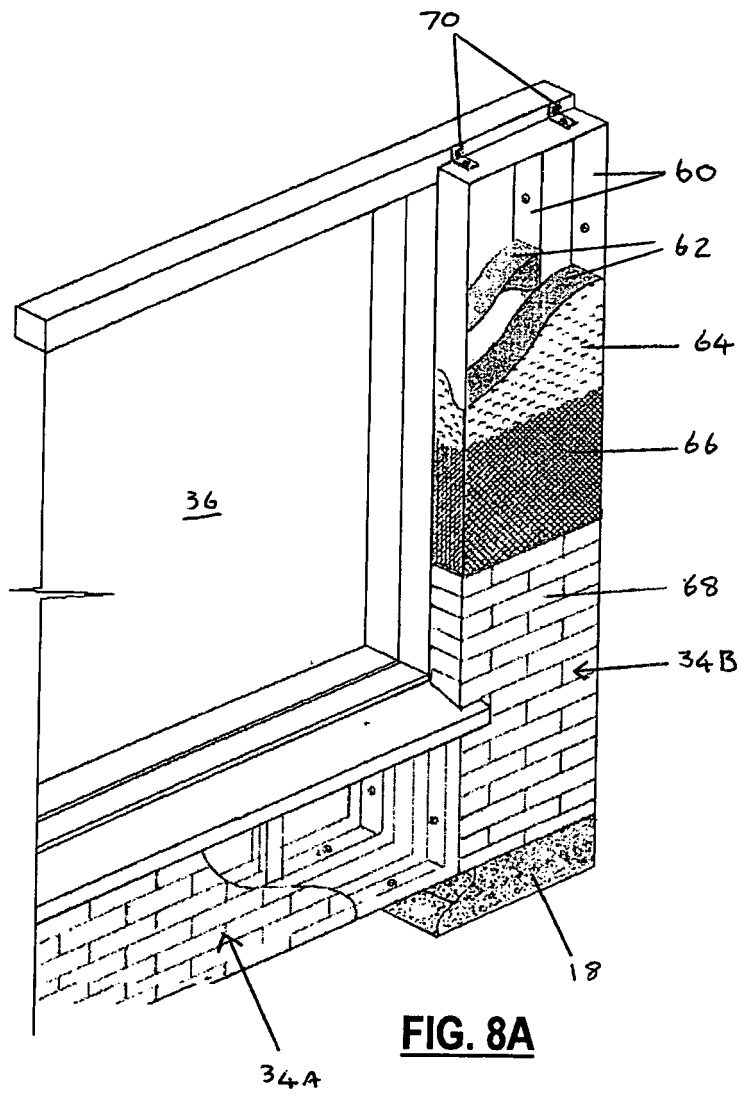


FIG. 7



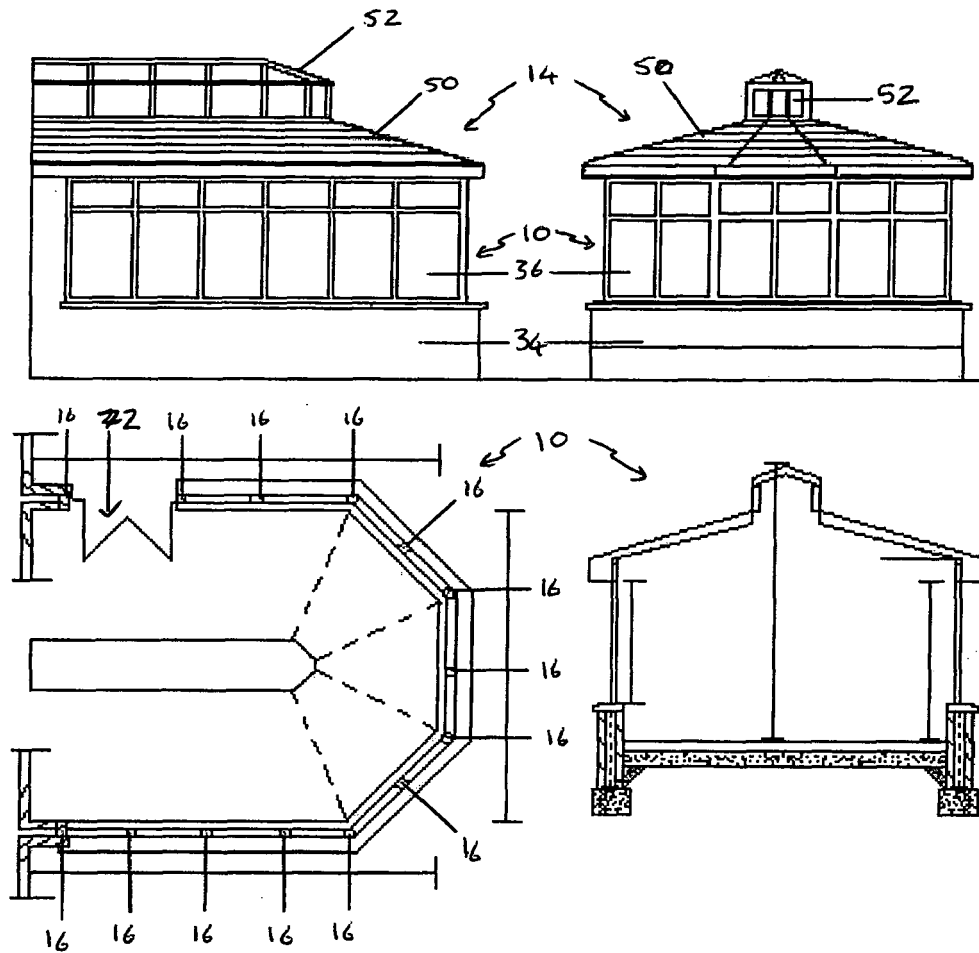


FIG. 9

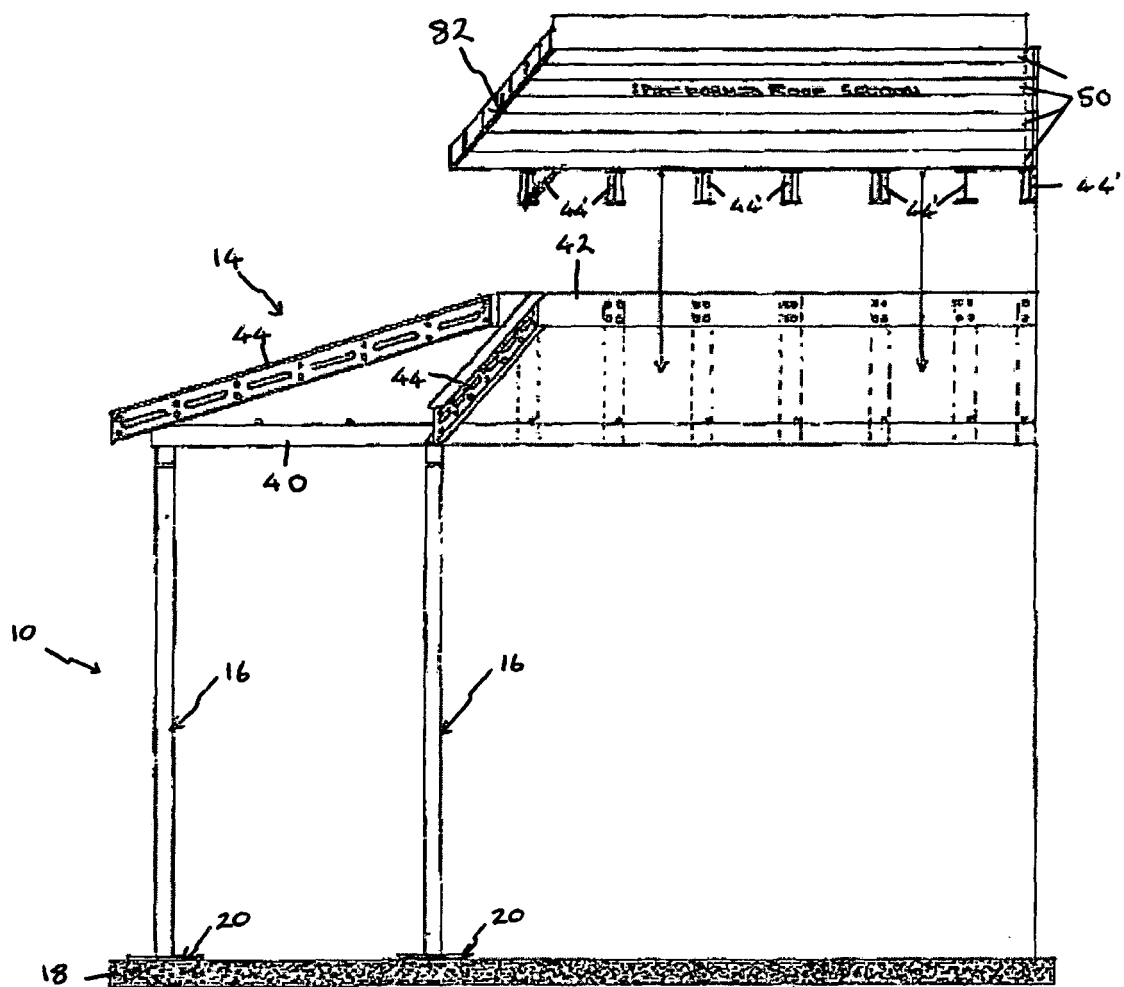


FIG. 10

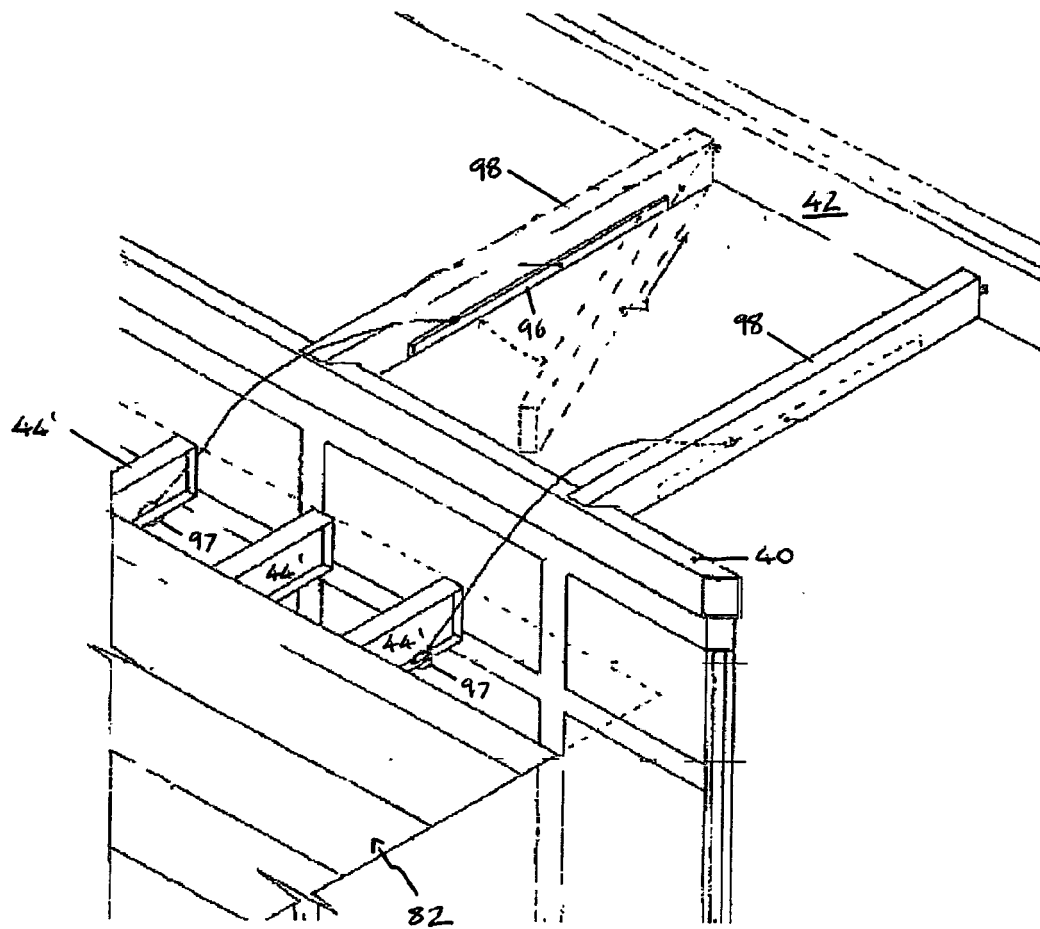


FIG. 11A

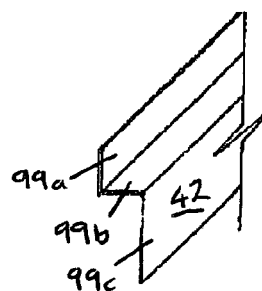


FIG. 11B

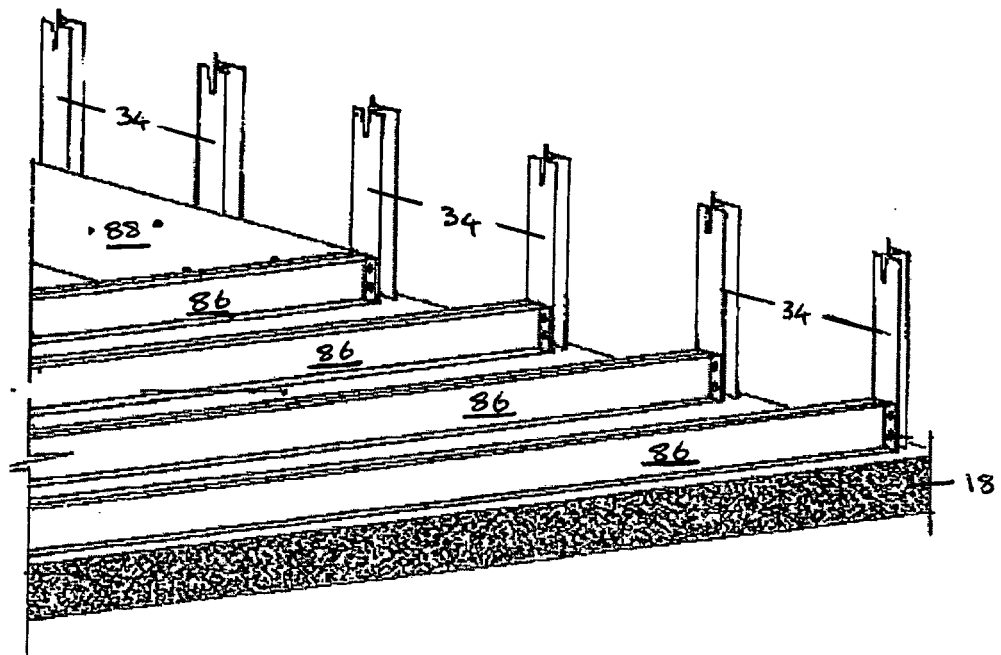


FIG. 12

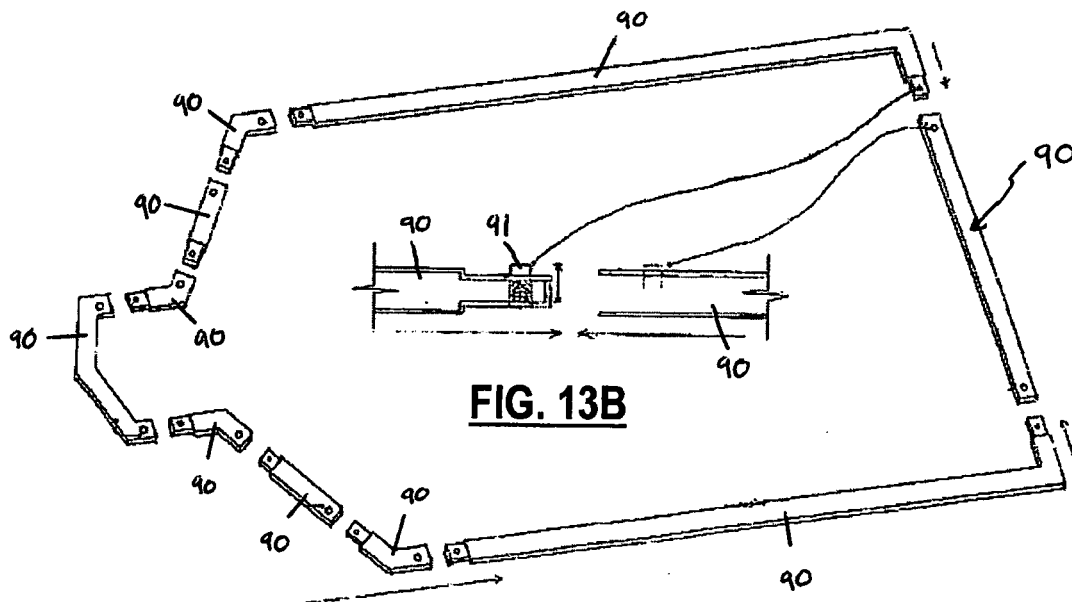


FIG. 13B

FIG. 13A

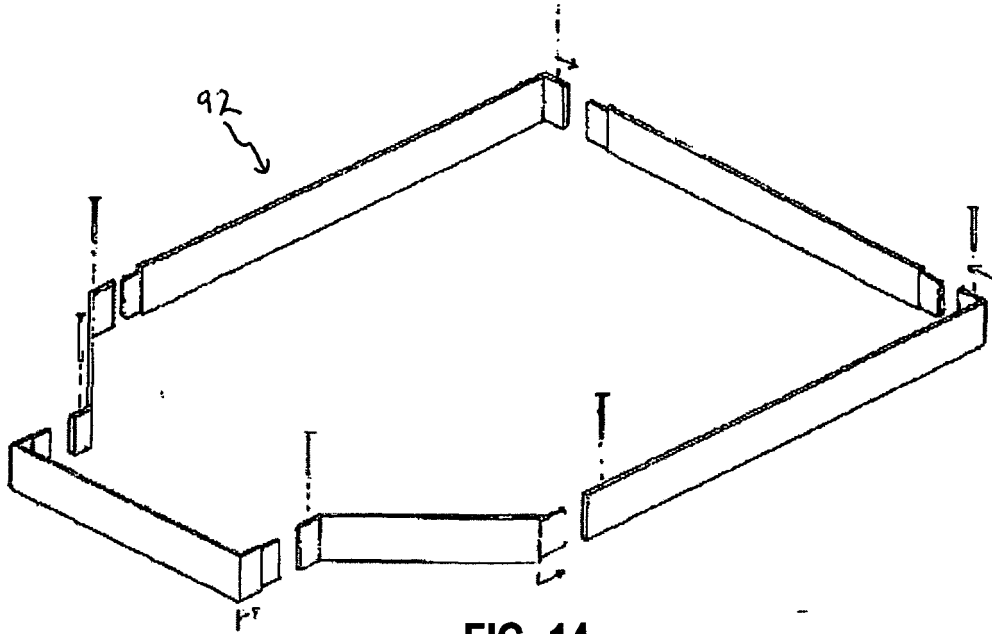


FIG. 14

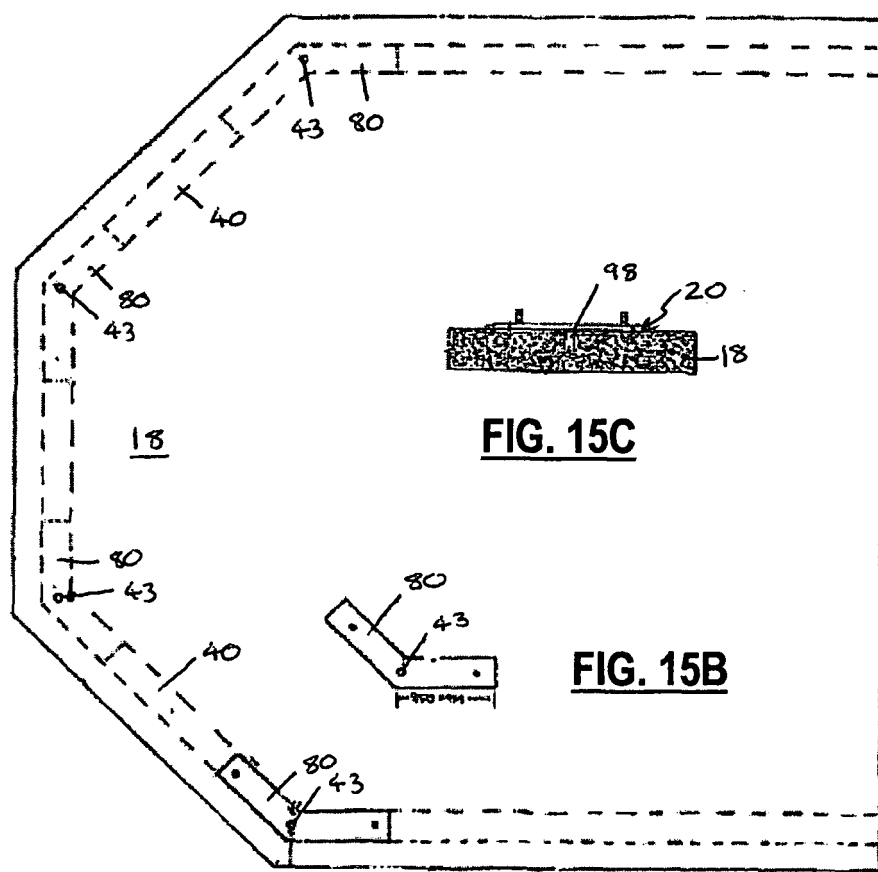


FIG. 15C

FIG. 15B

FIG. 15A

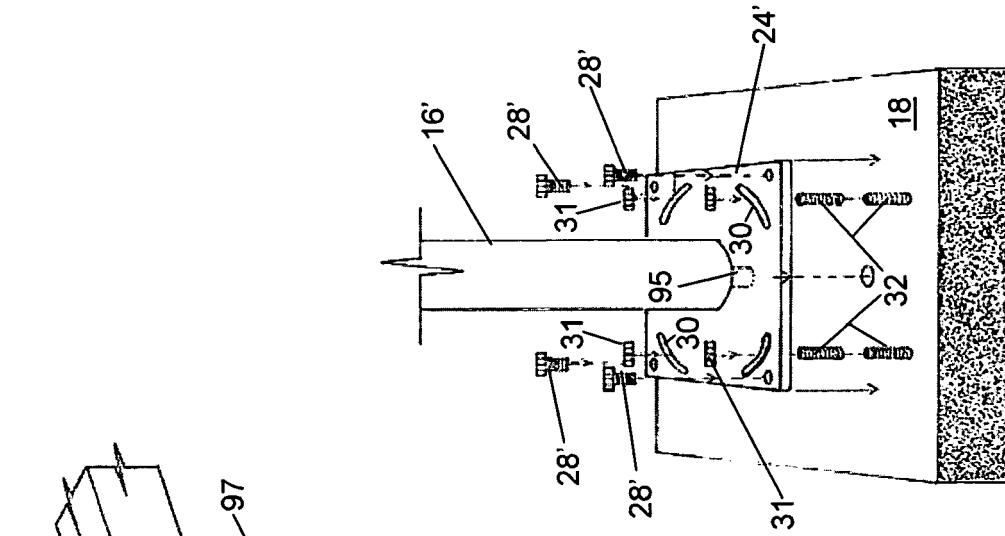


Fig. 16

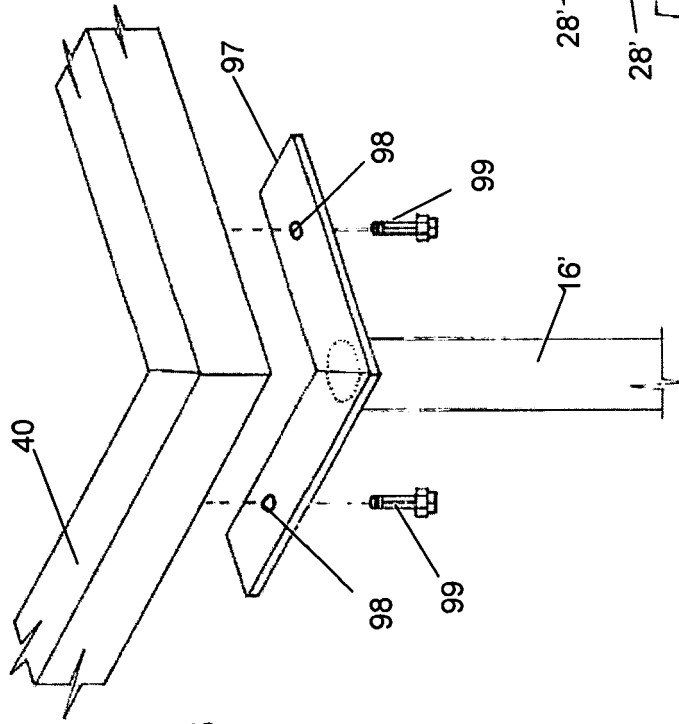


Fig. 17

Fig. 18

