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(54) **Supporting structure**

(57) Supporting structure, formed by an upper horizontal bar linked to two pairs of lateral bars that diverge towards the floor forming supporting legs for the remainder of the structure, with each pair of legs gaining rigidity by means of a crossbar, where the lateral bars and the

upper horizontal bar are connected by means of the insertion of the ends of the former into respective through-holes furnished in the ends of the upper horizontal bar.

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Description

PURPOSE OF THE INVENTION

[0001] The present invention refers to a supporting structure, the purpose of which is to provide a heavy-duty gantry from which, for example, a swing or other element can be suspended.

[0002] The purpose of the invention is to provide a simple structure that can be quickly assembled.

BACKGROUND OF THE INVENTION

[0003] One type of supporting structure is a gantry based on an upper horizontal bar that is supported between two pairs of lateral legs that emerge from the two ends of said upper bar to reach the ground, thereby establishing a structure of four supporting points with optimum stability and resistance.

[0004] The problem with these types of structure is that they require welding, bolts, rivets etc. to fix the different components together, which results in higher costs and loss of time in assembly etc.

DESCRIPTION OF THE INVENTION

[0005] The supporting structure of the invention proposes to resolve these problems in a fully satisfactory way by using a simple solution of high effectiveness. Based on the two lateral pairs of legs that diverge towards the ground and support the upper horizontal bar, said lateral legs are connected to the upper bar by means of the insertion of their upper ends into holes, created for this purpose, in the ends of the horizontal bar. This allows rapid and simple assembly, without the need for bolts or any additional fastening components, as the bars forming the legs are furnished with stops to limit their penetration within the horizontal bar.

[0006] The structure is optionally supplemented with covers fitted at the ends of the horizontal bar/leg set, forming in this way a well finished structure of high rigidity and stability, which also includes a horizontal crossbar between each pair of lateral legs that can be fixed to the legs by any appropriate system or means, including by bolts.

[0007] The holes made in the ends of the horizontal bar, into which the ends of the bars forming the legs are slotted, are made in two different planes, that is angularly offset to each other, specifically forming a cross, as a consequence of which these planes correspond to the front and side of the structure, giving it more stability.

[0008] Finally, the stops that are located near the ends of the bars forming the legs, in combination with the caps that function as the trim, guarantee correct fixing of the structure, helping to provide higher rigidity and absorption of tolerances.

DESCRIPTION OF THE DRAWINGS

[0009] In order to complement the description below and with the aim of improving understanding of the characteristics of the invention and of a practical embodiment, a series of illustrative and non-limiting figures is appended as an integral part of the description. The figures illustrate the following:

Figure 1.- Shows a general perspective view of the supporting structure that is the object of the invention, for suspending a child's swing.

Figure 2.- Shows a perspective view of the detail of the assembly between the ends of the bars forming the legs and the end of the horizontal bar. It shows the detail of the arrangement of the stops of maximum penetration on the bars forming the legs and the trim caps.

Figure 3.- Shows another perspective view at a different angle from that shown in figure 2, showing the full detail of the positioning of the limiting penetration stops on the bars forming the legs in the holes of the horizontal upper bar.

Figure 4.- Shows a perspective detail of the previous figure, sectioned to illustrate the assembly of the bars, stops and trim.

PREFERRED EMBODIMENT OF THE INVENTION

[0010] The said figures show that the structure of the invention comprises an upper horizontal bar (1), preferably made of a tubular element, and two pairs of lateral bars (2), also made of tubular elements, logically with a smaller cross section than that of the former, with the feature that these lateral pairs of bars (2) go through the horizontal upper bar (1), near its ends, in such a way that they reach the ground where they form the supporting points of the structure on the ground.

[0011] The two lateral bars (2) of each pair are linked together by an intermediate crossbar (3) that is fixed by means of any suitable system such as, for example, bolts.

[0012] The novelty of the invention resides in the fact that the lateral bars (2) are linked to the upper horizontal bar (1) by inserting their ends into through-holes furnished for that purpose in the ends of the horizontal bar (1), as shown in figure 4, in such a way that stops (4) limit the maximum penetration into said holes, the ends in turn providing supports for the finishing caps and trim (5) that are attached to these lateral bars (2), there being additional caps (5') at the ends of the upper horizontal bar (1).

[0013] As figure 4 shows, the caps (5), formed by cylindrical parts that are plugged under pressure inside the ends of the lateral bars (2) forming the legs, are supplemented with a kind of dome (5) that fits closely to the curved surface of the horizontal upper bar (1).

[0014] The structure is simple and easy to assemble, given that the upper ends of the lateral bars (2) forming the legs need only be plugged into the holes furnished to that effect in the upper horizontal bar (1) until the stops (4) engage against said horizontal bar (1), and then the finishing caps and trim (5) are fixed on said ends of the lateral bars (2). 5

[0015] The holes in the upper horizontal bar (1), and therefore the arrangement of the lateral bars (2) forming the legs, are made in angularly offset planes so that said lateral bars diverge towards the ground and form two open legs on each side, reinforced by means of intermediate crossbars (3), which can be set higher or lower depending on their length, providing tension and stability to the lateral bars (2). 10 15

[0016] Finally, to mention one of the many practical applications, the structure is useful for suspending from the horizontal bar (1) a swing (6) or any other object or device, as shown in figure 1. 20

Claims

1. Supporting structure, formed by an upper horizontal bar linked to two pairs of lateral bars that diverge towards the floor forming supporting legs for the remainder of the structure, with each pair of legs gaining rigidity by means of a crossbar, **characterised in that** the lateral bars and the upper horizontal bar are connected by means of the insertion of the ends of the former into respective through-holes furnished in the ends of the upper horizontal bar, the holes being made in respective angularly offset planes with respect to each other in order to define the divergence of the bars inserted into them. 25 30 35
2. Supporting structure according to claim 1, **characterised in that** near the ends of the lateral bars, which are inserted into the holes in the upper horizontal bar, limiting stops restrict the maximum penetration of the lateral bars. 40
3. Supporting structure according to claim 1, **characterised in that** both the upper horizontal bar and the lateral bars forming legs are tubular and are provided with finishing caps inserted under pressure and by plugging into the ends of said bars. 45

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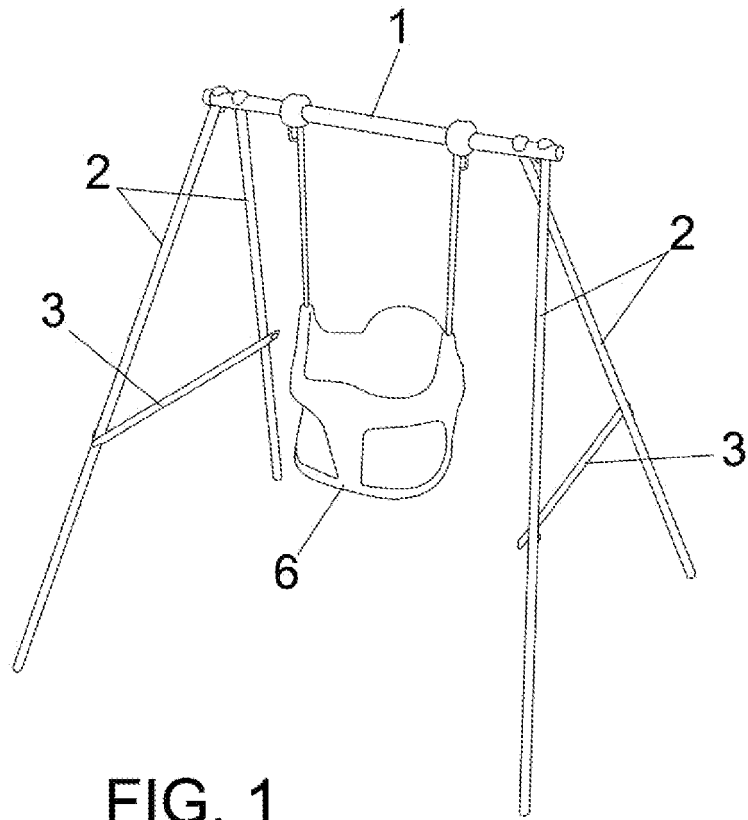


FIG. 1

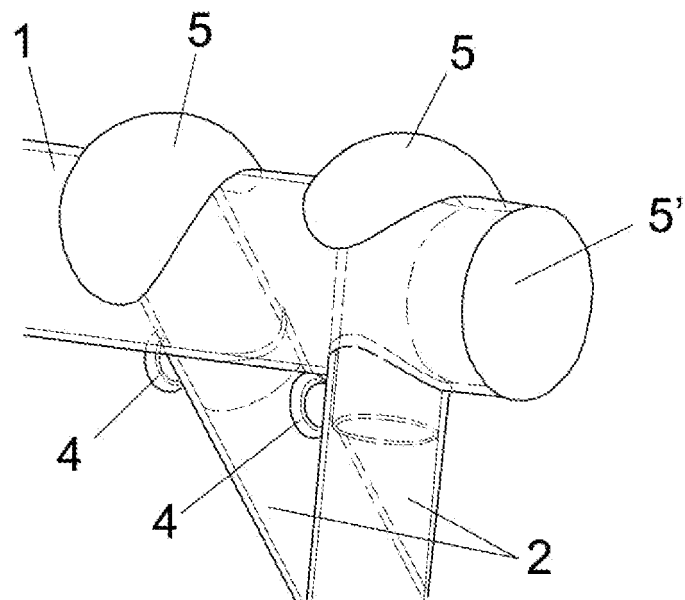


FIG. 2

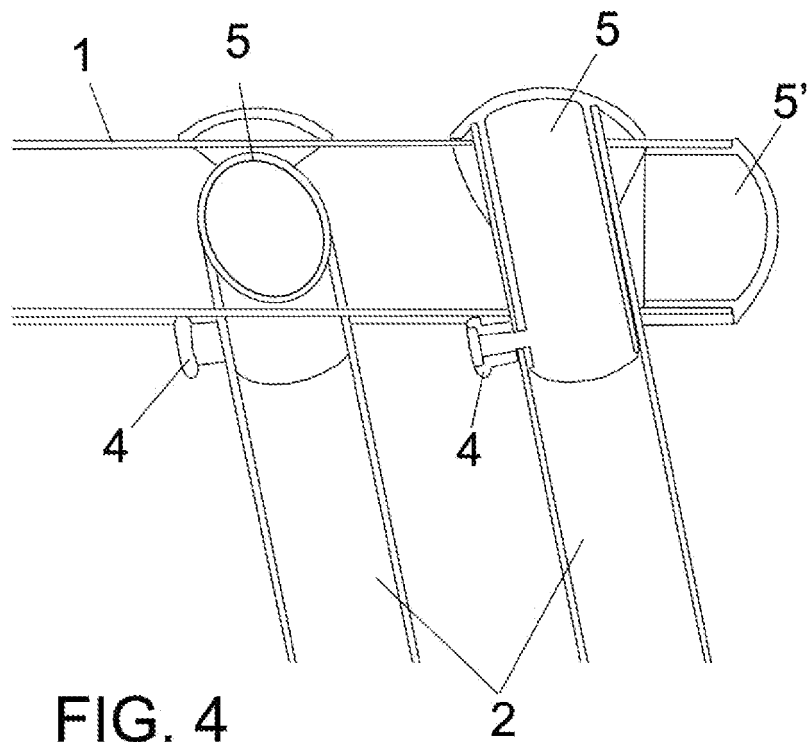
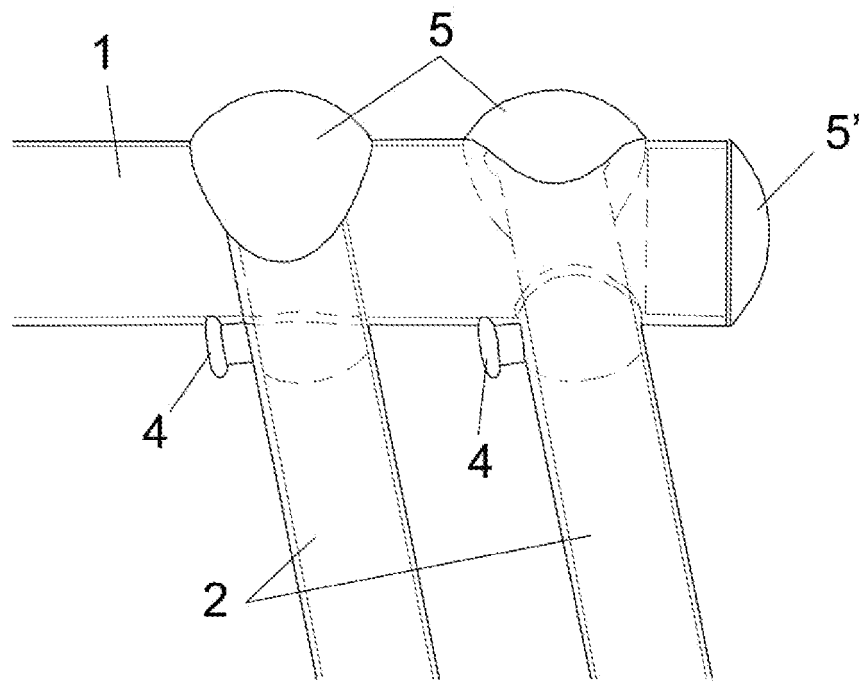


FIG. 4



EUROPEAN SEARCH REPORT

Application Number
EP 11 15 1975

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A63G A47D A47C
Place of search		Date of completion of the search	Examiner
Munich		7 November 2011	Turmo, Robert
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 15 1975

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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07-11-2011

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