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### (54) Leg assembly and platform assembly for a trampoline

(57) A trampoline assembly (10) for supporting a user above a support surface (30) comprises a bed (12); a base frame (14); a plurality of resilient members (16); and a leg assembly (20). The plurality of resilient members (16) connect the bed (12) to the base frame (14). The leg assembly (20) supports the base frame (14) and the bed (12) above the support surface (30). Additionally,

the leg assembly (20) includes (i) a plurality of legs (26) that are connected to the base frame (14), each leg (26) including a first leg end (26F) and a spaced apart second leg end (26S) that are each connected to the base frame (14), and (ii) one or more stabilizers (28) that are connected to and extend between one of the legs (26) and at least one of an adjacent leg (26) and the base frame (14).

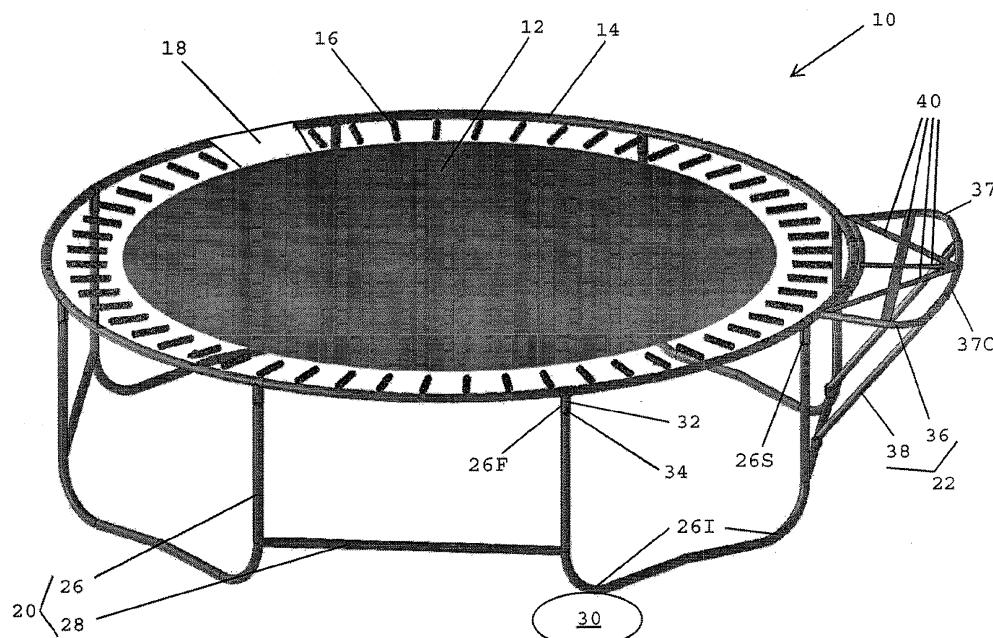


Fig. 1A

**Description****RELATED INVENTION**

**[0001]** This application claims priority on U.S. Provisional Application Serial No. 61/419,408, filed December 3, 2010 and entitled "LEG ASSEMBLY AND PLATFORM ASSEMBLY FOR A TRAMPOLINE". As far as permitted, the contents of U.S. Provisional Application Serial No. 61/419,408 are incorporated herein by reference.

**BACKGROUND**

**[0002]** For many, many years bouncing on a trampoline has been viewed as a fun and entertaining activity for people of various ages. A typical trampoline assembly includes a bed, a base frame, a plurality of resilient members, e.g., springs, that are attached to and extend between the bed and the base frame to connect the bed to the base frame, a cover that covers at least a portion of the base frame and resilient members, and a plurality of legs that are coupled to the base frame to support the bed and the base frame above a surface. Additionally, in some embodiments, the trampoline assembly further includes an enclosure assembly that inhibits a user from falling off the bed during use.

**[0003]** In many embodiments, the legs are coupled to the base frame via a plurality of connector tubes that are welded to or otherwise secured to the base frame. Additionally, a pin, a bolt and nut combination, or some other connection means can be used to secure the legs to the connector tubes.

**[0004]** Further, in many embodiments, the resilient members are attached to the base frame by having an end of the resilient members be positioned within an aperture at or near the top of the base frame. The resilient members create an enormous amount of tension and/or torque, i.e. rotational force, on the base frame. Because the resilient members are attached to the top of the base frame, this tension and/or torque exists even when the trampoline is in a static mode, i.e. when no one is using the trampoline. Moreover, this tension and/or torque is even greater when the trampoline is in a dynamic mode, with someone jumping on the trampoline.

**[0005]** This tension and/or torque can exert great stresses on the connector tubes and the legs of the trampoline. For example, a person bouncing on the bed of the trampoline assembly can cause the resilient members to stretch, thereby imparting an even greater rotational force or torque on the base frame. At the same time as the base frame starts to rotate in a generally inward direction due to the force from the stretching of the resilient members, the legs will start to move in a generally outward direction relative to the base frame. This movement results in the legs becoming unstable, and can cause the connection between the connector tubes and the base frame and/or the connection between the legs and the connector tubes to fail. Thus, the torque

exerted on the base frame can result in the wobbling and/or the failure or collapse of one or more of the connector tubes and/or the legs.

**[0006]** One previous attempt to address this problem involved pre-angling the connector tubes, and thus the legs, inwardly as the connector tubes extend downward from the base frame so as to compensate for the stresses on the connector tubes and the legs that are generated when a person jumps on the trampoline. However, the results of this attempted solution have been less than ideal.

**[0007]** Additionally, in many embodiments, the person intending to jump on the trampoline must climb up onto the trampoline. In doing this, they step or climb on the cover to make their way to the bed of the trampoline. Because the resilient members are below the cover, the cover is very unstable and the person exposes themselves to possible injury. In addition, with repeated use, the cover becomes worn and can tear, thereby exposing the resilient members. This further greatly increases the possibility of a person stepping through the cover. Still further, in embodiments that include an enclosure assembly, climbing onto the bed of the trampoline is even more difficult because there may be no safe place onto which the person can step.

**SUMMARY**

**[0008]** The present invention is directed toward a trampoline assembly for supporting a user above a support surface. In certain embodiments, the trampoline assembly comprises a bed; a base frame; a plurality of resilient members; and a leg assembly. The plurality of resilient members connect the bed to the base frame. The leg assembly supports the base frame and the bed above the support surface. Additionally, the leg assembly includes (i) a plurality of legs that are connected to the base frame, each leg including a first leg end and a spaced apart second leg end that are each connected to the base frame, and (ii) one or more stabilizers that are connected to and extend between one of the legs and at least one of an adjacent leg and the base frame.

**[0009]** In some embodiments, each leg further includes one or more contact points at which the leg contacts the support surface, and wherein each leg is a continuous structure.

**[0010]** Additionally, in certain embodiments, each of the one or more stabilizers is connected to and extends between adjacent legs. In one such embodiment, a single stabilizer is connected to and extends between each set of adjacent legs. In another such embodiment, a pair of stabilizers are connected to and extend between each set of adjacent legs.

**[0011]** In one embodiment, the one or more stabilizers cooperate to extend between adjacent legs.

**[0012]** Additionally, in one embodiment, each of the stabilizers engages one or both of the adjacent legs approximately near the support surface.

**[0013]** In one embodiment, the trampoline assembly further comprises a plurality of connector tubes that are secured to the base frame. In such embodiment, the plurality of legs are connected to the base frame via the plurality of connector tubes.

**[0014]** Further, in certain embodiments, the trampoline assembly further comprises a platform assembly that is coupled to the leg assembly. In such embodiments, the platform assembly includes a platform that extends substantially parallel to the support surface. Additionally, the platform assembly further includes a platform support that supports the platform relative to the support surface. The platform support is coupled to and extends between the leg assembly and the platform. Moreover, in one embodiment, the platform support is coupled to one of the stabilizers. Alternatively, in one embodiment, the platform support is coupled to one of the plurality of legs. Additionally and/or alternatively, in one embodiment, the platform support can contact the support surface.

**[0015]** Additionally, in one embodiment, the platform assembly further includes a connector bar that is connected to the leg assembly. In such embodiment, the platform is secured to the connector bar.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0016]** The novel features of this invention, as well as the invention itself, both as to its structure and its operation, will be best understood from the accompanying drawings, taken in conjunction with the accompanying description, in which similar reference characters refer to similar parts, and in which:

Figure 1A is a simplified perspective view of an embodiment of a trampoline assembly having features of the present invention;

Figure 1B is a simplified side view of the trampoline assembly illustrated in Figure 1A;

Figure 1C is a simplified end view of the trampoline assembly illustrated in Figure 1A;

Figure 2 is a simplified perspective view of another embodiment of a trampoline assembly having features of the present invention;

Figure 3A is a simplified top view of a portion of still another embodiment of a trampoline assembly having features of the present invention;

Figure 3B is a simplified side view of the trampoline assembly illustrated in Figure 3A;

Figure 3C is a simplified side view of an alternative embodiment of the trampoline assembly illustrated in Figure 3A;

Figure 4 is a simplified side view of yet another embodiment of a trampoline assembly having features of the present invention;

Figure 5 is a simplified perspective view of a portion of still another embodiment of a trampoline assembly having features of the present invention;

Figure 6 is a simplified perspective view of a portion

of yet another embodiment of a trampoline assembly having features of the present invention;

Figure 7 is a simplified perspective view of a portion of still another embodiment of a trampoline assembly having features of the present invention;

Figure 8A is a simplified perspective view of yet another embodiment of a trampoline assembly having features of the present invention;

Figure 8B is a simplified perspective view of a portion of the trampoline assembly illustrated in Figure 8A; and

Figure 9 is a simplified perspective view of a portion of still yet another embodiment of a trampoline assembly having features of the present invention.

#### **DESCRIPTION**

**[0017]** Figure 1A is a simplified perspective view of an embodiment of a trampoline assembly 10 having features of the present invention. In this embodiment, the trampoline assembly 10 includes a bed 12, a base frame 14, a plurality of resilient members 16, a cover 18 (only a portion of which is illustrated in Figure 1A), a leg assembly 20, and a platform assembly 22. Alternatively, in certain embodiments, the trampoline assembly 10 can be designed without the cover 18 and/or without the platform assembly 22.

**[0018]** Additionally, in some embodiments, the trampoline assembly 10 can further include an enclosure assembly 842 (as illustrated in Figure 8A) that can be coupled to the base frame 14 and/or the bed 12 of the trampoline assembly 10.

**[0019]** As an overview, the trampoline assembly 10, as described in detail herein, is designed so that the leg assembly 20 exhibits improved strength and sturdiness characteristics during use. In particular, the leg assembly 20 is designed to inhibit wobbling of the trampoline assembly 10 and/or the failure or collapse of the leg assembly 20. Additionally, the platform assembly 22 is uniquely designed to enable a person to have a sturdy place to stand before easily moving onto or off of the bed 12 of the trampoline assembly 10, especially when the trampoline assembly 10 includes an enclosure assembly 842 as noted above. Stated another way, the platform assembly 22 enables a person to move onto or off of the bed 12 of the trampoline assembly 10 without stepping on the cover 18, which could expose the person to an unstable surface and the corresponding risk of injury, and/or which could cause damage to the cover 18.

**[0020]** The design of the bed 12 can be varied depending upon the requirements of the trampoline assembly 10 and/or the base frame 14. In the embodiment illustrated in Figure 1A, the bed 12 is substantially circular in shape. For example, in certain non-exclusive alternative embodiments, the bed 12 can have a diameter of approximately seven, nine, eleven, thirteen or fourteen feet. Alternatively, the bed 12 can have a diameter that is different than those sizes specifically mentioned above. For

example, the bed 12 can have a diameter that is greater than fourteen feet or less than seven feet. Still alternatively, the bed 12 can be substantially oval shaped, square shaped, rectangle shaped, or some other shape.

**[0021]** Further, the bed 12 can be formed from various sturdy fabric materials that are designed to withstand the repeated impact from a person using the trampoline assembly 10. For example, the bed 12 can be formed from a mesh material or other similar material. Alternatively, the bed 12 can be formed from materials including heavy canvas, vinyl, or nylon.

**[0022]** The design of the base frame 14 can be varied depending on the requirements of the trampoline assembly 10, the bed 12 and/or the plurality of resilient members 16. In the embodiment illustrated in Figure 1A, the base frame 14 is substantially circular in shape. For example, in certain non-exclusive alternative embodiments, the base frame 14 can have a diameter that is different than those sizes specifically mentioned above. For example, the base frame 14 can have a diameter that is greater than fifteen feet or less than eight feet. Still alternatively, the base frame 14 can be substantially oval shaped, square shaped, rectangle shaped, or some other shape.

**[0023]** In certain embodiments, the base frame 14 can include a plurality of sections that can be secured together to form the base frame 14. For example, in one embodiment, the base frame 14 is formed from a pair of sections that are each substantially semi-circular in shape. With this modular-type design, shipping and disassembly for storage of the base frame 14 is facilitated. Alternatively, the base frame 14 can be formed as a unitary structure. Further, the base frame 14 can be formed from various materials such as metal, wood, plastic, composite materials, ceramic, or any other suitably rigid materials. Alternatively, a combination of any of such materials can be used.

**[0024]** The plurality of resilient members 16 connect the bed 12 to the base frame 14, so as to place the bed 12 in tension. Each resilient member 16 can include a spring, elastic, plastic, rubber, or other suitably resilient structure. The size and number of the resilient members 16 can vary. For example, in one embodiment, the trampoline assembly 10 can include approximately fifty-six similarly-sized extension springs that are equally spaced around the perimeter of the bed 12. Further, in one embodiment, each spring can have a diameter of approximately twenty-two millimeters and be formed from 3.2 millimeter thickness spring steel. Alternatively, the trampoline assembly 10 can be designed to have greater than fifty-six or fewer than fifty-six springs, and the trampoline assembly 10 can utilize springs that have various dimensions and are made of various materials.

**[0025]** The cover 18 substantially covers at least a portion of the plurality of resilient members 16 and at least a portion of the base frame 14. The cover 18 is designed to help protect the user from injury by preventing the user from getting hands or feet or other body parts caught or pinched within the plurality of resilient members 16. Ad-

ditionally, the cover 18 is designed to help protect the user from injury by preventing the user from directly contacting the rigid materials used to form the base frame 14. The cover 18 can be made of nylon or other suitable, pliable material. In certain embodiments, a layer of padding (not illustrated) can be positioned between the cover 18 and the plurality of resilient members 16 and/or between the cover 18 and the base frame 14.

**[0026]** The leg assembly 20 can be varied to suit the specific requirements of the trampoline assembly 10 and/or the base frame 14. As illustrated, the leg assembly 20 includes a plurality of legs 26 and a plurality of stabilizers 28 that are each connected to one or more of the legs 26. For example, as shown in Figure 1A, each of the stabilizers 28 can be connected to and extend fully between two adjacent legs. Alternatively, in certain embodiments, one or more of the stabilizers 28 can be connected to only one leg 26, with such stabilizers extending between one of the legs 26 and the base frame 14. Stated another way, in such embodiments, one or more of the stabilizers 28 can be positioned so as to extend only a portion of the distance between adjacent legs 26.

**[0027]** As utilized herein, the term "adjacent legs" is meant to signify the legs that are closest to one another in either direction around the perimeter of the base frame 14. As described herein, the leg assembly 20 is uniquely designed to inhibit failure and/or collapsing of the legs 26 during use.

**[0028]** The legs 26 are connected to the base frame 14 and are spaced apart around the base frame 14, so as to support and/or maintain the base frame 14 and the bed 12 above a support surface 30, such as a floor or the ground. Additionally, in this embodiment, the legs 26 are substantially evenly spaced apart around the base frame 14. Alternatively, the legs 26 can be unevenly spaced apart around the base frame 14.

**[0029]** In some embodiments, the trampoline assembly 10 can further include a plurality of connector tubes 32 (illustrated more clearly, for example, in Figure 3B) and a plurality of connector pins 34 (illustrated more clearly, for example, in Figure 3B) that facilitate the connection of the legs 26 to the base frame 14. In this embodiment, the connector tubes 32 are welded to or otherwise secured to the base frame 14. Further, each of the connector tubes 32 points in a generally downward direction and is adapted to receive and retain a portion of one of the legs 26.

**[0030]** In one embodiment, each of the connector tubes 32 is a substantially hollow circular tube and includes an inner diameter that is slightly larger than an outer diameter of a portion of one of the legs 26. With this design, a portion of each of the legs 26 can be positioned within one of the connector tubes 32 in telescoping fashion. Additionally, each of the legs 26 and the connector tubes 32 can include apertures (not illustrated) such that one of the connector pins 34 can extend through the apertures in one of the connector tubes 32 and one of the legs 26 (or at least one portion of one of the legs

26). The connector pins 34 are designed to be positioned and maintained within the apertures so that each of the connector tubes 32 can effectively retain a portion of one of the legs 26. Alternatively, each of the legs 26 can include a substantially hollow circular tube portion that has an inner diameter that is slightly larger than an outer diameter of a corresponding connector tube 32, such that the portion of the legs 26 can receive and retain at least a portion of one of the connector tubes 32. Still alternatively, the legs 26 can be connected to the base frame 14 in a different manner.

**[0031]** The design of the legs 26 can be varied to suit the specific requirements of the base frame 14 and/or the trampoline assembly 10. In the embodiment illustrated in Figure 1A, each of the legs 26 includes (i) a first leg end 26F that is connected to the base frame 14, (ii) a spaced apart second leg end 26S that is connected to the base frame 14, and (iii) one or more intermediate, contact points 26I at which the leg 26 contacts the support surface 30. It should be noted that this leg design enables the leg 26 to show greater rigidity and strength characteristics.

**[0032]** As shown in this embodiment, each leg 26 can include two spaced apart contact points 26I at which the leg 26 contacts the support surface 30, such that the leg has a somewhat W-shaped configuration. With this design, the multiple contact points 26I between the leg 26 and the support surface 30 enable the leg 26 to experience greater stability. Alternatively, each leg 26 can have more than two or less than two contact points 26I at which the leg 26 contacts the support surface 30. For example, in certain embodiments, the legs 26 can include a single contact point 26I at which the leg 26 contacts the support surface 30, such that the leg 26 can have a substantially V-shaped configuration. Additionally, the legs 26 can have a substantially continuous contact point 26I at which the leg 26 contacts the support surface 30, such that the leg 26 can have a substantially U-shaped configuration. Still alternatively, the legs 26 can have a straight leg design that only connects to the base frame 14 at a single point.

**[0033]** Additionally, in this embodiment, each leg 26 can be a continuous and unitary structure from the first leg end 26F through the one or more contact points 26I and to the second leg end 26S. Alternatively, each leg 26 can be designed such that it includes one or more pieces that can be welded or otherwise secured together. Further, the legs 26 can be formed from various materials such as metal, wood, plastic, composite materials, ceramic, or any other suitably rigid materials. Alternatively, a combination of any of such materials can be used.

**[0034]** Still further, the number of legs 26 can be varied to suit the specific requirements of the base frame 14 and/or the trampoline assembly 10. For example, in the embodiment illustrated in Figure 1A, the leg assembly 20 includes four legs 26 that are spaced apart, e.g., substantially evenly spaced apart, around the base frame 14. Alternatively, the leg assembly 10 can include more

than four or less than four legs 26.

**[0035]** The stabilizers 28 are connected to the legs 26 so as to inhibit the wobbling and/or the failure or collapse of the legs 26. Moreover, the stabilizers 28 are designed to inhibit the failure of the connection between the connector tubes 32 and the base frame 14 and/or to inhibit the failure of the connection between the legs 26 and the connector tubes 32. The design and positioning of the stabilizers 28 can be varied. In the embodiment illustrated in Figure 1A, each stabilizer 28 is a sturdy rod that is connected to and extends fully between two adjacent legs 26. Alternatively, as noted above, each stabilizer 28 can extend less than fully between adjacent legs 26.

**[0036]** Additionally, the stabilizers 28 can extend substantially horizontally between adjacent legs 26 at different heights relative to the support surface 30, and the stabilizers 28 can extend substantially parallel to the support surface 30. Further, in some embodiments, the closer the stabilizers 28 are to the support surface 30, the more effective the stabilizers 28 are at inhibiting the wobbling and/or the failure or collapse of the legs 26. In certain non-exclusive alternative embodiments, each stabilizer 28 can engage one or both of the adjacent legs 26 (i) approximately near the support surface 30; (ii) closer to the support surface 30 than to the base frame 14 (e.g., greater than approximately 50, 60, 70, 80, or 90 percent of the way from the base frame 14 to the support surface 30); or (iii) closer to the base frame 14 than the support surface 30 (e.g., less than approximately 10, 20, 30, 40, or 50 percent of the way from the base frame 14 to the support surface 30). Still alternatively, the stabilizers 28 can extend other than substantially horizontally between adjacent legs 26.

**[0037]** In the embodiment illustrated in Figure 1A, one stabilizer 28 is connected to and extends fully between each set of adjacent legs 26 such that the leg assembly 20 includes a total of four stabilizers 28 (only three are visible in Figure 1A). Alternatively, the leg assembly 20 can be designed to include more than one or less than one stabilizer 28 between each set of adjacent legs 26 and/or the leg assembly 20 can include more than four or less than four stabilizers 28.

**[0038]** Further, the stabilizers 28 can be formed from various materials such as metal, wood, plastic, composite materials, ceramic, or any other suitably rigid materials. Alternatively, a combination of any of such materials can be used.

**[0039]** The platform assembly 22 enables a person to have a sturdy place to stand before easily moving onto or off of the bed 12 of the trampoline assembly 10. Additionally, the platform assembly 22 enables the person to move onto or off of the bed 12 of the trampoline assembly 10 without stepping onto the cover 18, which may otherwise damage the cover 18 and/or subject the person to risk of injury. Further, it should be noted that the platform assembly 22 is particularly effective due to the presence of the stabilizers 28, as described herein. For example, without the stabilizers 28, the presence of the

platform assembly 22 may tend to exacerbate any stability issues with the legs 26 and/or with the connections between the connector tubes 32 and the base frame 14 and between the legs 26 and the connector tubes 32.

**[0040]** As illustrated in this embodiment, the platform assembly 22 can be connected to the base frame 14. Additionally and/or alternatively, the platform assembly 22 can be connected to the leg assembly 20.

**[0041]** The design of the platform assembly 22 can be varied to suit the requirements of the trampoline assembly 10, the base frame 14 and/or the leg assembly 20. As illustrated in this embodiment, the platform assembly 22 can include a platform 36 and a platform support 38. Although only one platform assembly 22 is illustrated in Figure 1A, it should be noted that the trampoline assembly 10 can be designed to include more than one platform assembly 22.

**[0042]** The size, shape, design and positioning of the platform 36 can be varied. In this embodiment, the platform 36 is secured to the base frame 14 between a pair of adjacent legs 26 such that the platform 36 extends substantially horizontally away from the base frame 14. Additionally, the platform 36 extends substantially parallel to the support surface 30. In this embodiment, the platform 36 includes an outer, platform frame 37 and one or more platform members 40. In one alternative embodiment, the platform 36 can further include a surface member 39 (as illustrated, for example, in Figure 8A) that substantially covers the platform frame 37 and the platform members 40 to create a more complete surface on which a person can stand.

**[0043]** In this embodiment, the platform frame 37 is secured to the base frame 14 at two spaced apart points along the base frame 14, and further includes a rounded outer edge 370 away from the base frame 14, such that the platform frame 37 is somewhat C-shaped. Alternatively, the platform frame 37 can have a different design and/or can be connected to the base frame 14 in a different manner. For example, in one alternative embodiment, the platform frame 37 can have a squared outer edge 370.

**[0044]** The platform members 40 cooperate with the platform frame 37 to create a level and sturdy surface on which a person can stand before easily moving onto or off of the bed 12 of the trampoline assembly 10. As illustrated, one or more of the platform members 40 can be connected to and extend between two spaced apart points on the platform frame 37. Additionally, one or more platform members 40 can be connected to and extend between the platform frame 37 and the base frame 14. Further, each of the platform members 40 can be connected to, overlap, and/or interconnect with one or more of the other platform members 40.

**[0045]** In the embodiment illustrated in Figure 1A, the platform 36 includes four platform members 40, with one platform member 40 extending straight between the outer edge 370 of the platform frame 37 and the base frame 14, two platform members 40 extending at an angle from

the outer edge 370 of the platform frame 37 to near where the platform frame 37 is secured to the base frame 14, and one platform member 37 extends from one side of the platform frame to the other and is connected to, overlaps, and/or interconnects with each of the other platform members 40. Alternatively, the platform can be designed with more than four or less than four platform members 40, and/or the platform members 40 can have a different orientation relative to the platform frame 37, the base frame 14 and the other platform members 40. For example, in one embodiment, the platform 36 can include a single planar support member that extends substantially fully between the platform frame 37 and the base frame 14.

**[0046]** Further, the platform 36 can be formed from various materials such as metal, wood, plastic, composite materials, ceramic, or any other suitably rigid materials. Alternatively, a combination of any of such materials can be used.

**[0047]** The platform support 38 supports the platform 36 relative to the base frame 14 and relative to the support surface 30. Additionally, the platform support 38 is coupled and/or secured to and extends between the leg assembly 20 and the platform 36. Stated another way, the platform 36 is coupled to the leg assembly 20 via the platform support 38. In this embodiment, the platform support 38 includes a pair of sturdy, support rods that are coupled to and that extend upward at an angle from one of the stabilizers 28 to the platform 36. Moreover, in this embodiment, the platform support 38 is secured to the outer edge 370 of the platform frame 37 away from the base frame 14. Alternatively, the platform support 38 can have a different design and/or the platform support 38 can be coupled to a different portion of the leg assembly 20 and/or to a different portion of the platform 36. For example, the platform support 38 can include more than two or less than two support rods, and/or the platform support 38 can be coupled to one of the legs 26.

**[0048]** Further, the platform support 38 can be formed from various materials such as metal, wood, plastic, composite materials, ceramic, or any other suitably rigid materials. Alternatively, a combination of any of such materials can be used.

**[0049]** Figure 1B is a simplified side view of the trampoline assembly 10 illustrated in Figure 1A. In particular, Figure 1B illustrates one of the stabilizers 28 extending substantially horizontally between one set of adjacent legs 26. Further, Figure 1B illustrates the platform support 38 extending upward at an angle to the platform 36 in order to more effectively support the platform 36.

**[0050]** Figure 1C is a simplified end view of the trampoline assembly 10 illustrated in Figure 1A. In particular, Figure 1C illustrates more clearly the coupling of the platform support 38 to one of the stabilizers 28, and the positioning of the platform support 38 relative to the set of adjacent legs 26 and the platform 36. As illustrated, in one embodiment, the platform support 38 can be pivotally coupled to one of the stabilizers 28 with one or more

platform couplers 41. For example, as shown in Figure 1C, one platform coupler 41 can be used to pivotally couple each of the rods of the platform support 38 to the stabilizer 28. Alternatively, the platform support 38 can be coupled to one of the stabilizers 28 in a different manner. For example, in one alternative embodiment, the platform support 38 can be fixedly secured to one of the stabilizers 28.

**[0051]** Figure 2 is a simplified perspective view of another embodiment of a trampoline assembly 210 having features of the present invention. In this embodiment, the general design of the trampoline assembly 210 is substantially similar to the general design of the trampoline assembly 10 as illustrated and described above with regard to the embodiment illustrated in Figure 1A. For example, the trampoline assembly 210 includes a base frame 214 and a leg assembly 220, with the leg assembly 220 including four legs 226 and four stabilizers 228, and with one stabilizer 228 being connected to and extending between each set of adjacent legs 226. However, in this embodiment, the positioning of the platform assembly 222 has been varied. More particularly, as shown, the platform 236 is connected to the base frame 214 substantially between the outer portions of one of the somewhat W-shaped legs 226.

**[0052]** Additionally, the platform assembly 222 again includes a platform support 238 that supports the platform 236 relative to the base frame 214. However, in this embodiment, the platform support 238 includes a pair of sturdy rods that are coupled to and that extend upward at an angle from one of the legs 226 to the platform 236. More particularly, each of the sturdy rods of the platform support 238 is coupled to the one of the legs 226 at a point on the leg 226 that is positioned at or very near to the support surface 30 (illustrated in Figure 1A). Alternatively, the platform support 238 can have a different design and/or the sturdy rods can be coupled to one of the legs 226 at a different point on the leg 226.

**[0053]** Figure 3A is a simplified top view of a portion of still another embodiment of a trampoline assembly 310 having features of the present invention. The resilient members have been omitted from Figure 3A for purposes of clarity. In this embodiment, the general design of the trampoline assembly 310 is substantially similar to the general design of the trampoline assemblies 10, 210 as illustrated and described above. For example, the trampoline assembly 310 includes a base frame 314 and a leg assembly 320, with the leg assembly 320 including four legs 326 and four stabilizers 328, with one stabilizer 328 being connected to and extending between each set of adjacent legs 326. However, in this embodiment, the trampoline assembly 310 is designed without the platform assembly.

**[0054]** Figure 3B is a simplified side view of the trampoline assembly 310 illustrated in Figure 3A. In particular, Figure 3B illustrates two of the stabilizers 328, with each stabilizer 328 extending substantially horizontally between one set of adjacent legs 326. Additionally, in this

embodiment, each of the stabilizers 328 are positioned relatively low along the legs 326 and relatively close to the support surface 30.

**[0055]** Figure 3C is a simplified side view of an alternative embodiment of the trampoline assembly 310 illustrated in Figure 3A. In particular, Figure 3C again illustrates two of the stabilizers 328, with each stabilizer 328 extending substantially horizontally between one set of adjacent legs 326. However, in this embodiment, each of the stabilizers 328 are positioned somewhat higher along the legs 326 and somewhat higher relative to the support surface 30 as compared to the embodiment illustrated in Figure 3B.

**[0056]** Figure 4 is a simplified side view of yet another embodiment of a trampoline assembly 410 having features of the present invention. In this embodiment, the general design of the trampoline assembly 410 is substantially similar to the general design of the trampoline assemblies 10, 210, 310 as illustrated and described above. For example, the trampoline assembly 410 includes a base frame 414 and a leg assembly 420, with the leg assembly 420 including four legs 426. However, in this embodiment, the leg assembly 420 further includes a pair of stabilizers 428 that are connected to and that cooperate to extend between each set of adjacent legs 426. More specifically, each stabilizer 428 is connected to one of the legs 426 somewhat near to the base of the leg 426, and the stabilizer 428 extends upward at an angle to where the stabilizer 428 is further connected to the base frame 414. Further, the stabilizers 428 are positioned substantially adjacent to one another at the point where the stabilizers 428 are connected to the base frame 414. In this respect, the stabilizers 428 cooperate to form the approximate shape of an inverted "V". Alternatively, in certain embodiments, the stabilizers 428 can be somewhat spaced apart at the point at which the stabilizers 428 are connected to the base frame 414. In one such embodiment, the stabilizers 428 are not positioned substantially adjacent to one another at any point between the leg 426 and the base frame 414. In another such embodiment, each stabilizer 428 may be positioned substantially adjacent to the other stabilizer 428 at some point between wherein the stabilizer 428 is connected to one of the legs 426 and where the stabilizer 428 is connected to the base frame 414.

**[0057]** Figure 5 is a simplified perspective view of a portion of still another embodiment of a trampoline assembly 510 having features of the present invention. The bed and the resilient members have been omitted from Figure 5 for purposes of clarity. In this embodiment, the general design of the trampoline assembly 510 is substantially similar to the general design of the trampoline assemblies as illustrated and described above. For example, the trampoline assembly 510 includes a base frame 514 and a leg assembly 520, with the leg assembly 520 including four legs 526. However, in this embodiment, the leg assembly 520 further includes a pair of stabilizers 528 that are connected to and that each indi-

vidually extends between each set of adjacent legs 526. More specifically, each stabilizer 528 is connected to one of the legs 526 somewhat near to the base of the leg 526, and the stabilizer 528 extends upward at an angle to where the stabilizer 528 is further connected to the adjacent leg 526 somewhat near the top of the adjacent leg 526. Additionally, the stabilizers 528 are positioned substantially adjacent to one another at approximately half way between the two adjacent legs 526. Further, the pair of stabilizers 528 have a substantially X-shaped appearance as they extend between the set of adjacent legs 526.

**[0058]** Further, the pair of stabilizers 528 have a substantially X-shaped appearance as they extend between the adjacent legs 526. The stabilizers 528 can also be connected to each other where they cross at the intersection.

**[0059]** Figure 6 is a simplified perspective view of a portion of yet another embodiment of a trampoline assembly 610 having features of the present invention. The bed and the resilient members have been omitted from Figure 6 for purposes of clarity. In this embodiment, the general design of the trampoline assembly 610 is substantially similar to the general design of the trampoline assemblies as illustrated and described above. However, in this embodiment, the leg assembly 620 includes three legs 626 and three stabilizers 628, with one stabilizer 628 being connected to and extending substantially horizontally between each set of adjacent legs 626.

**[0060]** Figure 7 is a simplified perspective view of a portion of still another embodiment of a trampoline assembly 710 having features of the present invention. The bed and the resilient members have been omitted from Figure 7 for purposes of clarity. In this embodiment, the general design of the trampoline assembly 710 is substantially similar to the general design of the trampoline assemblies as illustrated and described above. However, in this embodiment, the leg assembly 720 includes five legs 726 and five stabilizers 728, with one stabilizer 728 being connected to and extending substantially horizontally between each set of adjacent legs 726.

**[0061]** Figure 8A is a simplified perspective view of a portion of yet another embodiment of a trampoline assembly 810 having features of the present invention. In this embodiment, the general design of the trampoline assembly 810 is substantially similar to the general design of the trampoline assemblies as illustrated and described above. However, in this embodiment, the trampoline assembly 810 further includes an enclosure assembly 842 that inhibits a user from falling off the bed 812 (illustrated in Figure 8B) during use. As shown in this embodiment, the enclosure assembly 842 is connected to the base frame 814. Alternatively, the enclosure assembly 842 can be connected to a different portion of the trampoline assembly 810. For example, in certain embodiments, the enclosure assembly 842 can be connected to the resilient members 16 (illustrated in Figure 1) or the bed 812 of the trampoline assembly 810.

**[0062]** As shown, the enclosure assembly 842 in-

cludes an enclosure frame 844, e.g., a plurality of enclosure support posts, and an enclosure 846 that is connected to the enclosure frame 844. Alternatively, the enclosure assembly 842 can have a different design.

**[0063]** Moreover, as illustrated, the platform assembly 822 significantly improves the ability of a person to simply and easily move onto or off of the bed 812 of the trampoline assembly 810, which can be even more difficult due to the presence of the enclosure assembly 842. Additionally, as noted above and as illustrated in Figure 8A, the platform assembly 822 can include the surface member 39 that substantially covers the platform members 40 (illustrated in Figure 1A) to create a more complete surface on which a person can stand prior to moving onto the bed 812 or after moving off of the bed 812 of the trampoline assembly 810.

**[0064]** Figure 8B is simplified perspective view of a portion of the trampoline assembly 810 illustrated in Figure 8A. In particular, Figure 8B illustrates the trampoline assembly 810 without the enclosure 846 (illustrated in Figure 8A) connected to the enclosure frame 844. As illustrated, with the inclusion of the platform assembly 822, a person would not be effectively forced to step onto the cover 818 when moving onto or off of the bed 812 of the trampoline assembly 810. Further, as noted above, stepping onto the cover 818 could expose the person to an unstable surface and the corresponding risk of injury and/or could cause damage to the cover 818.

**[0065]** Figure 9 is a simplified perspective view of a portion of still yet another embodiment of a trampoline assembly 910 having features of the present invention. In this embodiment, the general design of the trampoline assembly 910 is substantially similar to the general design of the trampoline assemblies as illustrated and described above. However, in this embodiment, the design of the platform assembly 922 is somewhat different than in the embodiments illustrated and described above.

**[0066]** In this embodiment, the platform assembly 922 includes a platform 936, a platform support 938, and a connector bar 948. Additionally, as noted above and as illustrated in Figure 9, the platform assembly 922 can include a surface member 939 that substantially covers the platform frame 37 (illustrated in Figure 1A) and the platform members 40 (illustrated in Figure 1A) to create a more complete surface on which a person can stand prior to moving onto the bed 12 (illustrated in Figure 1A) or after moving off of the bed 12 of the trampoline assembly 910. Further, the platform assembly 922 significantly improves the ability of a person to simply and easily move onto or off of the bed 12 of the trampoline assembly 910, and the platform assembly 922 enhances the overall stability of the trampoline assembly 910.

**[0067]** The platform 936 supports the user above the support surface 30 before the user moves onto the bed 12 of the trampoline assembly 910 and/or after the user moves off of the bed 12 of the trampoline assembly 910. In various embodiments, the platform 936 can be substantially similar to the platform 36 illustrated and de-

scribed herein above in relation to Figure 1A. Thus, a detailed description of the platform 936 will not be provided herein.

**[0068]** The platform support 938 is coupled and/or secured to the and extends between the leg assembly 920 and the platform 936 to support the platform 936 relative to the remainder of the trampoline assembly 910 and relative to the support surface 30. Stated another way, the platform 936 is coupled to the leg assembly 920 via the platform support 938. In the embodiment illustrated in Figure 9, the platform support 938 includes a pair of sturdy, support rods that extend in a generally downward direction away from the platform 936 until the platform support 938, i.e. each of the support rods, contacts the support surface 30, and then the platform support 938, i.e. each of the support rods, extends slightly upward at an angle until the platform support 938, i.e. each of the support rods, is coupled and/or secured to the leg assembly 920. As shown, the platform support 938 can be coupled and/or secured to one of the legs 926 of the leg assembly 920 at a point on the leg 926 that is positioned at or very near the support surface 30. Alternatively, in one embodiment, the platform support 938 can be coupled and/or secured to one of the stabilizers 928 of the leg assembly 920.

**[0069]** It should be noted that by having a portion of the platform support 938 contact the support surface 30, such as illustrated in this embodiment, the overall stability of the platform assembly 922 and the trampoline assembly 910 can be improved.

**[0070]** The connector bar 948 is connected to one or more legs 926 of the leg assembly 920. Additionally, the platform 936 is coupled and/or secured to the connector bar 948, the platform 936 extends substantially horizontally away from the connector bar 948, and the platform 936 extends substantially parallel to the support surface 30. With this design, the connector bar 948 cooperates with the platform support 938 to support the platform 936 above the support surface 30 relative to the remainder of the trampoline assembly 910 and relative to the support surface 30.

**[0071]** As shown in this embodiment, the connector bar 948 can be a slightly curved bar that follows and/or mimics the general curvature of the base frame 914. Alternatively, the connector bar 948 can be a substantially straight bar and/or the connector bar 948 can have a shape that does not follow and/or mimic the general curvature of the base frame 914.

**[0072]** Additionally, the connector bar 948 can extend substantially horizontally between different portions of the same leg 926, e.g., between two substantially vertical portions of the somewhat W-shaped leg, a relatively small distance below the height of the base frame 914. Alternatively, the connector bar 948 can extend substantially horizontally between adjacent legs 926, e.g., between a substantially vertical portion of one leg 926 to a substantially vertical portion of an adjacent leg 926, a relatively small distance below the height of the base

frame 914. The difference in height between the connector bar 948 and the base frame 914 should be small enough that a person can easily step up from the platform 936, which is at substantially the same height as the connector bar 948, to the bed 12 of the trampoline assembly 910, and/or can easily step down from the bed 12 of the trampoline assembly 910 to the platform 936.

**[0073]** It should be noted that any of the particular design features of the various platform assemblies illustrated and described herein can be combined in any suitable manner to meet the design specifications of the trampoline assembly and/or the leg assembly.

**[0074]** While a number of exemplary aspects and embodiments of a trampoline assembly 10 have been shown and disclosed herein above, those of skill in the art will recognize certain modifications, permutations, additions and sub-combinations thereof. It is therefore intended that the trampoline assembly 10 shall be interpreted to include all such modifications, permutations, additions and sub-combinations as are within their true spirit and scope, and no limitations are intended to the details of construction or design herein shown.

## 25 Claims

1. A trampoline assembly for supporting a user above a support surface, the trampoline assembly comprising:

30 a bed;  
a base frame;  
a plurality of resilient members that connect the bed to the base frame;  
and  
35 a leg assembly that supports the base frame and the bed above the support surface, the leg assembly including (i) a plurality of legs that are connected to the base frame, each leg including a first leg end and a spaced apart second leg end that are each connected to the base frame, and (ii) one or more stabilizers that are connected to and extend between one of the legs and at least one of an adjacent leg and the base frame.

40 2. The trampoline assembly of claim 1 wherein each leg further includes one or more contact points at which the leg contacts the support surface, and wherein each leg is a continuous structure.

45 3. The trampoline assembly of claim 1 or 2 wherein each of the one or more stabilizers is connected to and extends between adjacent legs.

50 4. The trampoline assembly of claim 3 wherein a single stabilizer is connected to and extends between each set of adjacent legs.

5. The trampoline assembly of claim 3 wherein a pair of stabilizers are connected to and extend between each set of adjacent legs.
6. The trampoline assembly of claim 1 or 2 wherein the one or more stabilizers cooperate to extend between adjacent legs. 5
7. The trampoline assembly of any of claims 1 to 6 wherein each of the stabilizers engages one or both of the adjacent legs approximately near the support surface. 10
8. The trampoline assembly of any one of claims 1 to 7 further comprising a plurality of connector tubes that are secured to the base frame, wherein the plurality of legs are connected to the base frame via the plurality of connector tubes. 15
9. The trampoline assembly of any one of claims 1 to 8 further comprising a platform assembly that is coupled to the leg assembly, the platform assembly including a platform that extends substantially parallel to the support surface. 20

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10. The trampoline assembly of claim 9 wherein the platform assembly further includes a platform support that supports the platform relative to the support surface, the platform support being coupled to and extending between the leg assembly and the platform. 30
11. The trampoline assembly of claim 10 wherein the platform support is coupled to one of the stabilizers.
12. The trampoline assembly of claim 10 wherein the platform support is coupled to one of the plurality of legs. 35
13. The trampoline assembly of any one of claims 10 to 12 wherein the platform support contacts the support surface. 40
14. The trampoline assembly of any one of claims 9 to 13 wherein the platform assembly further includes a connector bar that is connected to the leg assembly, the platform being secured to the connector bar. 45
15. The trampoline assembly of any one of claims 9 to 14 wherein the platform includes a platform frame and one or more platform members that are connected to the platform frame. 50

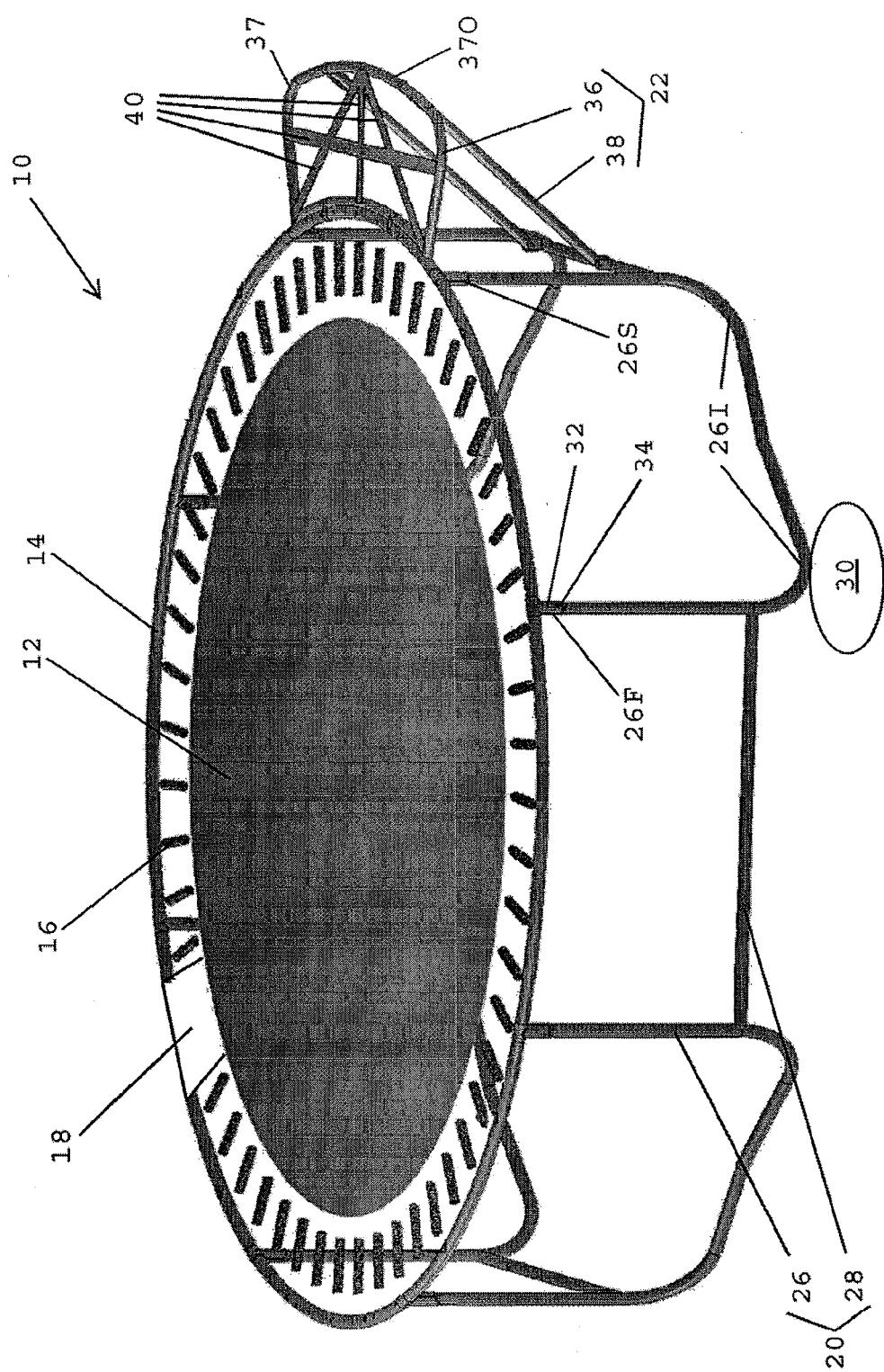


Fig. 1A

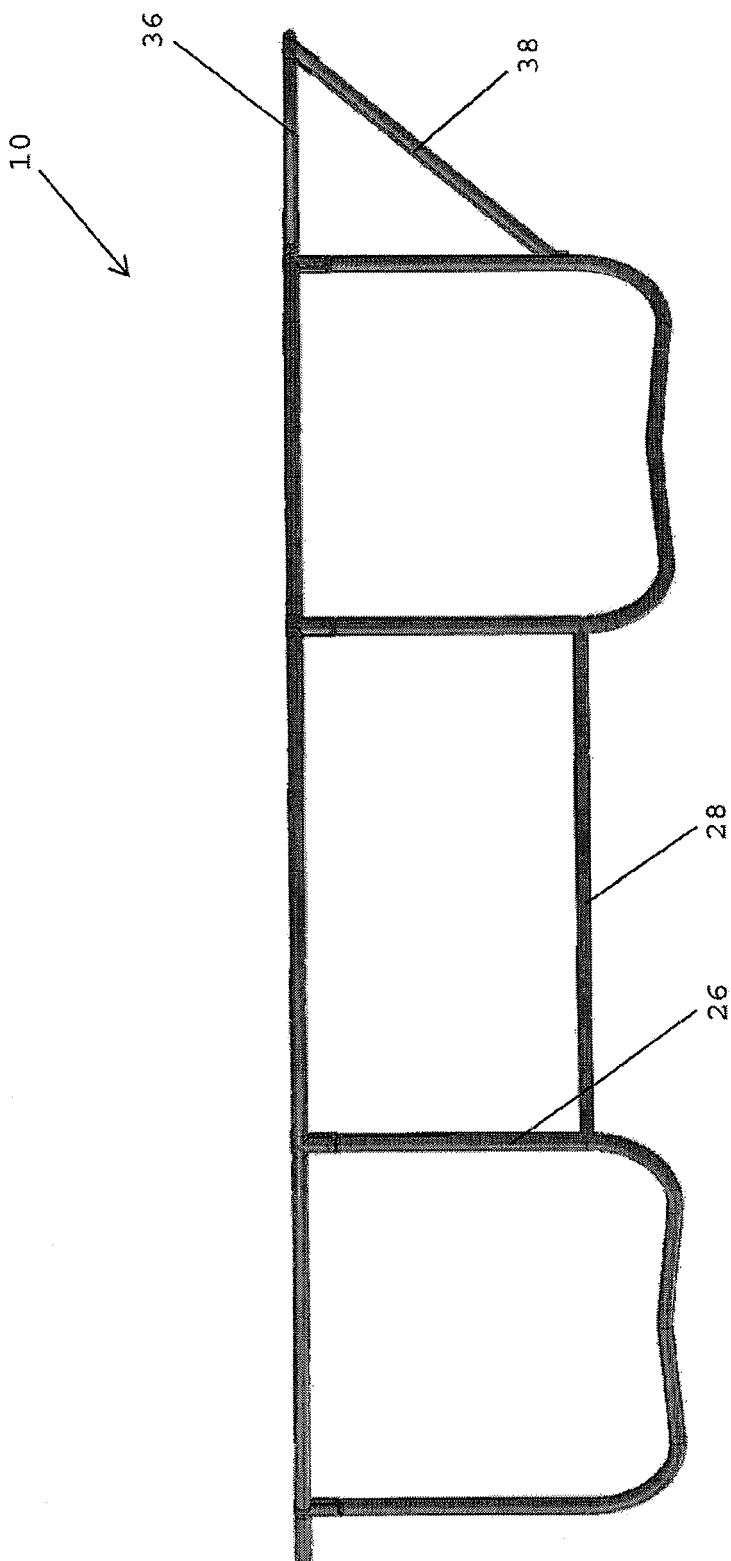


Fig. 1B

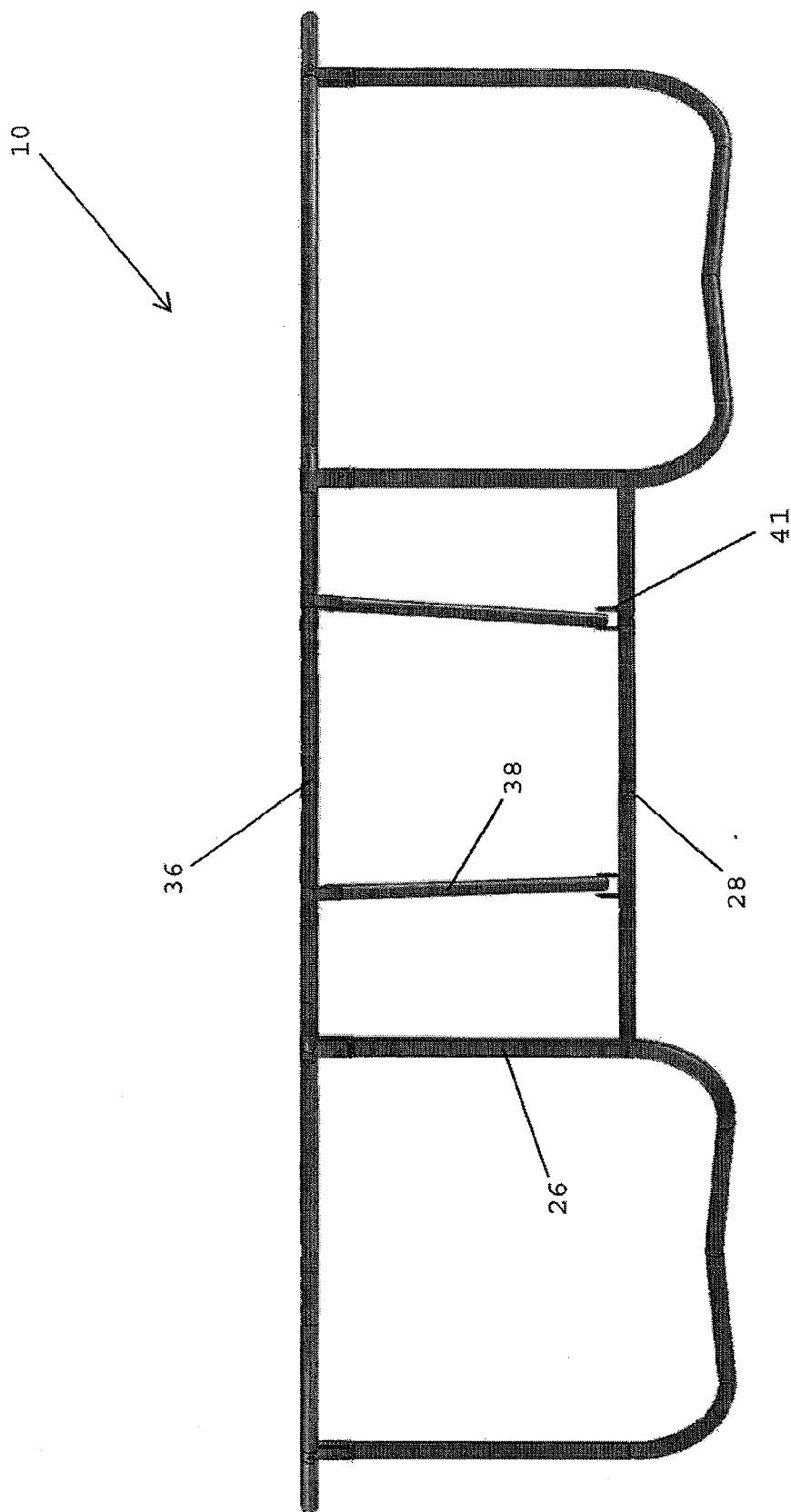


Fig. 1C

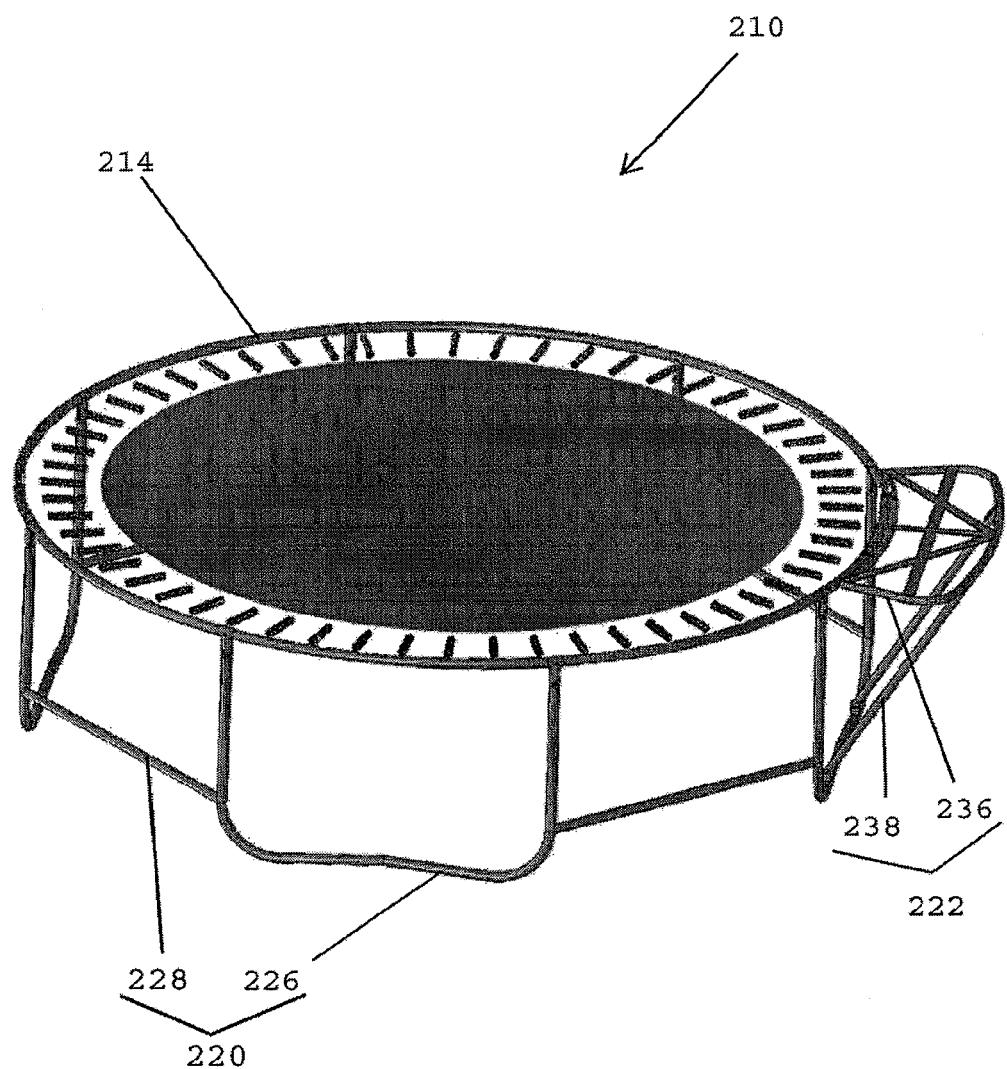


Fig. 2

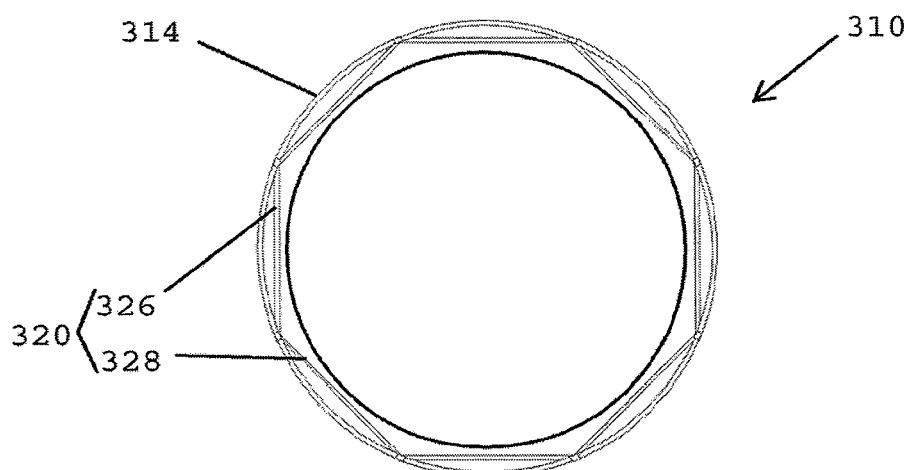


Fig. 3A

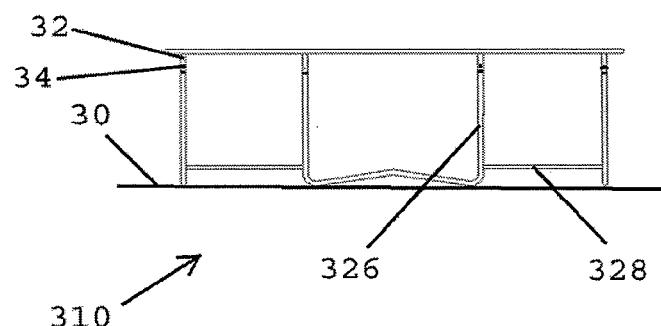


Fig. 3B

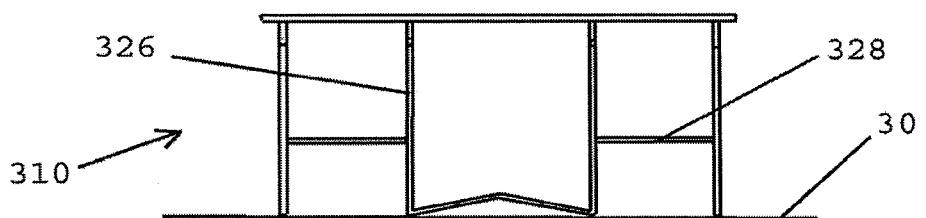


Fig. 3C

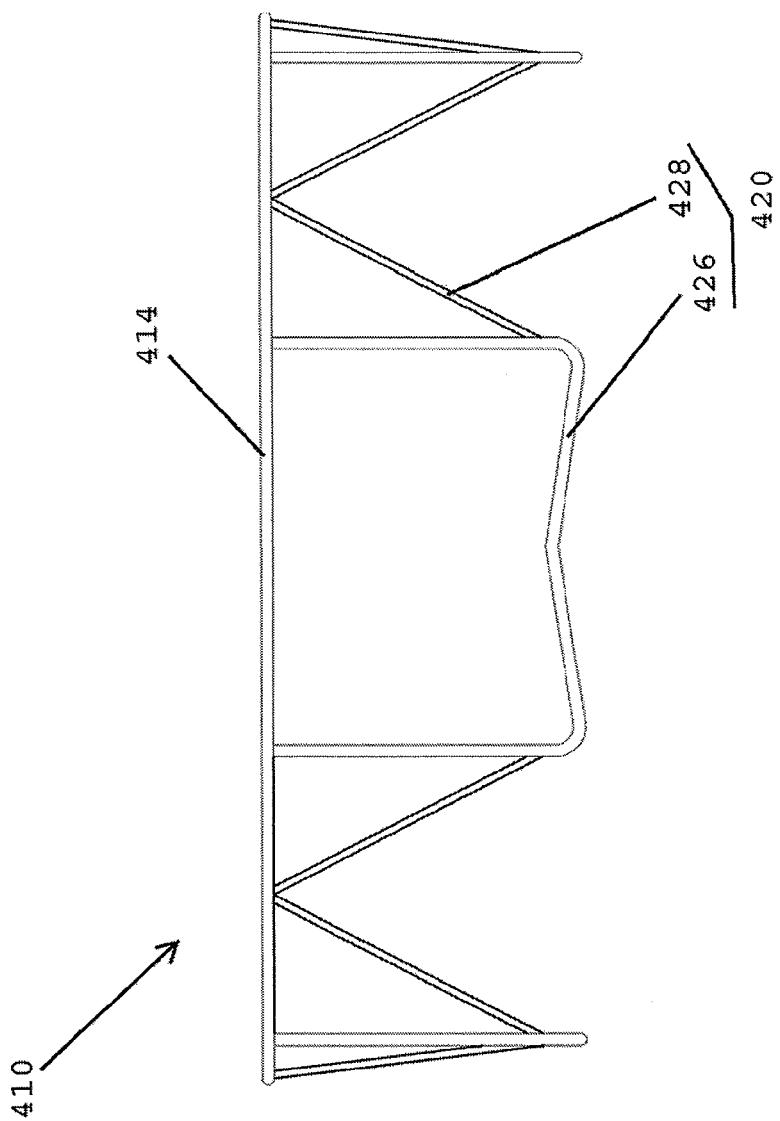


Fig. 4

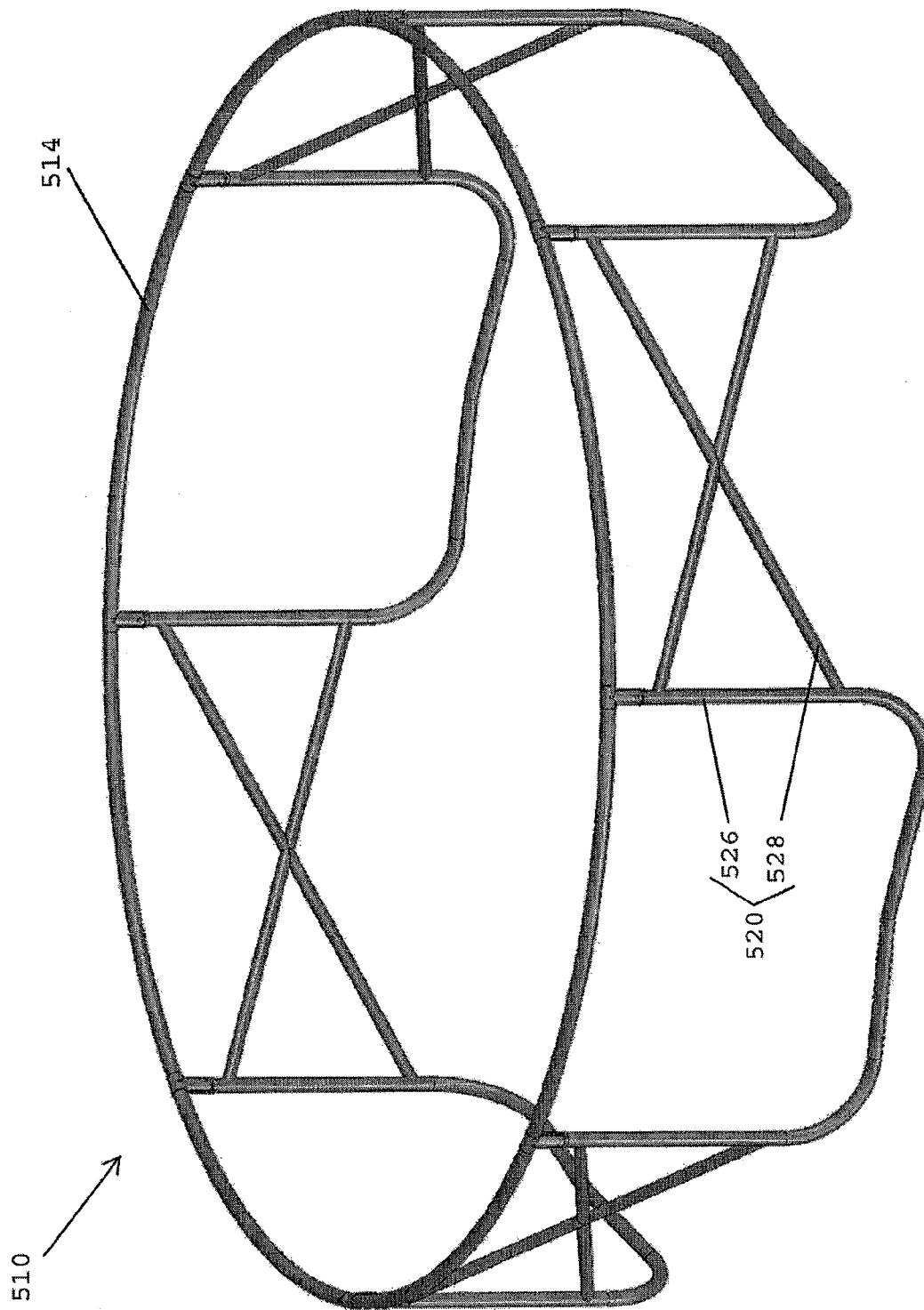
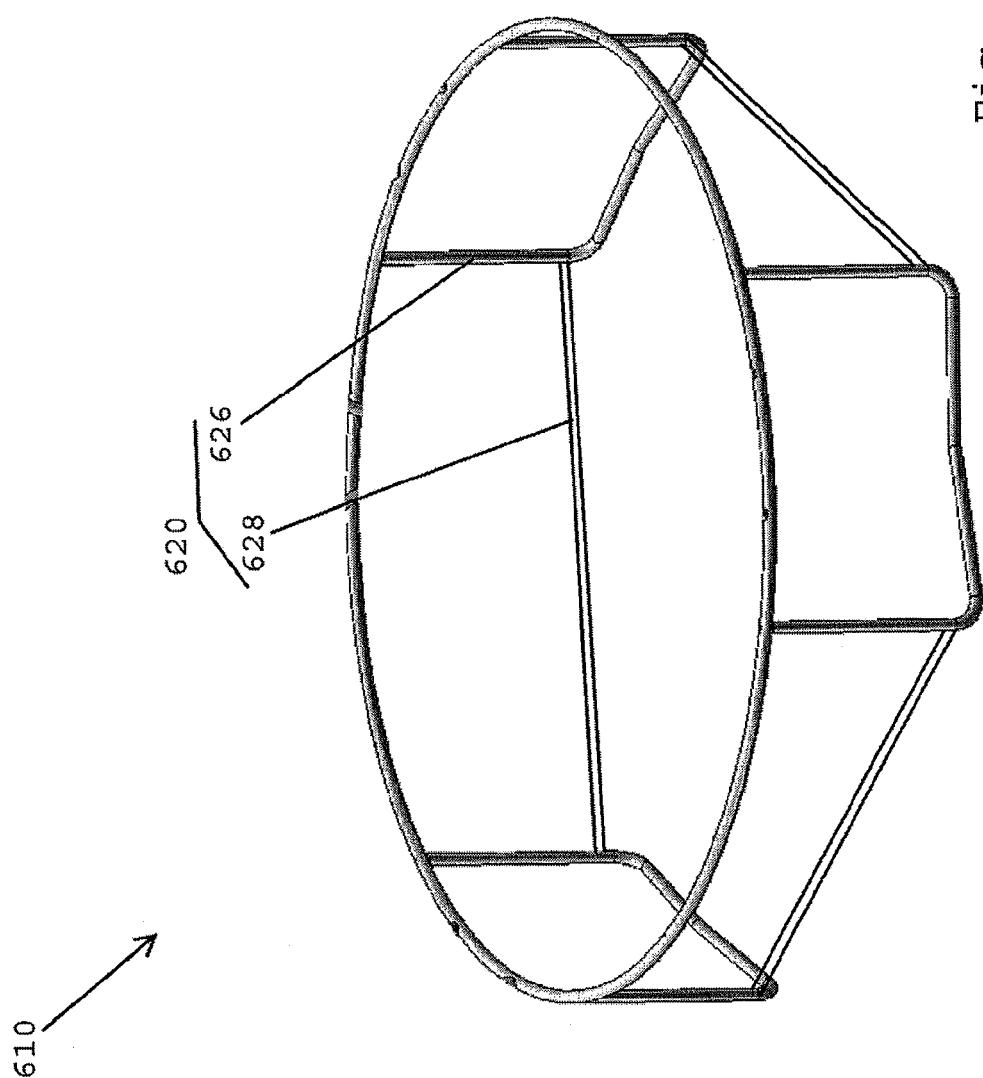


Fig. 5

Fig. 6



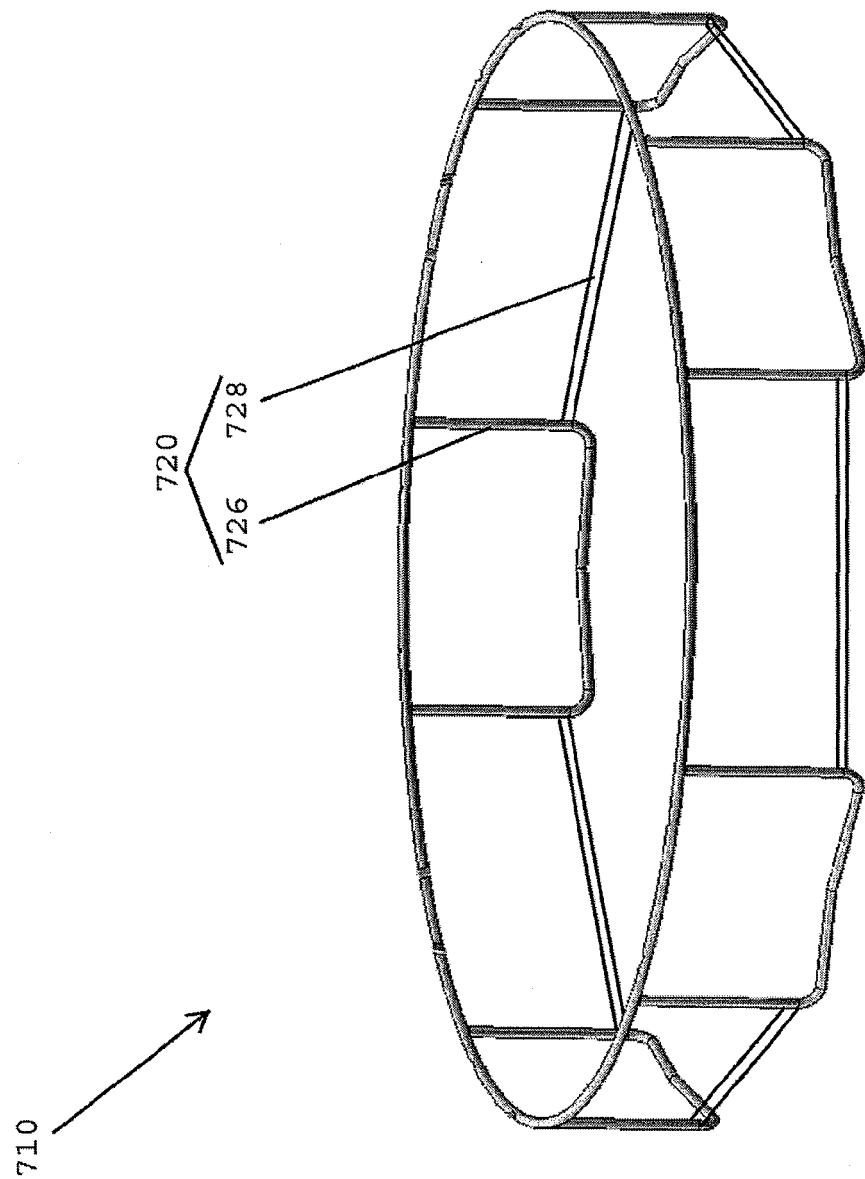


Fig. 7

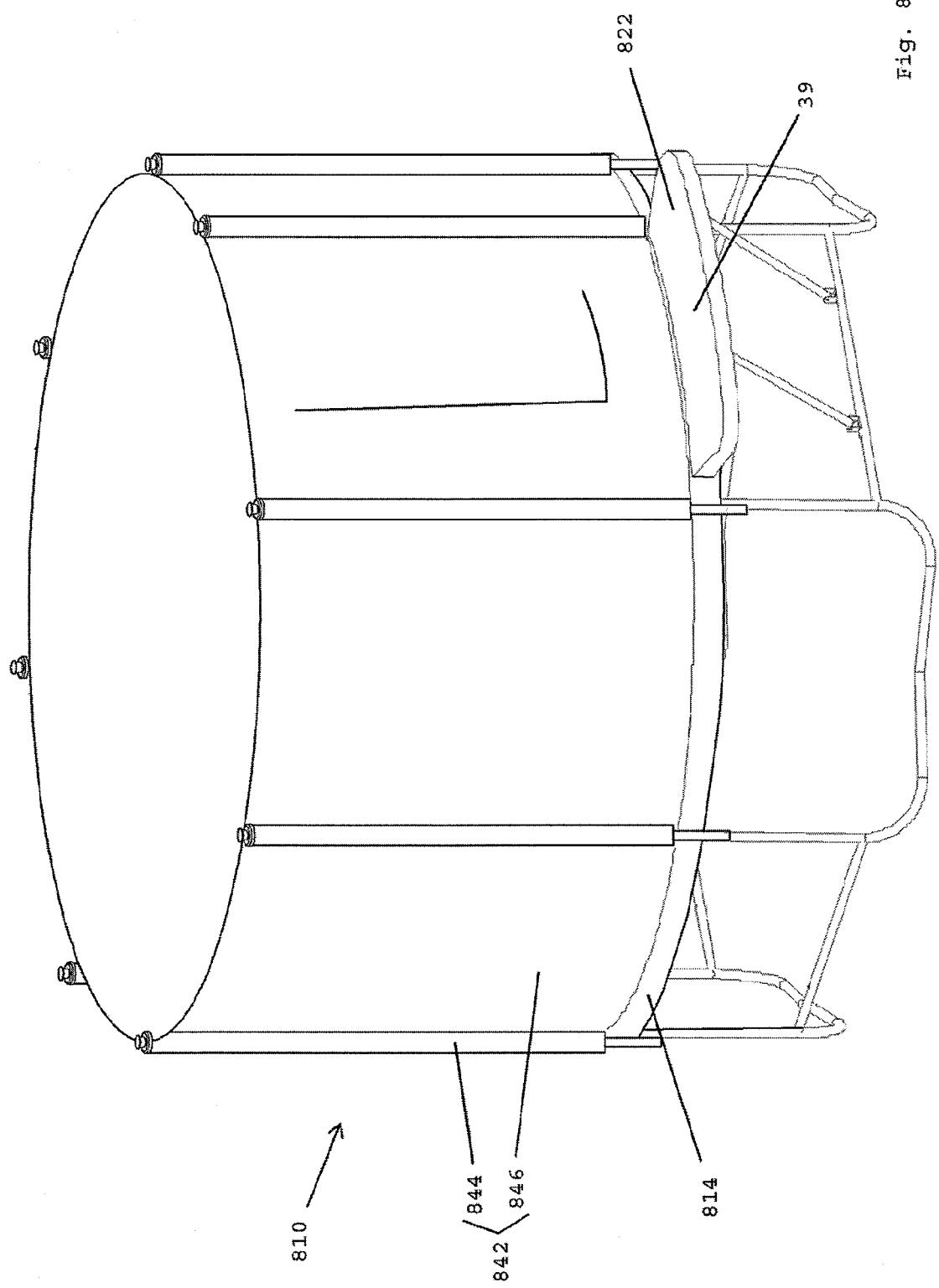


Fig. 8A

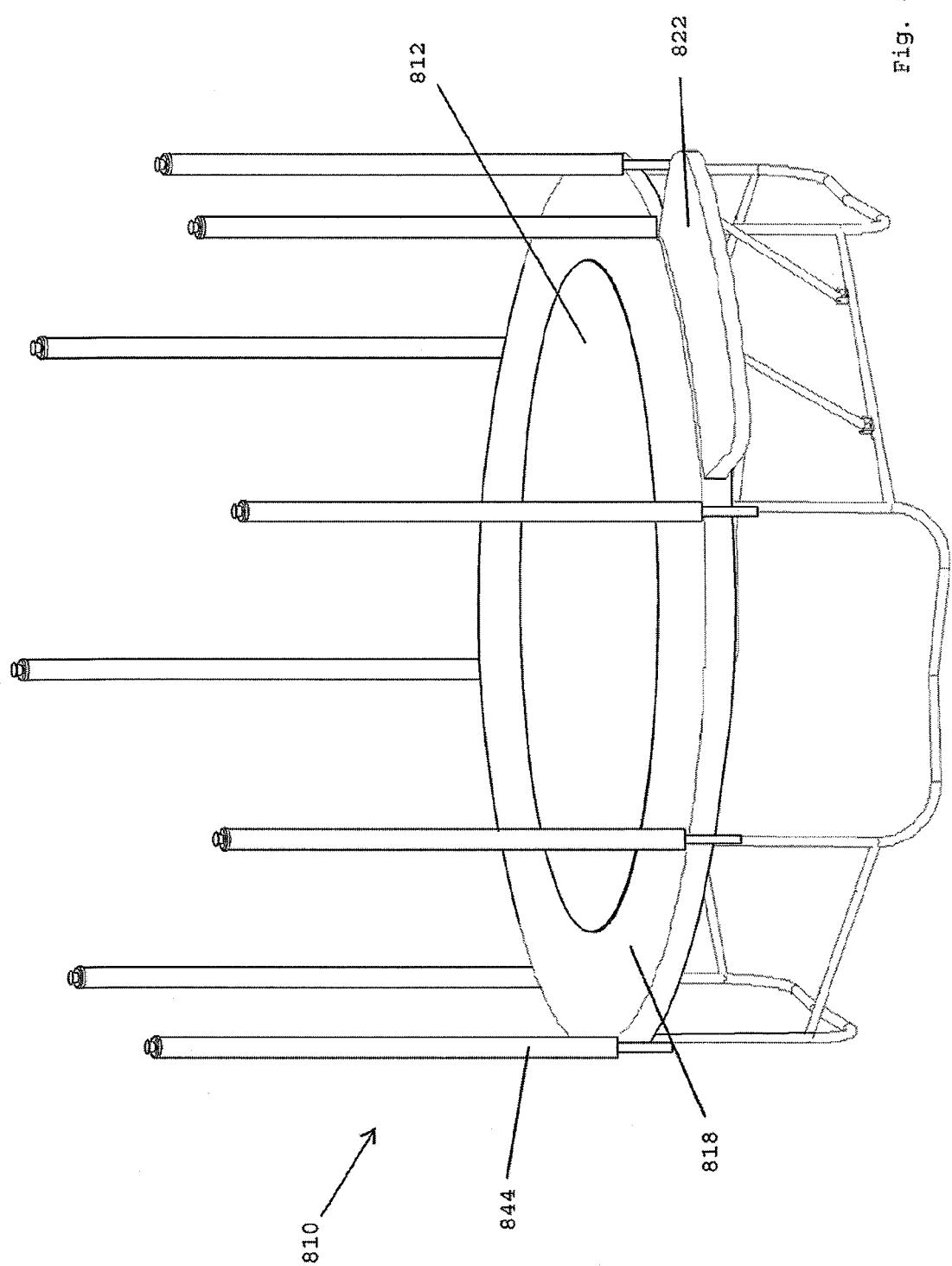


Fig. 8B

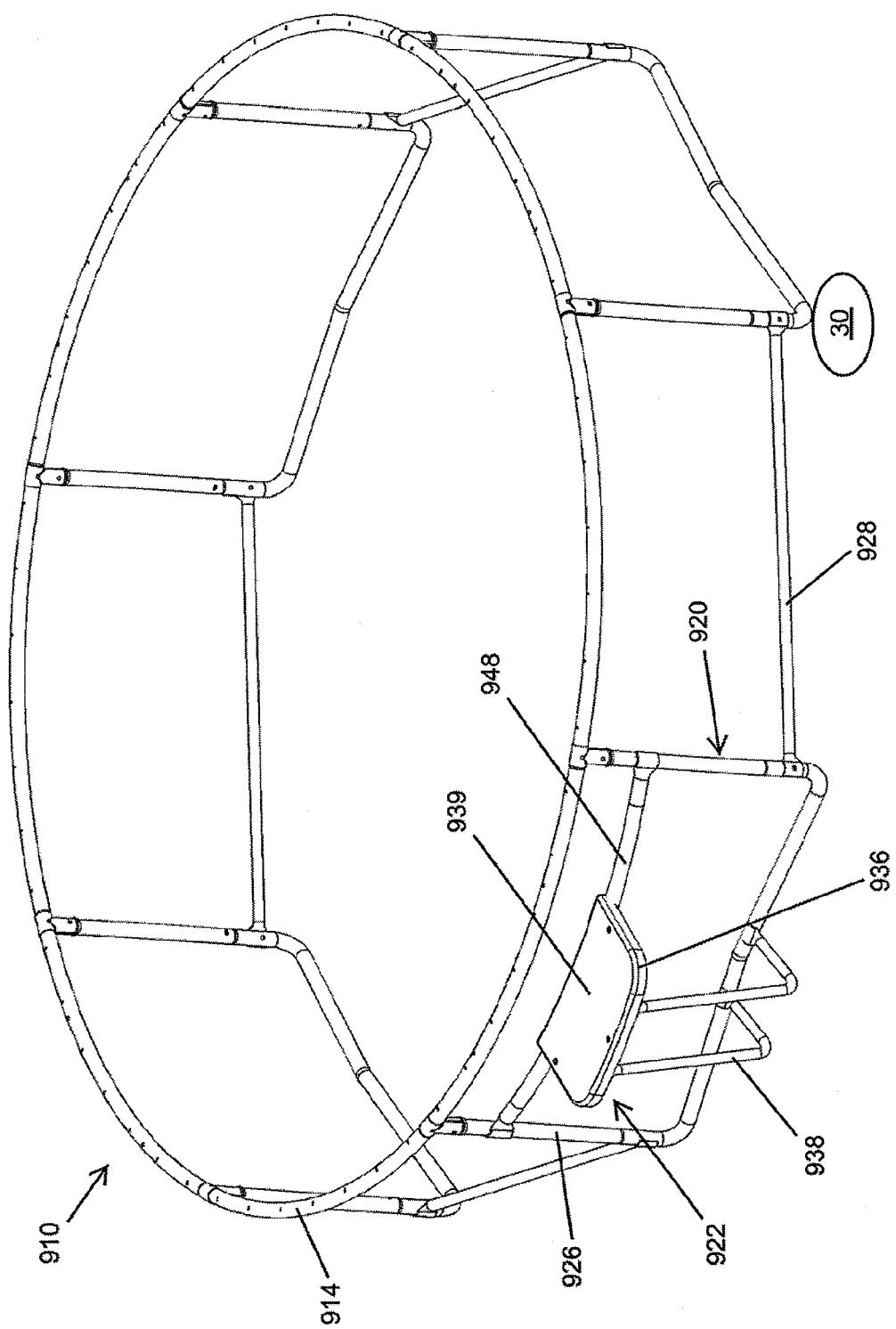


Fig. 9



## EUROPEAN SEARCH REPORT

Application Number  
EP 11 19 1529

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 7 762 927 B1 (GORDON DONALD W [US]) 27 July 2010 (2010-07-27) * column 3, line 16 - column 7, line 22; figures 1-10 *	1-3,6-8	INV. A63B5/11
Y	-----	9-15	
X	US 2 671 229 A (RACINE VERNIER) 9 March 1954 (1954-03-09) * column 2, line 36 - column 4, line 73; figures 1-5 *	1-3,6,7	
Y	-----	9-15	
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			A63B
The present search report has been drawn up for all claims			
1	Place of search Munich	Date of completion of the search 27 March 2012	Examiner Jekabsons, Armands
<b>CATEGORY OF CITED DOCUMENTS</b> <p>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</p> <p>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  &amp; : member of the same patent family, corresponding document</p>			

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

EP 11 19 1529

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27-03-2012

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