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(54) **A modular three-dimensional net for children's playgrounds and the like**

(57) The three-dimensional net comprises a variable number of modular elements associated with one or a plurality of support posts (4) or firm support structures, each of the modules comprising a main line element (1) which is connected between a point (A) of the vertical post (4) and a point (C) of a floor to which the post is

fixed, and which is complemented by a further two line elements (2,3), of which one (2) is connected to an intermediate point (B) of the main line element (1) and to the post (4), and the second (3) is connected to the point (C) at which the main line element (1) is connected to the floor, these two line elements (2,3) being connected to the vertical support post (4) at the same point (D).

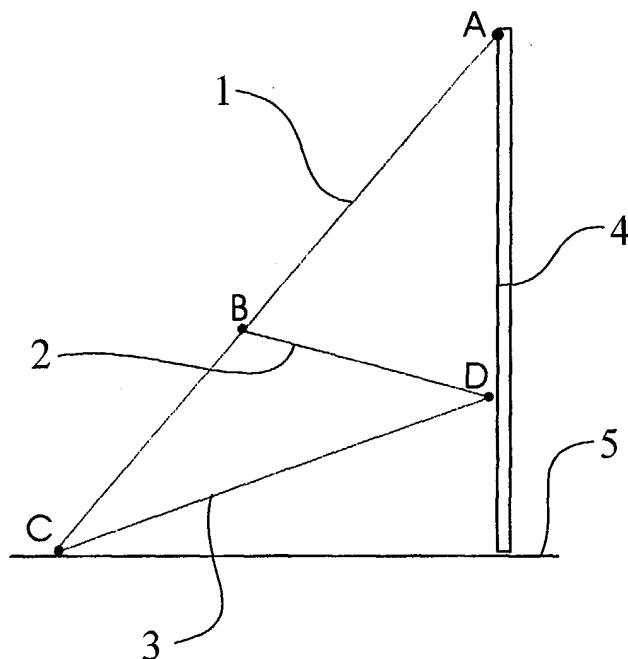


FIG. 1

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Description

[0001] The present invention relates to a modular, three-dimensional net for children's playgrounds and the like, which provides appreciable novelty and inventive step.

[0002] There are some currently known constructions of three-dimensional play nets which suffer from structural complexity, noticeably approximating to handicraft structures with multiple knots and connections of intermediate line elements which enable the three-dimensional net as a whole to be constructed but at the cost of a considerable investment in materials and labour.

[0003] The modular three-dimensional net of the present invention is characterized by a simple and versatile construction based on a basic arrangement of modular elements which are repeated indefinitely, producing multiple variants of the three-dimensional net of the present invention, which may be of widely variable structure, from three sides up to a very large number of sides, affording a high level of versatility for the production of the completed three-dimensional nets.

[0004] By the application of the present invention, it is possible to produce three-dimensional children's play nets which, owing to their simplicity and their versatile and easily extendable nature, can produce multiple constructions which themselves can constitute an important basis for amusement in a children's playground.

[0005] The three-dimensional net of the present invention is characterized fundamentally by the adoption of a basic modular element which is constituted by a support post and three line elements in the form of ropes, cables, or chains of suitable materials, etc., one of which connects the upper end of the post, or a region in the vicinity thereof, to a point of the base on which the post is placed, which may be the ground directly or another support element, the basic modular element comprising a second line element which is of the same type as the first and which connects a variable intermediate point of the post to the anchorage point of the first line element which is connected to the upper end of the post, and the basic modular element being completed by a third line element which connects the point at which the second line element is connected to the post to an intermediate point of the first line element. The construction is thus approximately the same as of an obtuse-angled triangle, the longer side of which is constituted by a line element which connects the upper end of the post to a point of its support base, which may be the ground, and in which the other vertex is at a variable point along the same post, to which point the other two line elements extend.

[0006] Any desired type of releasable fixing, for example, knotting, adjustable rings, fixed means, etc. may be used for anchoring, at variable points, the line elements which make up the basic module of the invention.

[0007] The modular elements described may be connected to a post, as indicated, or to a rigid surface of

another suitable type. In any case, the number of modular elements which make up the structure will be widely variable.

[0008] One of the features of the three-dimensional net of the present invention is that, given the characteristics of the basic modular element, it is possible to obtain a very wide range of specific structures of variable shape, simply by varying the points of anchorage of the line elements to one another and relative to the post or fixed anchorage surface.

[0009] For a better understanding, a series of drawings showing preferred embodiments of the present invention are appended by way of non-limiting example.

Figure 1 shows a schematic elevational view of a modular element according to the invention, associated with a fixed, upright post or stand.

Figures 2, 3, 4 and 5 show schematically the arrangements in plan of three-dimensional structures formed on the basis of the same modular element of the invention, with different positions of each of the modular elements relative to the central post.

Figures 6 to 9 show further schematic plan views of three-dimensional embodiments in which, in addition to the modular elements associated with a central post, peripheral line elements such as ropes or the like are also provided.

Figure 10 shows a schematic plan view of a three-dimensional net with a single post in which the peripheral line elements are connected to an intermediate point of the modular elements.

Figures 11 and 12 show plan views of three-dimensional nets with modules of different lengths.

Figures 13 and 14 show respective embodiments of three-dimensional nets with more than one post.

Figures 15 and 16 show respective perspective views of three-dimensional structures formed in accordance with the present invention.

[0010] As can be seen in the drawings, the basic modular element of the present invention consists of three line elements, indicated 1, 2 and 3, which are fixed by one end to a post 4 or other fixed structure on the ground 5, at points which can be adjusted as desired. It is thus possible to vary the height of the fixing point A on the post 4 as well as the point C at which the line element 1 is fixed to the ground and, similarly, the point B at which the line element 2 is connected to the line element 1 and the point D at which the two line elements 2 and 3 are connected to the post 4. The modular element is therefore constituted basically by a structure in the form of an obtuse-angled triangle, the longer side of which connects a point situated at the upper end of the post or support surface, or in the vicinity thereof, and another point disposed on the ground or on an auxiliary support element, not shown. The shorter sides are constituted, respectively, by a section of the post 4 and by the line element 3. As is clear, the length of the line element 1

and the height of the post or fixed structure 4 can therefore be varied, giving rise to different variants of the basic modular element of the invention.

[0011] As is clear, the main modular element of the invention can be combined with other modular elements of the same structure, of the same length or of different lengths.

[0012] Figures 2 to 5 show schematic plan views of embodiments of three-dimensional nets in which Figure 2 shows the central post 6 and four modules 7, 7',... of the type described above, arranged at 90° to one another.

[0013] In the variant shown in Figure 3, a central post 8 and a series of arms 9, 9', ... arranged at regular angular intervals are shown.

[0014] Figure 4 shows an embodiment similar to that of Figure 3 with a central post 10 and six modular elements or spokes 11, 11', ... in a regular arrangement.

[0015] Similarly, Figure 5 shows a central post 12 with eight radial elements 13, 13', ... of equal length and with regular angular intervals.

[0016] In the three-dimensional nets of the present invention, it is possible to include line elements which extend on the periphery of the assembly as in the embodiments shown by way of example in Figures 6 to 10. In Figure 6 a structure with a central post 14 with radial modules 15, 15', ... and peripheral interconnecting elements 16, 16', ... can be seen.

[0017] Figure 7 shows an embodiment similar to Figure 8 with a central post 17 and modular elements 18, 18', ..., with peripheral connecting elements 19, 19', ...

[0018] Figures 8 and 9 show, respectively, an arrangement of five modules and another arrangement of nine modules, extending from their respective central posts 20 and 21.

[0019] Figure 10 shows a version in which the radial modules 23, 23', ... extending from a central post 22 are interconnected by peripheral line elements 24, 24', ... which are connected at intermediate points of the line elements of the modules.

[0020] Figures 11 and 12 show embodiments with respective central posts 25 and 26 and modules of different lengths such as the modules 27 and 28 of Figure 11 or the modules 29 and 30 of Figure 12.

[0021] Figures 13 and 14 show two three-dimensional structures with multiple fixing posts such as the posts 31, 32, 33, and 34 of Figure 13 and the posts 35, 36, 37 and 38 of figure 14. With these posts, many modular elements of the type described above may be incorporated, surrounding the central regions which have a square shape indicated 39 in Figure 13 and a rectangular shape indicated 40 in Figure 14, respectively.

[0022] Figures 15 and 16 show practical embodiments of the three-dimensional nets of the present invention.

[0023] In Figure 15 a central post 41 with multiple modules 42, 42', ... of the type described above can be seen, with fixing to the ground by means of turnbuckles

43, 43', ..., producing a basic three-dimensional structure which may be provided with other complementary elements, as can be seen in Figure 16; in Figure 16 the structure of Figure 15 is provided with multiple transverse line elements forming polygons 44, 44', or interconnecting ropes such as those indicated 45, 45', ..., variable numbers of which complete the structure of the three-dimensional net.

Claims

1. A modular three-dimensional net for children's playgrounds and the like, **characterized in that** it comprises a variable number of modular elements associated with one or a plurality of support posts or firm support structures, each of the modules comprising a main line element which is connected between a point of the vertical post and a point of a floor to which the post is fixed, and which is complemented by a further two line elements, of which one is connected to an intermediate point of the main line element and to the post, and the second is connected to the point at which the main line element is connected to the floor, these two line elements being connected to the vertical support post at the same point.
2. A modular three-dimensional net for children's playgrounds and the like according to Claim 1, **characterized in that** the points at which the line elements are connected to the post or firm support structure and to one another can be adjusted to produce the final three-dimensional structure.
3. A modular three-dimensional net for children's playgrounds and the like according to Claim 1, **characterized by** the arrangement of multiple modular elements of variable lengths, associated with a plurality of posts or vertical structures.
4. A modular three-dimensional net for children's playgrounds and the like according to the preceding claims, **characterized in that** the terminal elements of each of the modules are connected by transverse elements in the form of connecting polygons and connecting ropes in order to make up a complete three-dimensional structure.

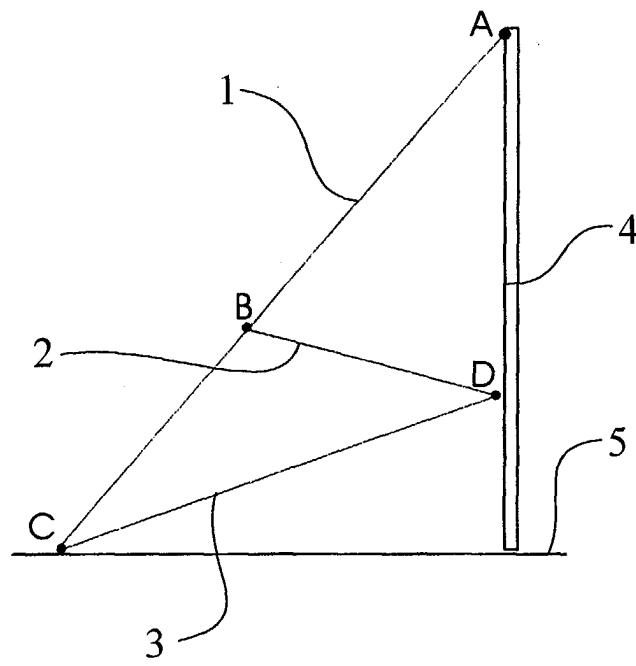


FIG. 1

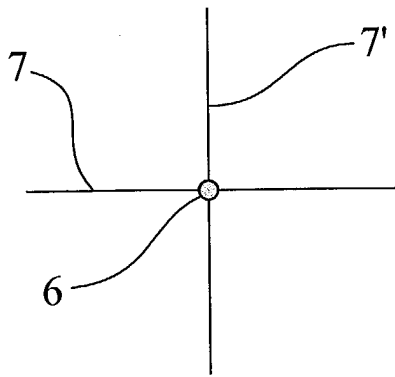


FIG. 2

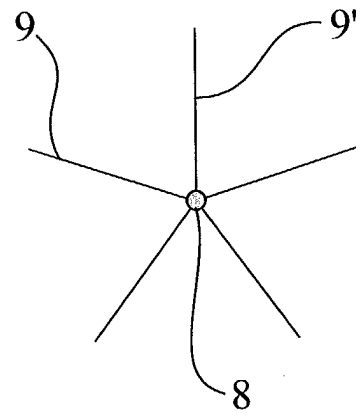


FIG. 3

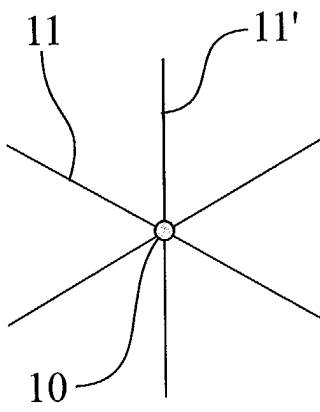


FIG. 4

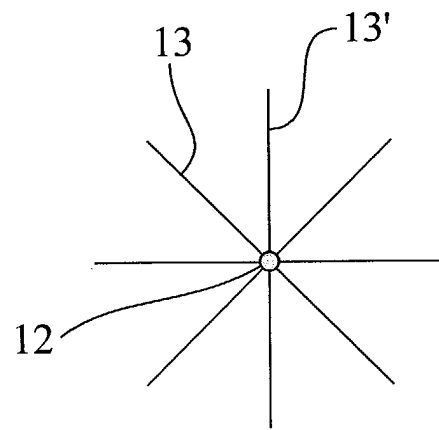


FIG. 5

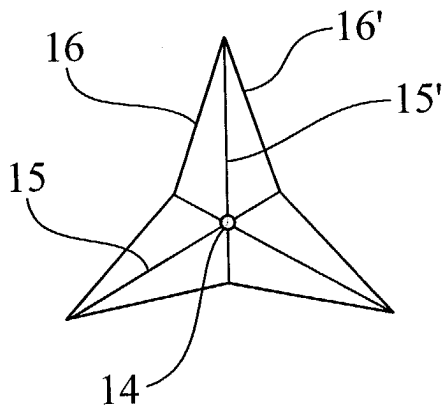


FIG. 6

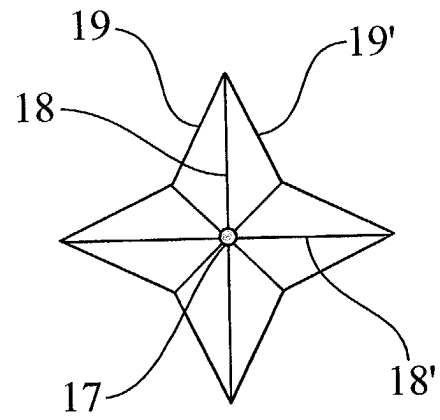


FIG. 7

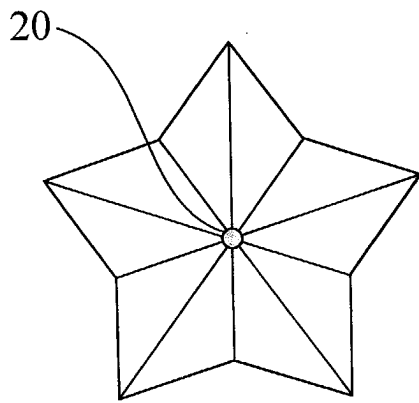


FIG. 8

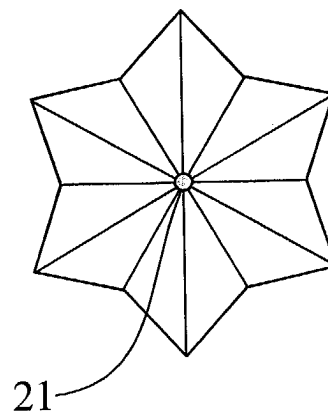


FIG. 9

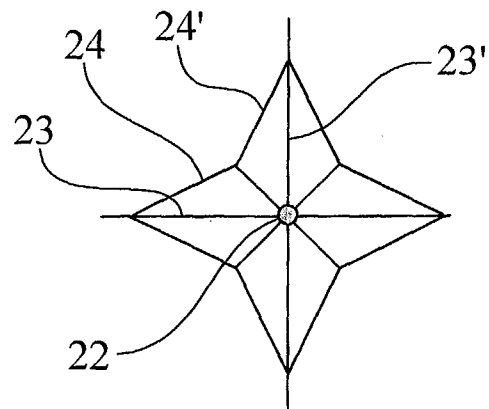


FIG. 10

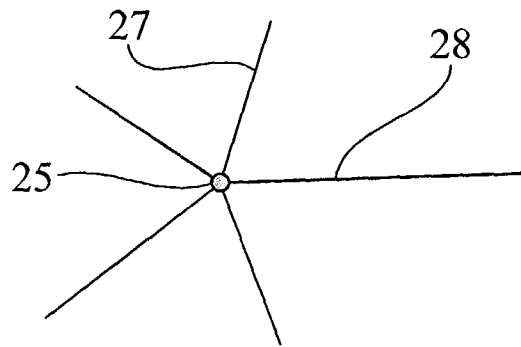


FIG. 11

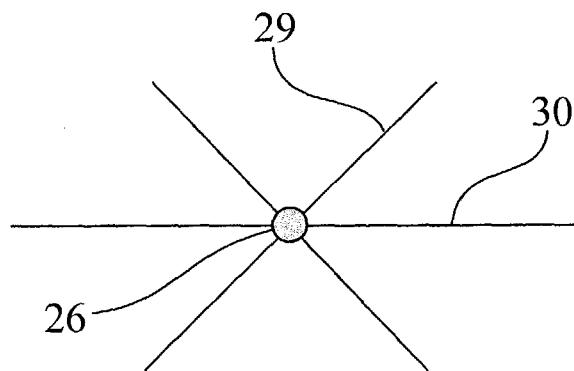


FIG. 12

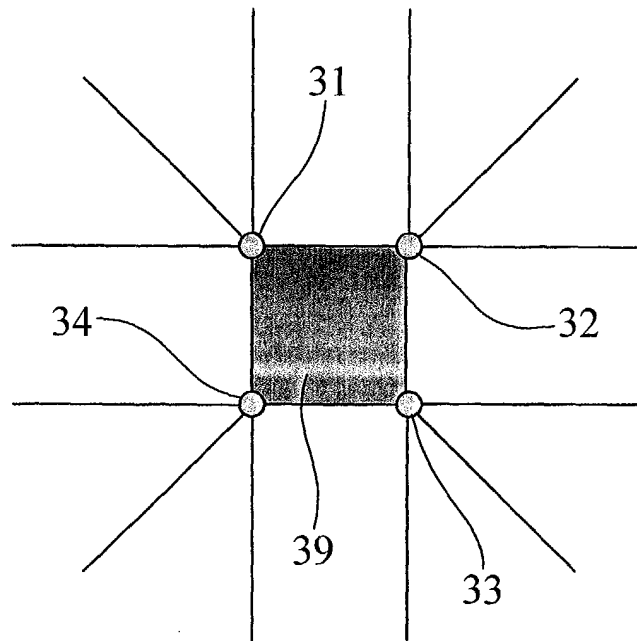


FIG. 13

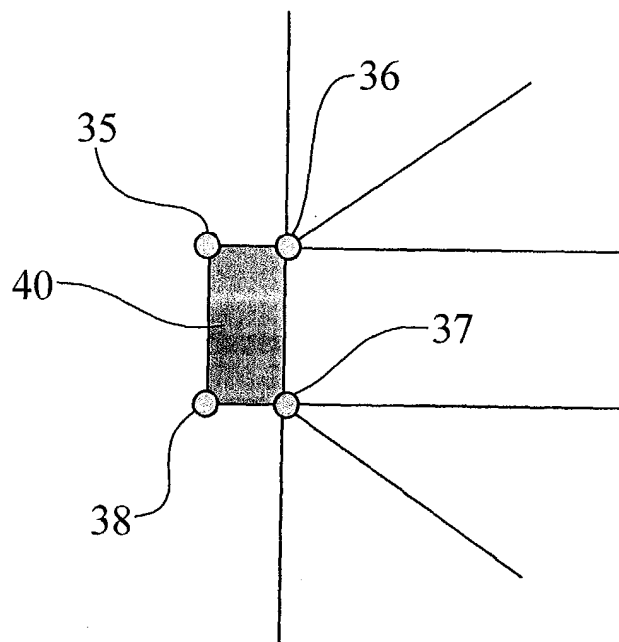
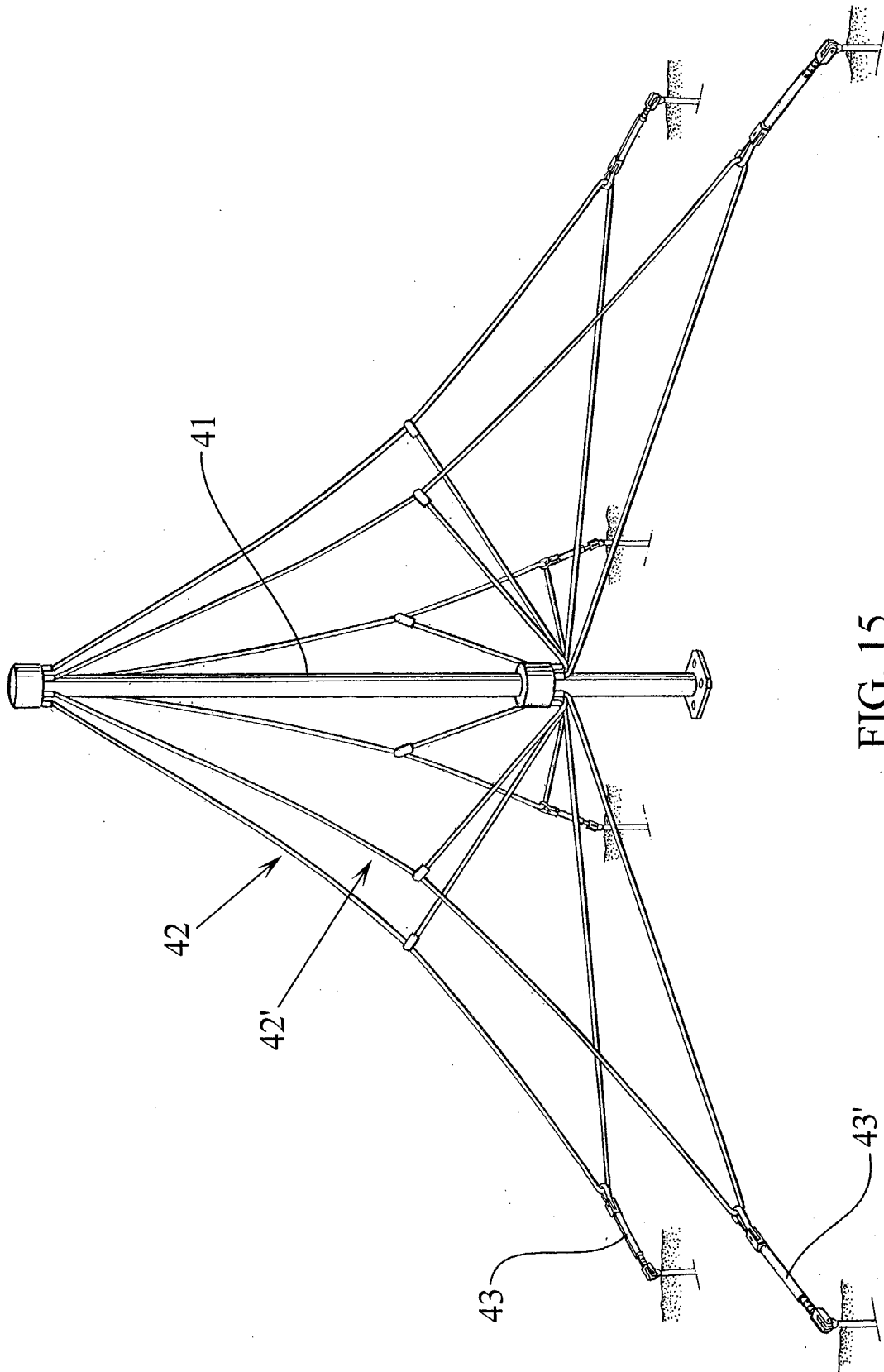


FIG. 14



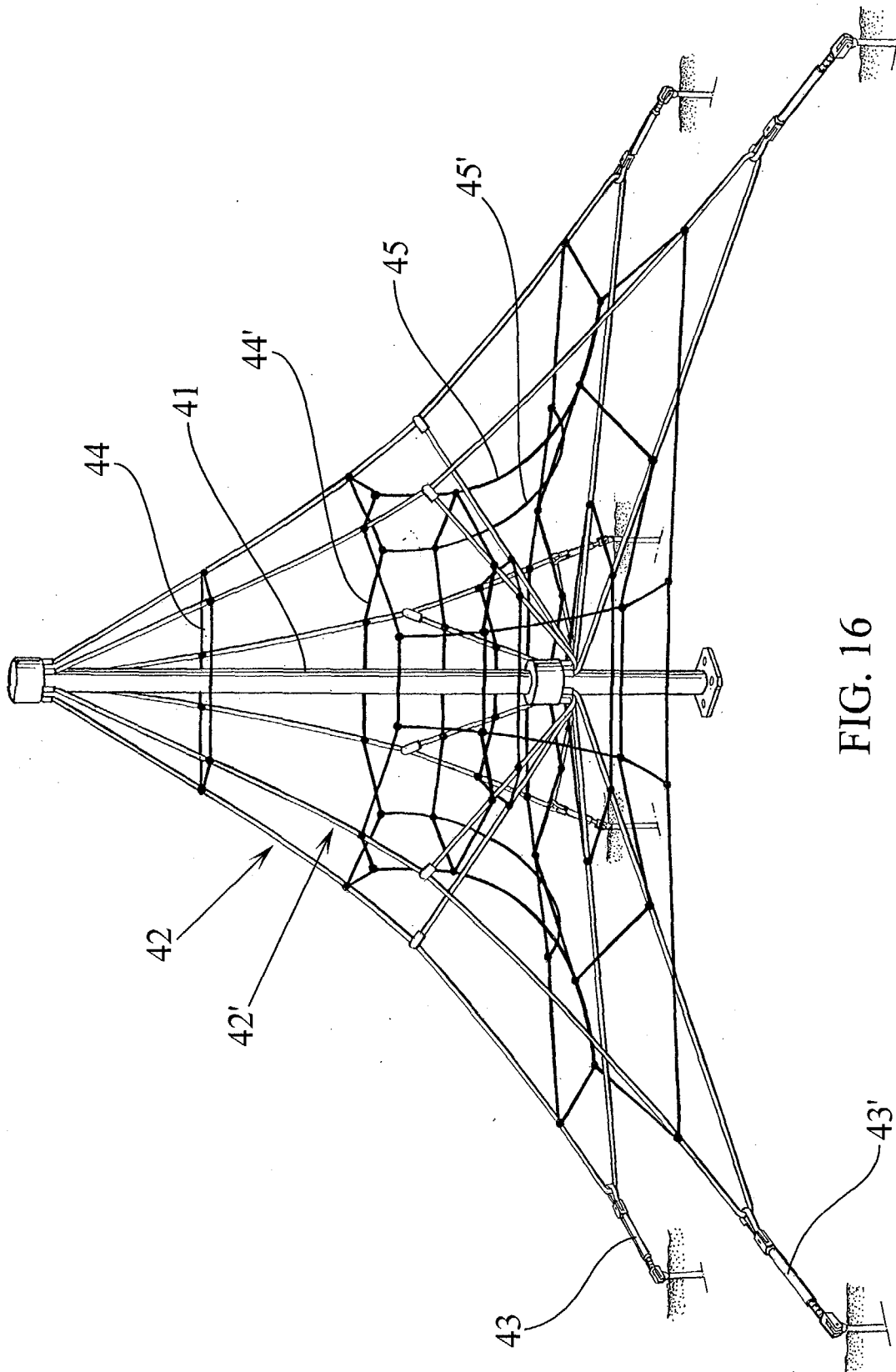


FIG. 16



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EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) A63B
Place of search The Hague		Date of completion of the search 23 November 2004	Examiner Levert, C
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