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(11) **EP 1 051 996 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
15.11.2000 Bulletin 2000/46

(51) Int. Cl.⁷: **A62B 35/00**, A63B 9/00

(21) Application number: **00303982.3**

(22) Date of filing: **11.05.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **14.05.1999 GB 9911130**

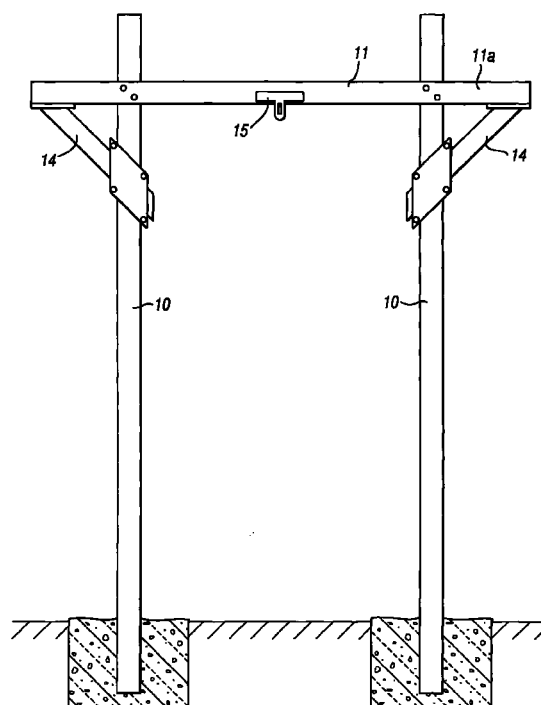
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(54) **Climbing frame structure**

(57) A climbing frame structure includes upstanding poles 10 with an interconnecting horizontal beam 11 attached to the poles and having projecting regions 11a of at least one meter in length, and which are braced against the poles 10 with members 14 at an angle of 45°.



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Description

[0001] This invention relates to climbing frames and like structures such as are employed for outdoor adventure and training activities, for example where users climb structures or traverse open spaces or move along ropes, often at such elevation above the ground as to require the support of a safety line so as to provide security in the event of a fall.

[0002] Such structures are often made of wood or of steel or of a combination of those materials. The structure often includes upstanding poles which rise to heights of 20 metres and in the case of such an elevated structure it has often been customary to employ stabilising guy lines in the form of steel cables tethered to ground anchors. However, the use of such guy lines has one disadvantage in that the structure occupies an area very much larger than the area of the base of the elevated structure which is supported by the guy lines, for example a structure having a base of 15 x 15 metres may need guy lines extending 15 metres from this base if the structure includes poles rising 18 metres above ground.

[0003] In cases where the users work at height, safety lines are an essential requirement, the safety lines running from a user's body harness to an anchor point located above the user. Such an anchor point is often constituted by a carriage or car, which runs along a wire that extends, tensioned horizontally between upper regions of the upstanding poles. The horizontal tensioning of these safety wires and the horizontal loads arising from the working ropes give rise to significant loads being applied to the guy lines and the ground anchors.

[0004] This invention has for its object to provide an improved viable alternative structure of the kind used for facilitating recreational or training activity where users can climb, traverse voids, or do other work at such elevation above ground as to need the support of safety line tethered to the structure so as to provide security in the event of a fall.

[0005] According to the invention an improved climbing frame structure for outdoor adventure and training activities includes two or more upstanding poles with horizontal beams bridging upper regions of said poles, with each beam being attached to each of a pair or said poles at its intersections therewith, wherein each beam has at each of its ends, projecting regions which extend at least one meter beyond its intersections with the poles, there being at both ends of the beam angled brace members which extend between the poles and the projecting regions of the beam, and the beam being adapted and arranged to mount a carriage which is attachable to a safety line, the carriage being movable by rolling or sliding along the beam over its length extending between its intersections with the poles, and wherein the angled brace members are each attached firstly to a beam end and secondly to a pole at locations

spaced more than say one meter from the intersections of the beam with the poles, whereby the climbing frame structure achieved is a free-standing climbing frame structure which is structurally stiff and has no requirement for supporting guy lines.

[0006] Advantageously the brace members are angled at 45° to the poles and to the cross beams and the connections with the beams and poles are made by bolts and welded bracket plates.

[0007] The upstanding poles may be of wood or steel and they may be embedded in ground sockets of provided with foot members which can be fixed to the ground and anchored in place.

[0008] The transverse horizontal beams are of steel and are I, T or L sectioned flange beams or channel sectioned beams of any convenient cross-section. The cars for tethering the safety lines and the beam section will be matched to provide an efficient sliding or rolling carriage system.

[0009] One embodiment of the present invention will be described below with reference to the accompanying diagrammatic drawing.

[0010] Referring to the drawing, the climbing frame structure illustrated includes two upstanding poles 10 with a horizontal beam 11 bridging the upper regions of the poles, where it is attached to each of a pair of the poles at its intersection therewith by bolts possible supplemented by welded brackets.

[0011] The beam 11 has at each of its ends, projecting regions 11a which extend at least one metre beyond its intersections with the poles 10, there being at both ends of the beam brace members 14 which extend at an angle of 45° between the poles and the projecting regions of the beam. The angled brace members 14 are each attached firstly to a beam end and secondly to a pole at locations spaced more than say one metre from the intersections of the beam with the poles, whereby the structure achieved is a freestanding structure which is structurally stiff and has no requirement for supporting guy lines.

[0012] The beam 11 is appropriately a metal beam which can have any appropriate cross-section, is adapted and arranged to mount a carriage 15 which is attachable to a safety line, the carriage being movable by rolling, or sliding along the beam over its length extending between its intersections with the poles 10. The poles may as shown have their feet embedded in ground anchors and these poles may be either wood or steel.

Claims

1. A climbing frame structure for outdoor adventure and training activities includes two or more upstanding poles (10) with horizontal beams (11) bridging upper regions of said poles, with each beam being attached to each of a pair or said poles at its intersections therewith, **characterised in that**

each beam (11) has at each of its ends, projecting regions (11a) which extend at least one meter beyond its intersections with the poles (10), there being at both ends of the beam angled brace members (14) which extend between the poles and the projecting regions (11a) of the beam (11), and the beam (11) being adapted and arranged to mount a carriage (15) which is attachable to a safety line, the carriage (15) being movable by rolling or sliding along the beam (11) over its length extending between its intersections with the poles (10), and **in that** the angled brace members (14) are each attached firstly to a beam end and secondly to a pole (10) at locations spaced more than say one meter from the intersections of the beam with the poles, whereby the climbing frame structure achieved is a free-standing climbing frame structure which is structurally stiff and has no requirement for supporting guy lines.

2. A climbing frame structure according to Claim 1 **characterised in that** the brace members (14) are angled at 45° to the poles (10) and to the cross beams (11) and the connections with the beams (11) and poles (10) are made by bolts and welded bracket plates.
3. A climbing frame structure according to Claim 1 or 2 **characterised in that** the poles (10) are made of wood or steel and are embedded in ground sockets.
4. A climbing frame structure according to Claim 1 or 2 **characterised in that** the poles (10) are made of wood or steel and are provided with foot members which are fixable to the ground and anchored in place.
5. A climbing frame structure according to any one of the preceding claims **characterised in that** the horizontal beams (11) are of steel and are of I, T or L-sectioned flanged beams or channel-sectioned beams of any convenient cross-section.
6. A climbing frame structure according to Claim 5 **characterised in that** the carriage (15) for tethering the safety lines and the beam sections are matched to provide for an efficient sliding or rolling carriage system.

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