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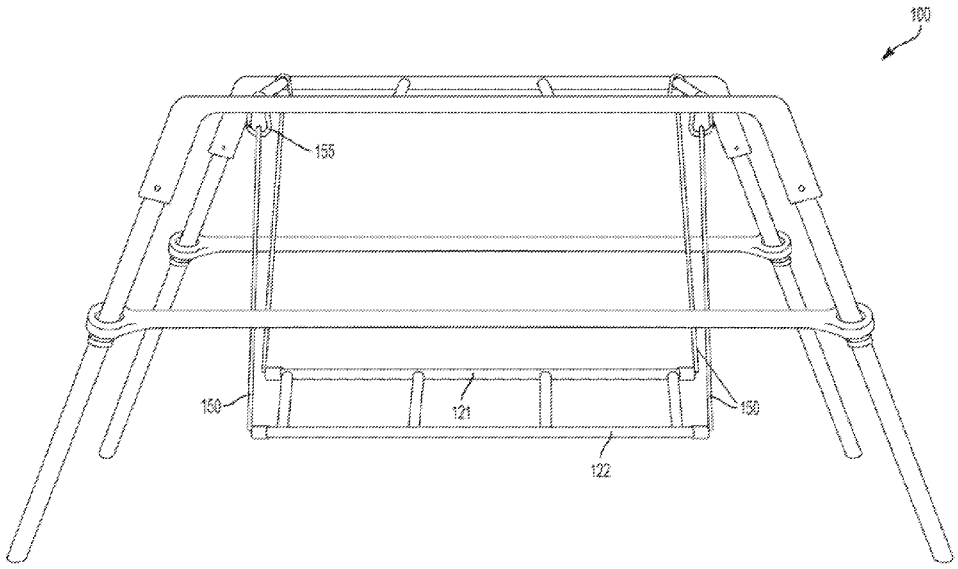

FIG. 3

(57) Abstract: The play structure of the present invention is a portable, easily assembled structure that may be assembled in a variety of configurations. It is suitable for both indoor and outdoor use and is particularly suited to use by small children. The play structure includes a first ladder portion removably mounted on to four leg members and a second ladder portion connected to the climbable structure to create a secondary play element, together with a cover and platform elements that can be used to create a variable, modular play structure.

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A MULTI-PURPOSE PLAY STRUCTURE

TECHNICAL FIELD

The invention relates to a play structure. More specifically, the invention relates to a multi-purpose play structure that may be assembled in a number of different configurations.

BACKGROUND ART

A wide range of climbing structures are available for young children, with the majority of these being typically designed for use in outdoor play areas. These structures are usually fixed in position to ensure the stability of the play structure and the safety of the users. This results in a single configuration for the play structure, as well as requiring a suitably large space in which the structure can be mounted.

Fixed construction structures are also limiting in the variety of play options they provide to young children, particularly those with varying physical abilities and interests in the type of play they enjoy.

A large number of families with small children live in urban areas and high-rise apartment buildings without access to a backyard or space where such a permanent structure can be erected. Public playground facilities are not always provided or accessible and have the further disadvantage of not being useable in wet weather.

The use of outdoor playground facilities by small children often means that significant supervision of the children is required, particularly if the play area is not in a secure, fenced-off area, or is by a busy road or other potentially hazardous area.

It is an object of the present invention to provide a play structure that addresses the foregoing problems or at least provides the public with a useful choice.

Throughout this specification, the word "comprise" or variations thereof such as "comprises" or "comprising" and “include”, will be understood to imply the inclusion of a stated element, integer or step, or group of elements integers or steps, but not the exclusion of any other element, integer or step, or group of elements, integers or steps.

Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only.

SUMMARY OF THE INVENTION

The disclosed invention relates to a compact, multi-purpose play structure that is designed for use in small spaces, in both indoor and outdoor environments.

According to a first aspect of the invention, there is provided a multi-purpose play structure including:

a first ladder portion consisting of two spaced apart elongate bar elements, each having a first end and a second end, the two bar elements connected substantially parallel to each other by two or more rungs, the two elongate bar elements adapted to removably mount the ladder portion on to four leg members;

four or more leg members, each leg member being removably connectable to the ladder elongate bar elements using a leg attachment mechanism;

a second ladder portion, the second ladder portion consisting of two spaced apart elongate bar elements, each having a first end and a second end, the two bar elements connected substantially parallel to each other by two or more rungs; and

one or more connection mechanisms, the connection mechanism adapted to connect the second ladder portion directly or indirectly to the first ladder portion or one or more leg members;

wherein, in use, the first ladder portion is raised above the ground when connected to the four leg members to create an assembled climbable structure and the second ladder portion is connected to the climbable structure to create a secondary play element.

In preferred embodiments of the invention, each of the four leg members is connected using a leg attachment mechanism at or proximate to the first or second ends of the elongate bar elements of the first ladder portion.

More preferably, one of each of the four of the leg members are is connected at or proximate the first and second ends of the two elongate bar elements of the first ladder portion.

In preferred aspects of the invention, the elongate bar elements of the first ladder portion are removably connectable with the leg members using a leg attachment mechanism selected from a clip-fit mechanism, friction fit, screw, hook and eye connection, bayonet connection, male-female connection, interlock mechanism, screws, bolts, or push button spring mechanism.

In further preferred embodiments, the leg attachment mechanism allows for variable height adjustment.

In preferred aspects of the invention, the second ladder portion is removably connected to the first ladder portion or legs of the play structure using a connection mechanism such as a clip-fit mechanism, hook and eye connection, rope, cable and/or chain.

In one preferred embodiment, the connection mechanism is a rope or chain incorporated in, on or through at least one elongate bar element of the second ladder portion. More preferably, the connection mechanism includes at least one rope or chain incorporated in, on or through each elongate bar element of the second ladder portion.

In some aspects of the invention, the elongate bar element is hollow and the rope or chain extends through the elongate bar element and extends out of one or both ends of the elongate bar member.

More preferably, a separate rope extends through each elongate bar member and includes attachment means at or near each rope end for removable attachment to the play structure.

In alternative embodiments, the connection means is a rope or cable removably connected at a first rope end at or near one or more ends of each of the second ladder elongate bar elements.

Preferably, each rope includes attachment means at or near a second end of each rope for removable attachment to the play structure.

Preferably the attachment means is selected from a carabiner, hook, knot, loop, catch, hanger, clip, or fastener.

In alternative embodiments, the connection mechanism attaching the second ladder portion to the first ladder portion or legs is attached to one or more rungs of the second ladder portion.

In preferred forms of the invention, the play structure includes one or more cross bars to add strength to the structure. More preferably, the play structure includes two cross bars, the cross bars adapted to extend between two adjacent leg portions of the play structure. The cross bars may also add further play use to the play structure.

Even more preferably, in use, the two cross bars are mounted to extend between opposing leg portions such that they are substantially parallel to each other.

In preferred embodiments, the leg portions include support members to retain cross bars in position.

In further preferred aspects of the invention, the play structure further includes a removable platform, the platform adapted to be mountable on or connected with the first or second ladder portion.

In preferred embodiments of the invention, the platform is adapted for mounting on the second ladder portion, the platform sized to substantially covering the length of the second ladder portion.

In further preferred embodiments, the platform includes one or more hinges or bendable regions to facilitate use as a slide.

Preferably, the platform includes at least one attachment means for connecting the platform directly or indirectly to the play structure.

In further preferred aspects of the invention, the play structure includes a cover, the cover adapted to be positioned over at least a portion of the assembled play structure to form a shelter.

In further embodiments, the cover is modular to provide cover of different sizes and areas of the play structure.

In still further embodiments, the cover includes additional features selected from one or more of pockets, tunnel sections, windows, hooks, hatches, doors.

Preferably, the cover includes one or more weighting mechanisms incorporated within the cover to retain it in position.

According to a further aspect of the invention, there is provided a kit for use as a climbing structure, the kit including the play structure as described above, instructions for assembly and use of the play structure, and a storage vessel.

BRIEF DESCRIPTION OF THE DRAWINGS

One or more embodiments of the invention will be described below by way of example only, and without intending to be limiting, with reference to the following drawings, in which:

Figure 1 shows a side view of the play structure of the present invention in a first configuration including the second ladder portion in use as a ladder;

Figure 2 shows an optional connection means connecting the first ladder portion to a leg portion;

Figure 3 shows the play structure of the present invention in an alternative configuration including the second ladder portion as a swing;

Figure 4 shows the play structure of Figure 3, including a cover portion;

Figure 5 shows an exploded view of the play structure of Figure 3;

Figure 6 shows the second ladder portion and rope attachments of the play structure shown in Figure 3;

Figure 7 shows the platform of the play structure for use in one configuration of the invention; and

Figure 8 shows the play structure configuration of Figure 3, including the use of the platform as a table top.

DESCRIPTION OF THE INVENTION

The play structure of the present invention is a portable, easily assembled structure that may be assembled in a variety of configurations. It is suitable for both indoor and outdoor use and is particularly suited to use by small children.

The play structure in one preferred embodiment of the invention is shown in further detail in Figures 1 -8. These figures show the play structure in use in a number of different configurations and using selected attachment and connection mechanisms for a number of parts. These examples are not intended to be limiting and a range of different attachments and connection mechanisms having the same or similar result may be used without departing from the scope of the invention.

The play structure may be formed from metal, wood, moulded plastic or recycled materials or combinations thereof. The material selection may be based on price and/or aesthetic appeal as required by the end user, while it being understood that the core requirements of high strength, smoothness of finish and low weight will all be required features of the product, particularly from a safety perspective. In one preferred example the majority of the structure may be formed from aluminium, particularly 3mm aluminium tubing.

Figure 1 shows play structure 100 in a first configuration using first ladder portion 110, second ladder portion 120, legs 130 and cross bars 140. First ladder portion 110 is formed in standard ladder format, with opposing elongate bar members 111 and 112, separated by rungs 113. In the example shown ladder 110 includes four rungs, but any number of rungs may be used. As would be understood, an increase in the number of rungs with similar spacing will result in a longer ladder, therefore a larger overall structure. Similarly, altering the width of the rungs will make the play structure wider or narrower. The decision on size will be largely based on the end requirements of the user, provided the structure remains structurally sound.

In one example particularly suitable for toddlers and small children, and for use in a smaller space, the first ladder portion is approximately 130cm in length, with four 32cm rungs positioned approximately 30cm apart. This spacing allows enough space for children to easily step or climb between the rungs, while still being able to fit through the spaces between the rungs.

First ladder portion 110 has four end sections 114. End sections 114 are downwardly disposed in a bent or curved formation to an angle approximately 120° from the elongate bar member

110, such that in use, the end sections 114 point towards the ground and are adapted to receive leg member(s) 130. The angle of the end section with respect to the elongate bar member may vary, but in order for the structure to be stable, this angle should be an obtuse angle, not less than 90° and preferably not more than substantially 145°. This allows leg portions 130 to be attached to each end section 114 and the resulting raised ladder stably supported in a horizontal position above the ground.

In Figure 1, leg portions 130 attach to end section 114 using push button springs 116 connecting leg 130 to end section 114 through corresponding apertures. In Figure 2 , this connection mechanism 116 is shown more clearly, with end section 114 connecting to leg portion 130 using a push button spring connection, where push button 117 inserts into aperture 118 to retain leg 130 inside hollow end section 114. Multiple apertures may be made available on leg section 130 to allow for height adjustability (not shown).

Other means may be used to attach legs 130 to elongate bar member 110 that are not shown, such as screw attachment, or interference fit connections. In other embodiments, for example, the bar members may have straight ends rather than angled end sections and legs 130 may insert directly into an aperture or connection means incorporated in or on bar member 110, or legs 130 may be permanently connected to bar member 110 or end sections 114 and fold away and extend using hinge mechanisms or telescopic retraction.

Legs 130 are preferably formed using aluminium tubing and include a support 131 approximately two thirds up from the base of the leg. Support 131 may be a fixed plastic ring, a welded protrusion or other mechanism that is able to support cross bar 140 and prevent it from sliding downwardly on legs 130.

Cross bars 140 provide structural support to the structure 100, preventing legs 130 from spreading when weight is applied to the structure 100. As the structure becomes taller, cross bars 140 will become more important. However, should the structure be erected at a very low height, cross bars 140 may not always be necessary. As would be clear to a person skilled in the art, reinforcing bars such as cross bars 140 may be placed in a number of different positions and the position shown in the figures is not intended to be limiting. For example, should a structure be designed in which rungs 113 were particularly wide, cross bars may be placed

between the two end legs, perpendicular to the cross bar placement of Figure 1, either instead of, or in conjunction with other cross bars.

Cross bars 140 of Figure 1 show attachment loops 141 formed at each end of cross bar 140. In use, this allows legs 130 to be inserted through loops 141 of the cross bar before legs are connected to end section 114 of ladder portion 110. When in position, loops 141 rest on supports 131 to maintain cross bars 140 in the desired position.

Second ladder portion 120 is shown in one optional position in Figure 1 and in further detail in Figure 6. The second ladder portion 120 is designed to be placed in numerous positions on the play structure to allow for different modes of play. Second ladder portion 120 is formed in a similar fashion to first ladder portion 110, with elongate bar member 121, 122 and rungs 123 (see Figures 3, 5 and 6). The end sections of ladder 120 are preferably straight, and the ladder 120 formed with hollow aluminium tubing. In one preferred embodiment as shown in Figure 6, the ladder includes four rungs and end sections 124 covered with the plastic end cover or similar. Second ladder portion 120 is attachable to the first ladder portion 110 or other section of the play structure 100 using rope section 150. Ropes 150 may be in the form of cables, chains or other hanging means; however, soft rope is preferable to prevent small fingers being trapped or hurt.

Rope 150 may be connected to each end section 124, or may extend through the hollow shaft of bar members 121 and 122 to extend from both ends of the ladder 120.

In Figure 1, ropes 150 extends from one end of elongate bar members 121 and 122, with the end of rope 150 having a carabiner clip 155 attached to allow connection of the ropes 150 to a rung 113 of ladder 110. This enables second ladder 120 to rest in a semi-vertical position with a first end of the ladder 120 supported on the ground and second end supported by ropes 150. In this position, the ladder can be used in the conventional manner to enable climbing up onto raised first ladder portion 110.

In the configuration shown in Figures 3 – 5, second ladder portion 120 hangs from first ladder portion 110 in a swing position. In this configuration, two ropes 150 of equal length extend through the central cavity and out each end of bar elements 121 and 122. Ropes 150 are clipped to rungs 113 of first ladder portion 110 using carabiners 155 in order to form a swinging ladder from ladder portion 120.

The swinging ladder 120 as shown in Figure 2 is substantially horizontal, allowing it to swing between the leg portions in a side to side manner. Ropes 150 are of equal length to ensure that second ladder portion 120 hangs in a substantially horizontal manner to enable a good swinging action. The height of the swinging ladder 120 may be raised or lowered by shortening or lengthening the ropes 150; for example, by tying knots or loops in the rope lengths.

The connection means used to secure rope portions 150 to the play structure may include a range of different mechanisms, for example a carabiner, hook, knot, loop, catch, hanger, clip, or fastener.

In Figure 4, the swinging second ladder portion 120 is shown in the hanging position and the play structure draped with a cover 160. Cover 160 is preferably formed from a fabric material and may cover all of the play structure to form a tent style play enclosure, or may cover a portion of the play structure to create some covered areas while leaving others uncovered.

The cover may be formed in a structured style to fit the erected play structure, for example by including a central rectangle section designed to fit the size of first ladder portion 110, with side walls extending from the central rectangle section that fall towards the ground to create an enclosed area underneath the erected play structure. The cover may incorporate doors, windows, pockets, tunnel sections, hatches, doors or other such features as desired. The cover 160 may facilitate use of the play structure as a shelter or “cubby house”.

In alternative embodiments, the cover section may be formed from a single piece of flat fabric that may hang or be draped in a number of different ways over the play structure to form a covered area. In still further optional embodiments, the cover may be modular and formed from a number of different fabric sections that may be connected together in multiple different configurations, using zippers, domes, buttons or similar fastening means. This variable configuration cover would allow a full cover for example, or by removing a section will provide side walls with no roof section, or vice versa, or side walls and a ground sheet, a side wall with a tunnel section or include additional wall sections that will allow for the formation of separate rooms.

The cover may also include means for connecting the cover to the play structure at various positions in order to keep it in position, for example using hook and loop fasteners, or elastic clips to secure the fabric to the ladder portions, legs or cross bar portions. The cover may also

include weights or weighted materials to retain the cover on the ground, for example when used outdoor in windy conditions. In further embodiments, the cover may be adapted to connect to the leg members or sit underneath the leg members in order to retain it in position.

The fabric used for the cover may be selected from a wide variety of woven and non-woven textiles, transparent plastics, meshes, waterproof and non-waterproof materials, UV protectant material and combinations thereof. As would be clear to a person skilled in the art, the fabric choice will be dependent on the requirements of the end user.

Figures 7 and 8 show platform 170 that may be used as a further component of the play structure 10. Platform 170 is preferably formed as a solid sheet and may be formed from metal, wood or plastic. Aluminium sheeting is one preferred option due to the light weight and strength qualities. Platform 170 has a large number of possible uses with the play structure 100. When play structure 100 is configured with the second ladder portion 120 forming a swing, platform 170 can be placed across the upper surface of ladder portion 120 to form a flat surface that may be used as a bed, table or swinging seat.

In alternative embodiments not shown, platform 170 may be formed from a number of smaller solid sheets connectable together and secured into a larger solid sheet. This embodiment would allow for a smaller footprint when disassembled and packed away. By connecting different numbers of individual smaller sheets, the platform may be constructed to different sizes.

Figure 7 shows platform 170 adapted for use as a table top resting on second ladder portion 120, with recesses 171 – 174 incorporated into the edges of the platform to allow ropes 150 to extend from ends 124 of second ladder portion 120, through recesses 171-174 and upward to connect the first ladder portion 110. Recesses 171-174 allow ropes 150 to safely secure the platform in position on top of second ladder portion 120 without it sliding in the horizontal plane. Further attachment means (not shown) may also be incorporated on the underside 177 of platform 170 to ensure secure connection to ladder portion 120. In this arrangement the play structure may be used as a picnic table. After use as a table the play structure may be reconfigured and/or used as play equipment for children to play on.

In other embodiments not shown, platform 170 may be used as a slide by connecting it to second ladder portion 120, when ladder portion 120 is resting against or connected to first

ladder portion 110 as shown in Figure 1. Alternatively, when platform 170 is formed from a sufficiently strong material to enable a child to slide on it without deforming, the platform may be adapted to directly connect to the legs, cross bars or first ladder portion 110 independently of the second ladder portion using known connection mechanisms.

To function more effectively as a slide, platform 170 may include hinges or bendable portions that allow the slide to be used more safely. For example, the side edges 175 may fold upwards to create an edge barrier to the slide and/or end section(s) 176 may bend or fold to create a landing or launch section to the slide to allow a child to more easily and safely enter and exit the slide. As an alternative, the platform 170 may rest on the one or more rungs 123 of the second ladder portion 120 between the two spaced apart elongate bar elements 121, 122 such that the elongate bar elements 121, 122 form raised sides for the slide.

In some embodiments a slide component (not shown) may be provided as an additional separate component. The slide component may be adapted to directly connect to the legs, cross bars or first ladder portion 110. In such arrangements the second ladder portion 120 may be used as a ladder to climb up a first end of the first ladder portion 110 and the slide component coupled to the opposing second end of the first ladder portion 110. The play structure of the present invention is a portable, lightweight structure that can be quickly and easily assembled or disassembled in a few minutes. In use, the assembling process may be carried out by the following steps;

a) lying the first ladder portion 110 on the ground with the four ends 114 pointing upwards;

(b) threading the two horizontal cross-bars 140 onto the four legs 130;

(c) connecting the four legs 130 into the end sections 124 of the first ladder portion 110 using the spring clip mechanism to form play structure 100;

(d) turning the play structure 100 upside down to stand legs 130 on the ground;

(e) clipping the second ladder portion 120 on to play structure 100 as a ladder (as shown in Figure 1), or as a swinging platform (as shown in Figure 3 - 5), or as a support base for the picnic table with the picnic table being placed securely on the base between the four vertical ropes (Figure 8); and

(f) optionally placing cover 160 over all or a portion of the play structure.

The disassembling process is simply the above process carried out in reverse order. Once disassembled, the structure may be placed in a carry bag for easy storage and transportation.

The play structure described herein is preferably sold as a kit including the basic play structure elements together with optional additional extras such as the cover and platform. The kit will include instructions for the assembly/disassembly of the structure in various configurations and a storage vessel such as a bag or container to contain the disassembled parts.

The play structure of the current application has a number of distinct advantages over known play structures. It is lightweight and easily stored when not in use. The construction and deconstruction of the structure is very easy and can be done very quickly, making it suitable for use for a short period of time. The structure may be made in a variety of different sizes, but is particularly suited to small spaces where a wide range of different activities can be achieved by utilising the various configurations possible by attachment of the second ladder portion at different places on the climbing structure. The use of ropes as connection means allows the second ladder portion to function in a range of different ways, including as a swing, as a ladder or in combination with the platform section, a table or slide.

The cover creates an enclosed environment which is particularly appealing to small children, and when formed using waterproof material can create an outdoor play area for use in most weather conditions.

Aspects of the present invention have been described by way of example only and it should be appreciated that modifications and additions may be made thereto without departing from the scope thereof as defined in the appended claims. It is therefore intended that such changes and modifications be included within the present invention.

THE CLAIMS DEFINING THE INVENTION ARE:

1. A multi-purpose play structure including;

   a first ladder portion consisting of two spaced apart elongate bar elements, each having a first end and a second end, the two bar elements connected substantially parallel to each other by two or more rungs, the two elongate bar elements adapted to removably mount the ladder portion on to four or more leg members;

   four or more leg members, each leg member being removably connectable to the ladder elongate bar elements using a leg attachment mechanism;

   a second ladder portion, the second ladder portion consisting of two spaced apart elongate bar elements, each having a first end and a second end, the two bar elements connected substantially parallel to each other by two or more rungs; and

   one or more connection mechanisms, the connection mechanism adapted to connect the second ladder portion directly or indirectly to the first ladder portion or one or more leg members;

   wherein, in use, the first ladder portion is raised above the ground when connected to the four leg members to create an assembled climbable structure and the second ladder portion is connected to the climbable structure to create a secondary play element.

2. The play structure of claim 1, wherein the leg members are connected using a leg attachment mechanism at or proximate to a first and/or second end of the elongate bar elements of the first ladder portion.

3. The play structure of claim 1 or claim 2, wherein the first and/or second end(s) of the elongate bar elements of the first ladder portion are bent or curved such that in use, the end sections are downwardly disposed.

4. The play structure of any one of claims 1-3, wherein the elongate bar elements of the first ladder portion are removably connectable with the leg members using a leg

attachment mechanism selected from one or more of a clip-fit mechanism, friction fit, screw, hook and eye connection, bayonet connection, male-female connection, interlock mechanism, screws, bolts or push button spring mechanisms.

5. The play structure of any of the preceding claims, wherein the leg attachment mechanism allows for variable height adjustment.

6. The play structure of any of the preceding claims, wherein the second ladder portion is removably connected to the first ladder portion or legs of the play structure using a connection mechanism selected from one or more of a clip-fit mechanism, hook and eye connection, bolts, spring clips or buttons, rope, cable and/or chain.

7. The play structure of claim 6, wherein the connection mechanism includes a rope or chain incorporated in, on or through at least one elongate bar element of the second ladder portion.

8. The play structure of claim 7, wherein the connection mechanism includes at least one rope or chain incorporated in, on or through each elongate bar element of the second ladder portion.

9. The play structure as claimed in claim 7 or claim 8, wherein the elongate bar element is hollow and the rope or chain extends through the elongate bar element and extends and out one or both ends of the elongate bar member.

10. The play structure of claim 9, wherein a separate rope extends through each elongate bar member and includes attachment means at or near each rope end for removable attachment to the play structure.

11. The play structure as claimed in claim 7 or claim 8, wherein the connection means is one or more ropes or cables, a first end of the rope or cable removably connected at or near one or more ends of each of the second ladder elongate bar elements.

12. The play structure of claim 11, wherein each rope includes attachment means at or near a second end of the rope for removable attachment to the play structure.

13. The play structure of claim 12, wherein attachment means is selected from one or more of a carabiner, hook, knot, loop, catch, hanger, clip, or fastener.

14. The play structure of any one of claims 1 – 6, wherein the connection mechanism attaching the second ladder portion to the first ladder portion or legs is attached to one or more rungs of the second ladder portion.

15. The play structure of any one of claims 1 – 14, wherein the play structure includes one or more cross bars.

16. The play structure of claim 15, wherein the play structure includes two cross bars, the cross bars adapted to extend between two adjacent leg portions of the play structure.

17. The play structure of claim 16, wherein the two cross bars are mounted to extend between opposing leg portions such that they are substantially parallel to each other.

18. The play structure of any one of claims 15 – 17, wherein the leg portions include support members to retain the cross bars in position.

19. The play structure as claimed in any of the preceding claims, wherein the play structure further includes a removable platform, the platform adapted to be mountable on or connected with the first or second ladder portion.

20. The play structure of claim 19, wherein the platform is adapted for mounting on the second ladder portion, the platform sized to substantially cover the length of the second ladder portion.

21. The play structure of claim 19 or claim 20, wherein the platform includes one or more hinges or bendable regions to facilitate use as a slide.

22. The play structure as claimed in any one of claims 19 – 21, wherein the platform includes at least one attachment means for connecting the platform directly or indirectly to the play structure.

23. The play structure as claimed in any one of the preceding claims, wherein the play structure includes a cover, the cover adapted to be positioned over at least a portion of the assembled play structure to form a shelter.

24. The play structure of claim 23, wherein the play cover is modular.

25. The play structure of any one of claims 23 or 24, wherein the cover includes additional features selected from one or more of pockets, tunnel sections, windows, hooks, hatches, doors.

26. The play structure of any one of claims 23 to 25, wherein the cover includes one or more weighting mechanisms or attachment mechanisms incorporated within the cover to retain it in position.

27. A kit for use as a climbing structure, the kit including the play structure as claimed in any one of claims 1 – 26, instructions for assembly and use of the play structure and a storage vessel.

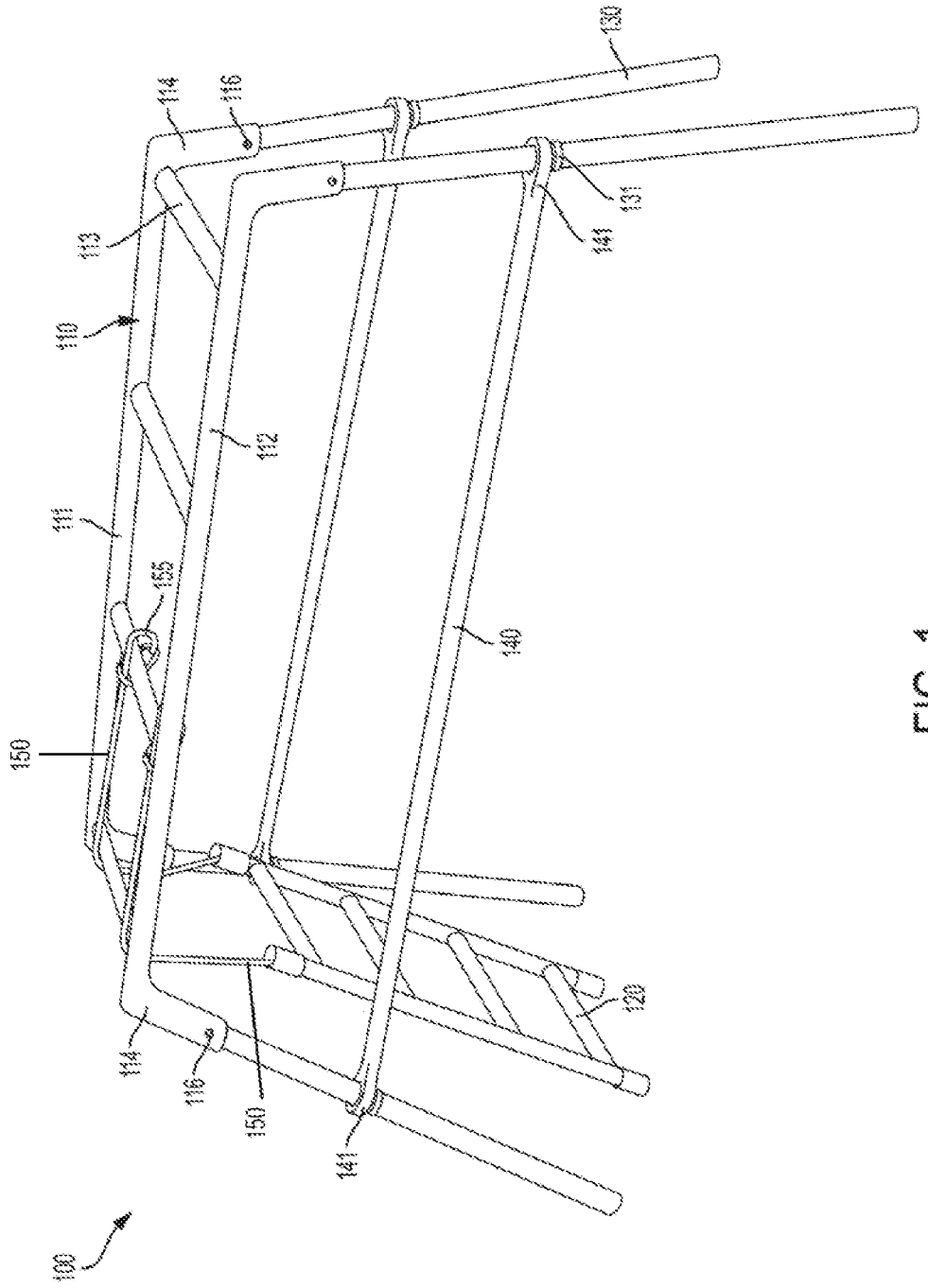
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FIG. 1

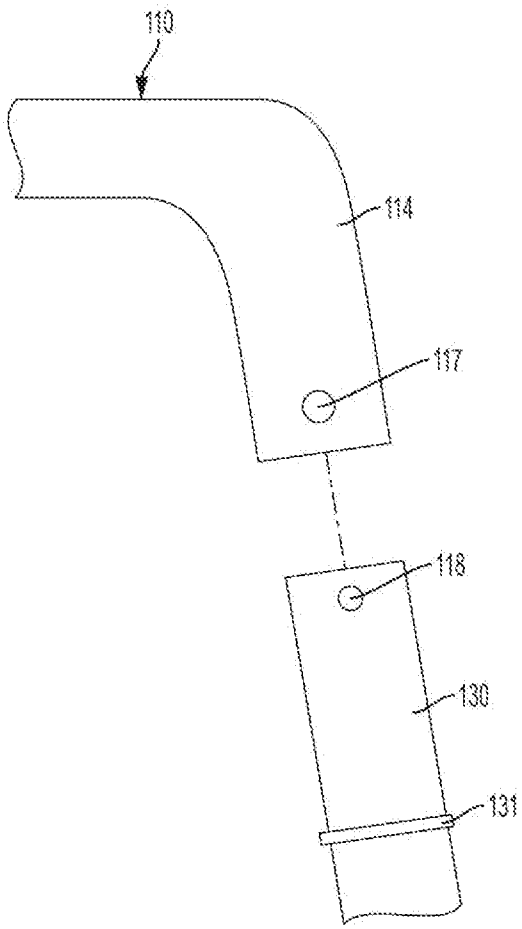

FIG. 2

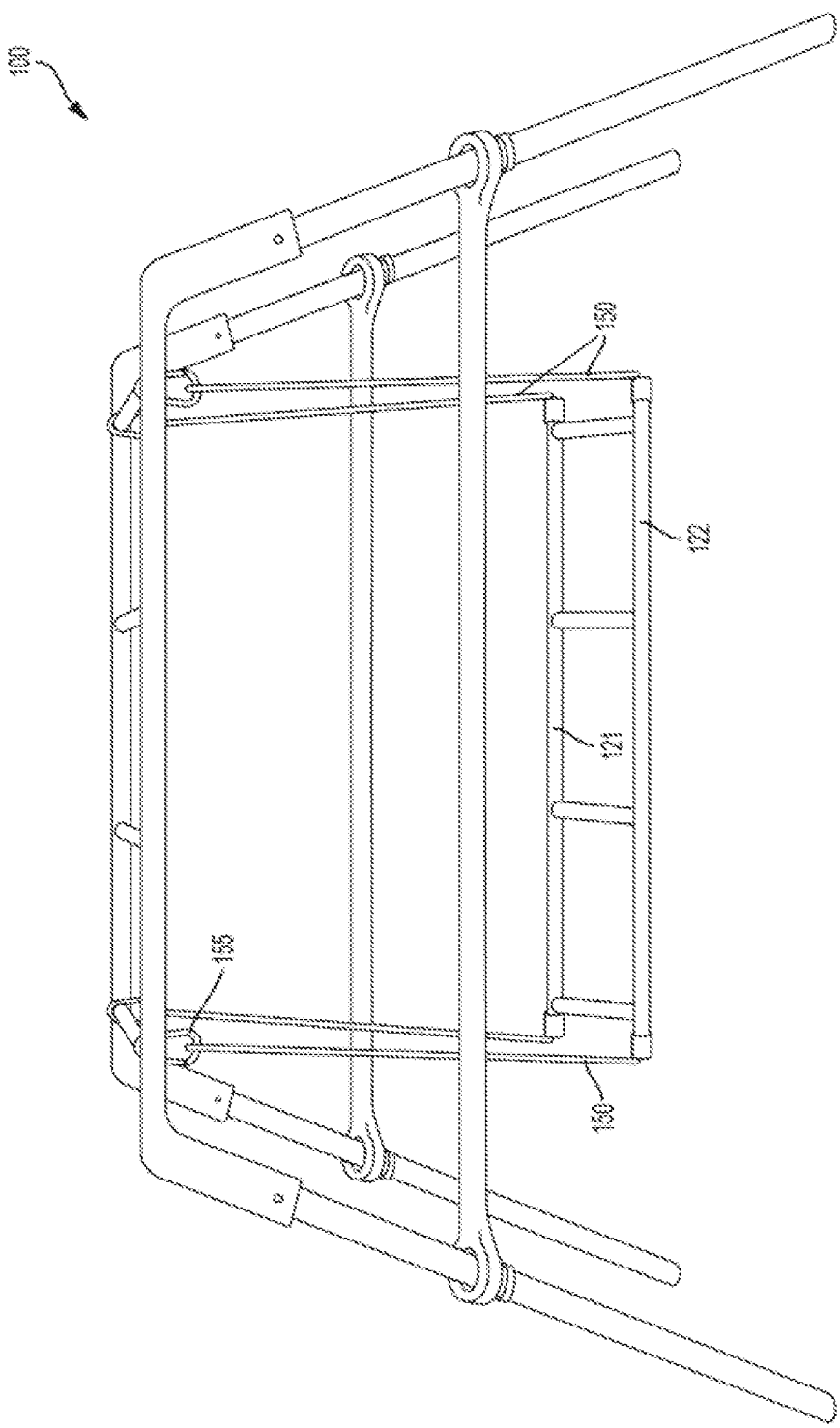

FIG. 3

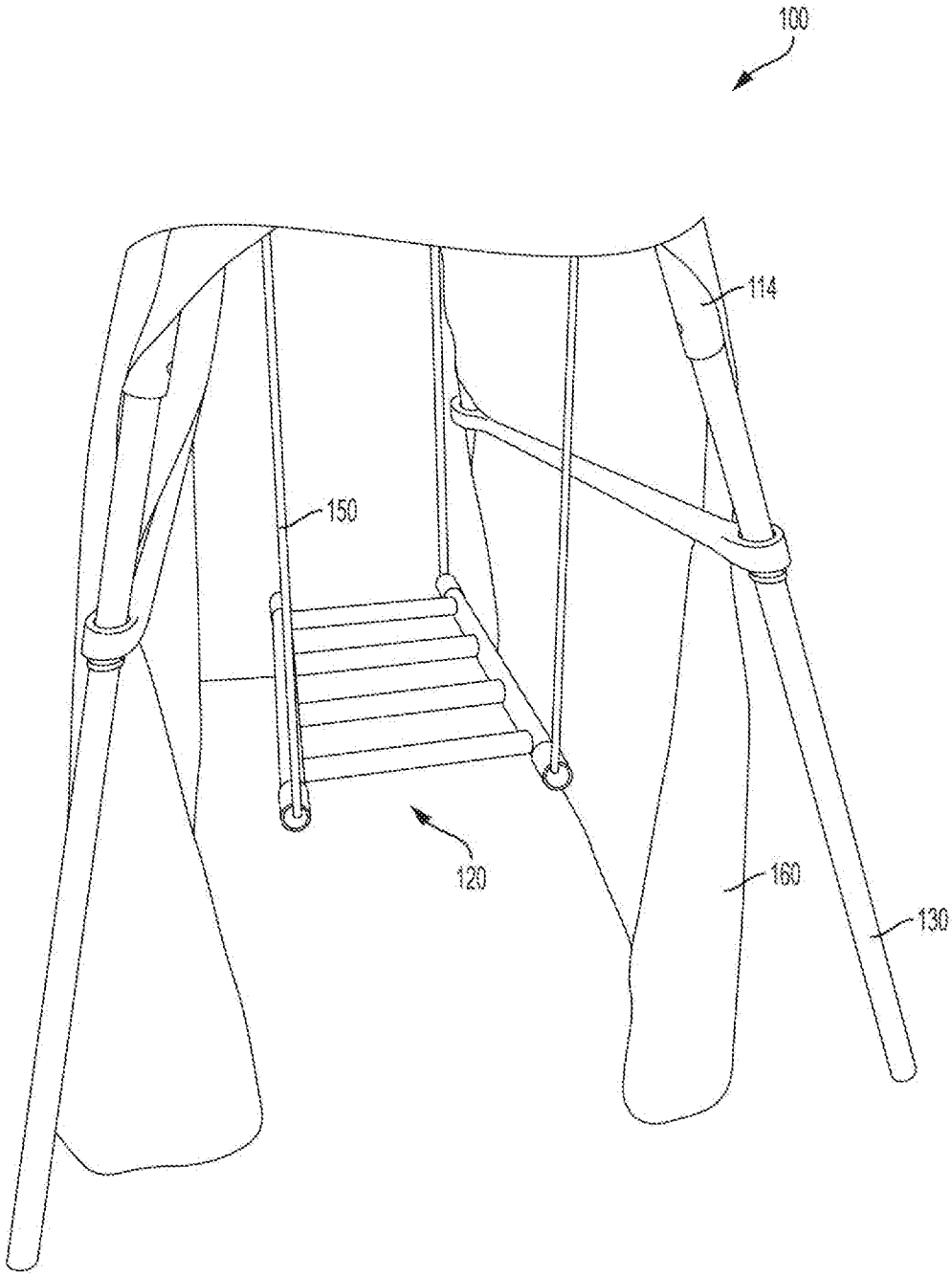

FIG. 4

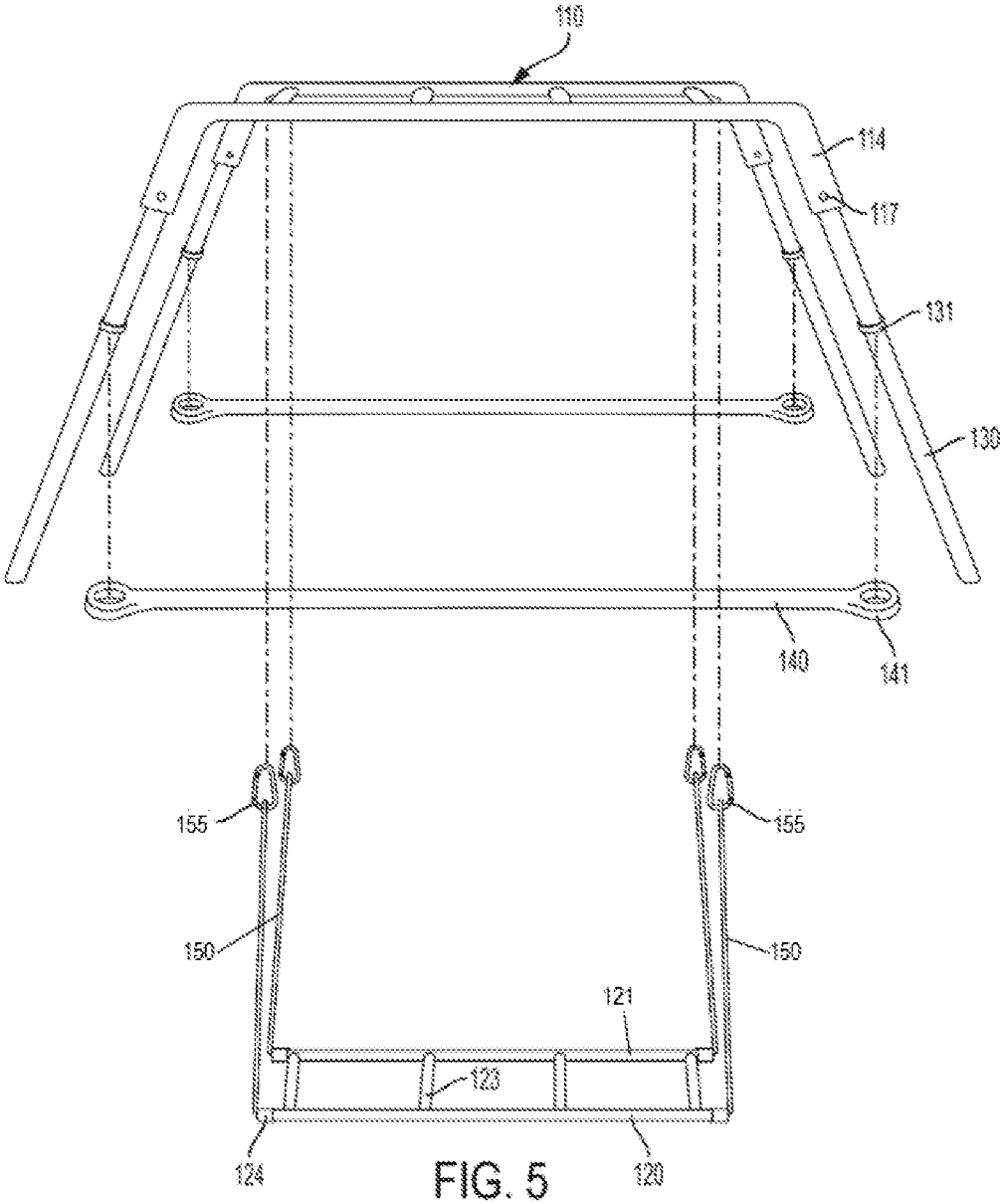

FIG. 5

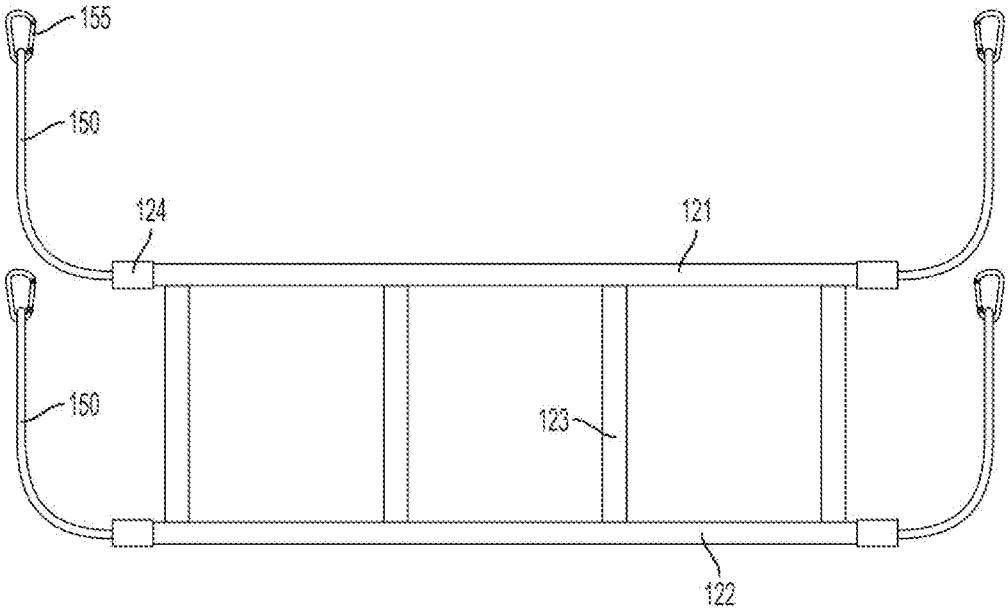

FIG. 6

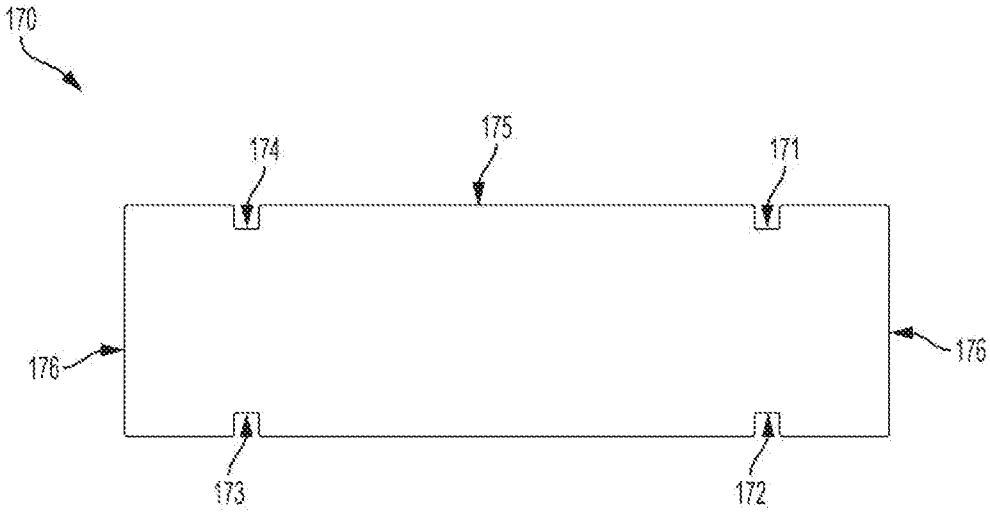

FIG. 7

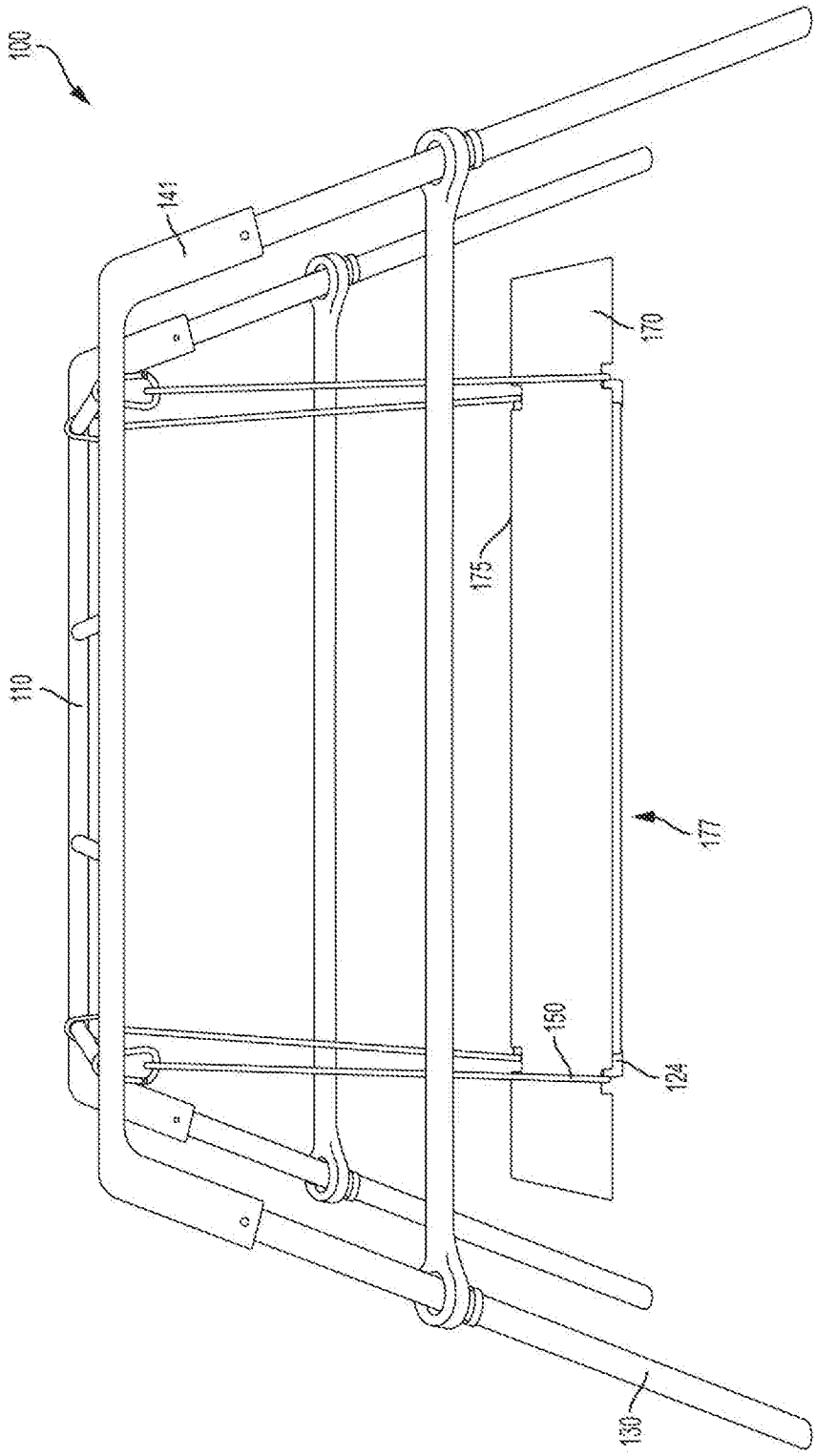

FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2017/050027

A. CLASSIFICATION OF SUBJECT MATTER

A63B 17/04 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPIAP & EPODOC: IPC & CPC A63B17/04; Keywords - Ladder, climb, play and like terms.

Google, Google Patents and Google Scholar: Modular and similar keywords as above.

Applicant/Inventor name searches were performed in Google & E-Spacenet websites and internal databases provided by IP Australia.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 April 2017	28 April 2017

Name and mailing address of the ISA/AU	**Authorised officer**
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INTERNATIONAL SEARCH REPORT C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		International application No. **PCT/NZ2017/050027**
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1405885 A (MCKILLEN P G) 10 September 1975 Fig. 1, 3, 5-7, Page 1, line 71-75, 78-84, Page 2, line 4-15, 110-113, 124-125	1-27
X	GB 290629 A (MARCEL PIERRE DARAGON) 02 August 1928 Fig. 1, 3-4, Page 1, line 13-19, 23-26, 64-67, 72-73, 75-81	1-27
X	RU 147936 U1 (VITALEVICH et al.) 20 November 2014 Fig. 1, 3-4, English translation of Abstracts and Description from the Google Patents website.	1-27
X	GB 2124092 A (MING-CHOU LIN) 15 February 1984 Fig. 1-3, 6-7, 9, Page 1, line 6-7, 79-82, 117-118, 120-121, Page 2, line 15-19	1-27

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/NZ2017/050027**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		**Patent Family Member/s**	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
GB 1405885 A	10 September 1975	GB 1405885 A	10 Sep 1975
		IE 36812 B1	02 Mar 1977
GB 290629 A	02 August 1928	GB 290629 A	02 Aug 1928
RU 147936 U1	20 November 2014		
GB 2124092 A	15 February 1984	GB 2124092 A	15 Feb 1984

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.