

(43) Date of A Publication 15.01.1997

(21) Application No 9512407.9

(22) Date of Filing 19.06.1995

(71) Applicant(s)
Andrew Ive
50 New Village, Ingleton, Via Carnforth, Lancashire,
LA6 3DG, United Kingdom

(72) Inventor(s)
Andrew Ive

(74) Agent and/or Address for Service
Andrew Ive
50 New Village, Ingleton, Via Carnforth, Lancashire,
LA6 3DG, United Kingdom

(51) INT CL⁶
E04H 15/28 15/18

(52) UK CL (Edition O)
E1D DF191 DGS2 D2019 D427

(56) Documents Cited
US 4606366 A

(58) Field of Search
UK CL (Edition O) **E1D DF155 DF158 DF191 DF194**
DGS DLDLB DLFLB
INT CL⁶ **E04B , E04H**
On-line database - Derwent W.P.I

(54) **Domed structures**

(57) A domed structure incorporates a series of umbrella modules (2), joined at their tips, and covered with a material. Such material could be suitable for an outdoor structure.

The modules (2) are also interconnected by triangular infill panels (3) when pentagonal modules are employed.

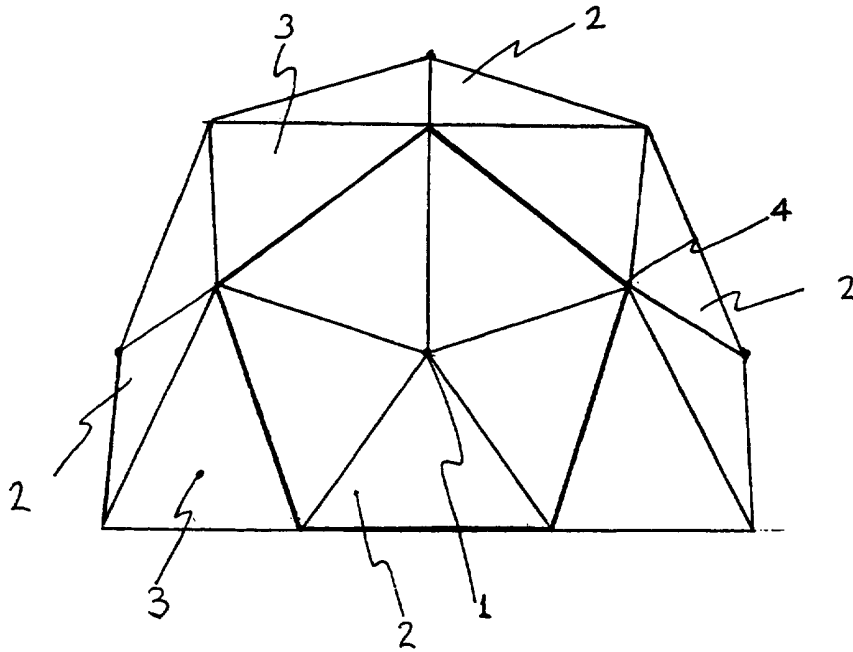


FIGURE 1

V1

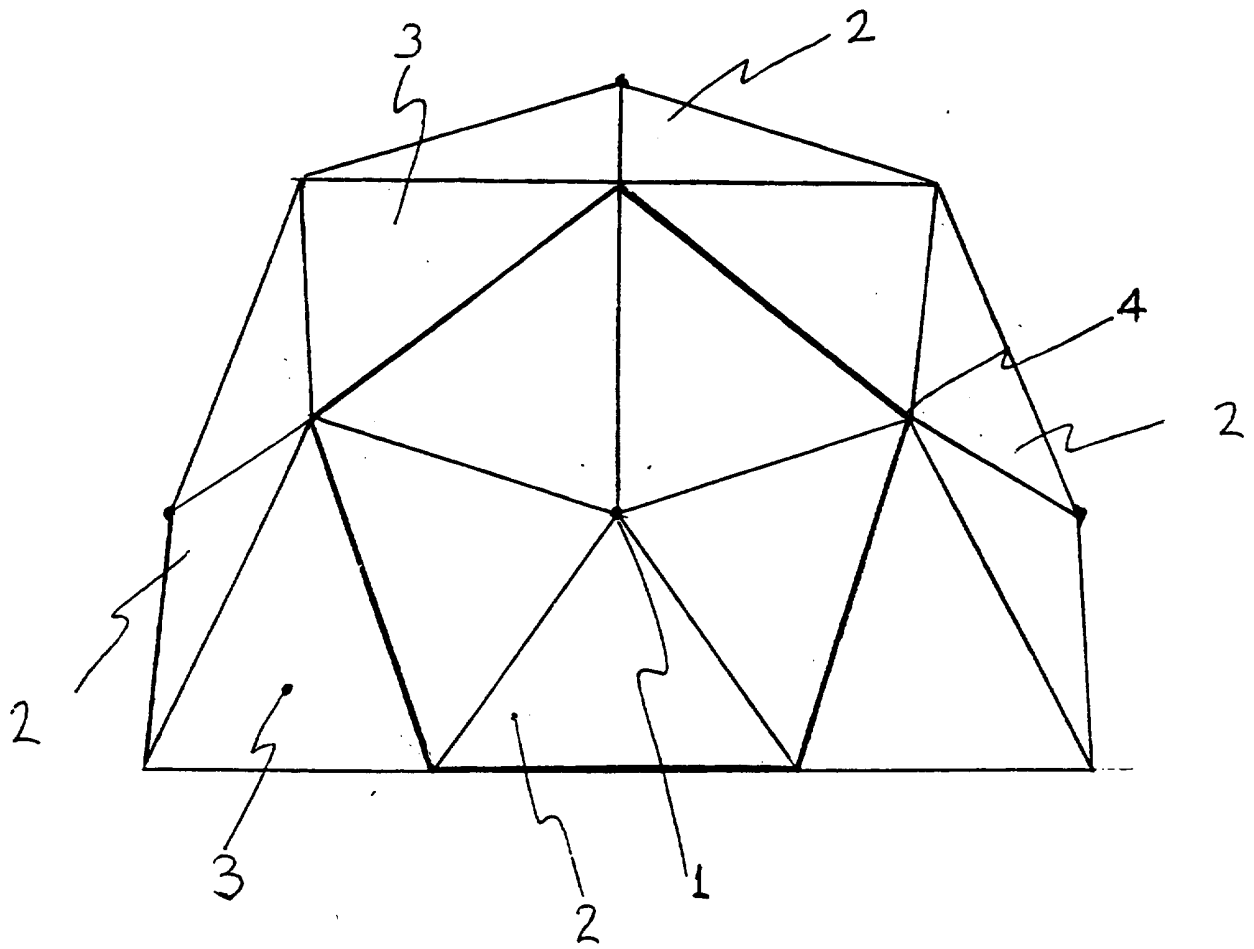


FIGURE 1

DOMED STRUCTURES

Domed structures are not new, and have in fact been around for many years, in building form, and more recently in geodysic tent design. All of these designs incorporate either a multiplicity of sections to erect in the case of buildings, or complicated pole procedures to erect an assymetrical or symmetrical tent or shelter. Self erect tents are on the market, but these are not based on the modular umbrella principle.

This patent relates to a design of tents, structures or shelters that are quick erect in their design, and rely on geometrical shapes being connected in umbrella format, with spaces filled by material compatible to the rest of the structure. Rigidity is gained by the erecting of the umbrellas. The design is for a light, portable structure, quick to erect and demount, but could be extended to larger structures for more permanent use. The principle is related to any size of structure, erected using the umbrella principle.

Figure 1 shows a typical exterior elevation of a pentagon umbrella structure, showing the modular sections used in the design.

Referring to the drawing, there are a number of umbrellas (2), in this case of pentagon type, that are connected by some means at the tip of the ribs (4), with the triangular interstices between the umbrella covers (3) filled with compatible material.

In the non erected position the structure has six pentagon umbrellas laying side by side with their tips (1) adjacent. The erection of the umbrellas, and their locking into position, give the structure as shown.

With regard to the erection, this can be implemented by a multiplicity of methods; namely, manually, mechanically, pneumatically, electrically or hydraulically, depending on size, speed of erection and ultimately, costs.

The skin material of the domed structures, may be of any flexible material, depending on weatherproof requirements, and may range from, but is not limited to, sewn cotton to welded PVC, or such.

The demounting of the dome can be carried out either with an actuating medium, or by collapse under the structures' weight.

The material of the domed structures can be metal or plastic or a mixture as in fibre materials.

CLAIMS

1. A quick erect, compact structure design, based on modular polygons in an umbrella form, with the umbrellas joined at their rib tips and the interstices of the outer cover filled with compatible covering material. The standard format being a structure with six pentagon umbrella modules. The material of the outer cover can be of any type and may incorporate windows and doors. The definition of umbrella being a number of ribs that open out and stretch a skin material. The said ribs being splayed by a corresponding set of stretchers, that may or may not be located on a central pole. A locking device is incorporated to hold the umbrella in position

2 A domed structure as in Claim 1, whereby the number of sides on the polygon is not limited, and may be an assymetrical design with for example ten sides to the top module, and five side modules making up the ten sides. or a square top with domed ends and staight sides, incorporating umbrella modules.

3 A domed structure as in Claim 1, whereby the inner space may be occupied by a second inner structure which may be temporarily or permanently connected to the outer structure.

4 A domed structure as in Claim 1, whereby second and

subsequent structures may be connected to the first, by a design incorporating removable sections and covered walkways between domes, if required.

4 A domed structure as in Claim 1, whereby the method of erection is not limited to any particular medium, and may be, but is not limited to, manual, mechanical, electrical, hydraulic or pneumatic.

5 A domed structure as in Claim 1 incorporating guy and peg methods to hold the structure to the ground. The design may incorporate locking arms all around the structure at floor level, to keep said structures' shape. This bottom rib may be incorporated in said securing method.

6 A domed structure as in Claim 1 above, but without the side walls, whereby a plurality of polygons may be joined at their tips to form a roof of any size, supported by an external structure.



Application No: GB 9512407.9
Claims searched: 1-6

Examiner: D J Lovell
Date of search: 17 June 1996

**Patents Act 1977
Search Report under Section 17**

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.O): E1D (DLDLB, DLFLB, DGS, DF155, DF158, DF191, DF194)
Int Cl (Ed.6): E04B, E04H
Other: On-line database - Derwent W.P.I

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US 4606366 Collet - note e.g. Figs 101,102	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.