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ABSTRACT

A trampoline roof including: a resiliently flexible support structure comprising a plurality of line members; and a shell that receives at least a portion of the line members; wherein the shell has a plurality of alternating apexes and troughs.

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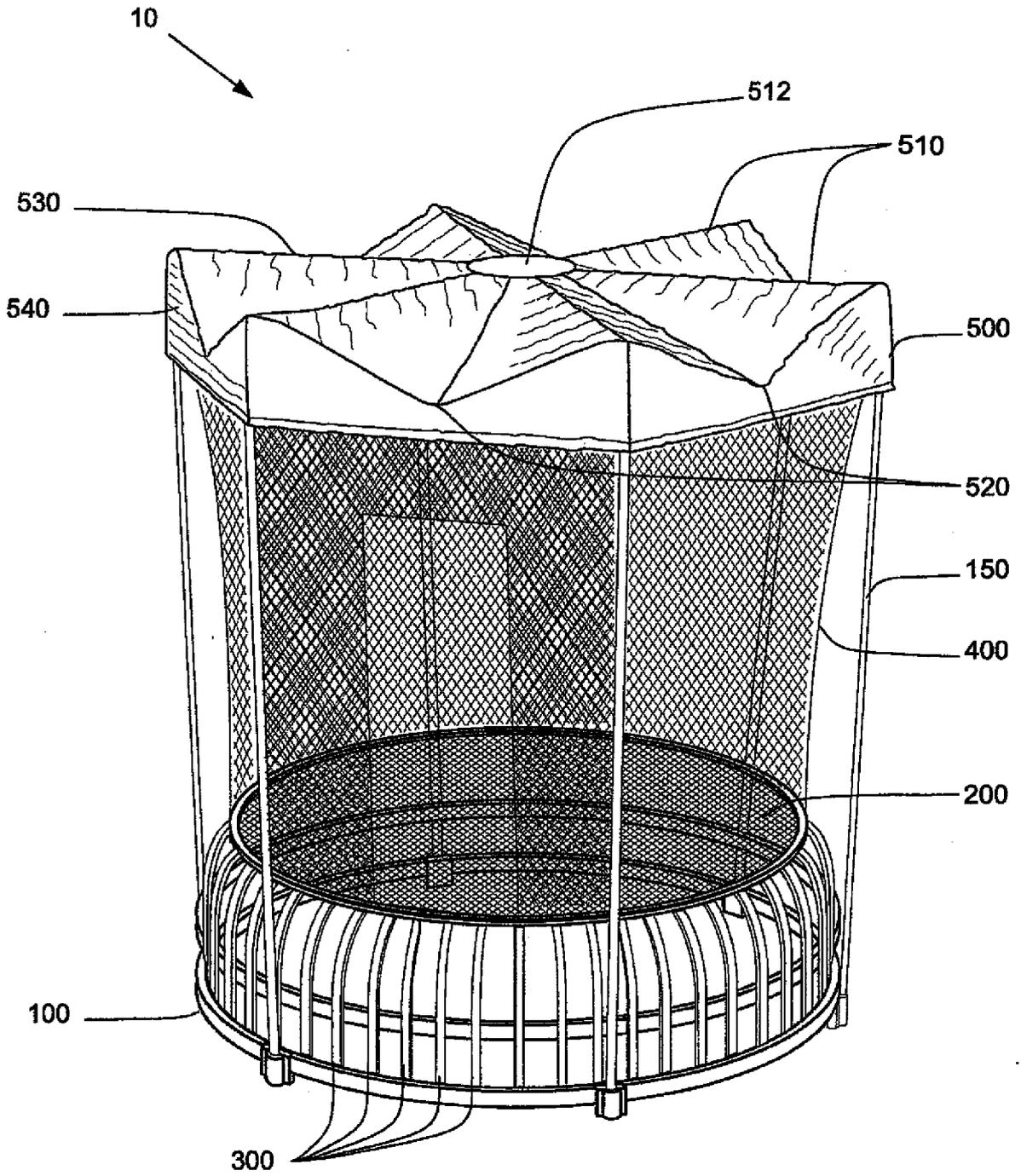


FIGURE 1

TRAMPOLINE ROOF

FIELD OF THE INVENTION

[0001] The invention relates to a roof for a trampoline. In particular, the invention relates, but is not limited, to a soft roof to cover the top of a trampoline.

BACKGROUND TO THE INVENTION

[0002] Reference to background art herein is not to be construed as an admission that such art constitutes common general knowledge.

[0003] Trampolines have been around for recreational and sporting purposes for a number of years. More recently, particularly in relation to recreational trampolines, safety nets have been incorporated to contain a user in a space above the trampoline and to prevent injury from that user falling off the trampoline or landing on the frame of the trampoline.

[0004] Many trampolines are left outdoors, so roofs are sometimes provided to provide shade and to give the feeling of a tent or cubby house. Typically such roofs are substantially flat and not well suited to weathering rain. A known problem is for water to collect on the roof and create a pool in the middle. If there is sufficient rain this can damage the roof as it is unable to support the weight of the water and can rip or tear.

[0005] In an effort to overcome these issues some trampoline roofs have rigid support members, such as aluminium or fibreglass struts, to support the roof. These roofs are typically dome shaped. However, the hard elements of the support structure can cause injury to any user who jumps high enough to hit the supports. Furthermore, it has been known for some users, typically younger children, to try to grab onto the supports when jumping. This can damage the

support structure and can result in injury to the trampoline user, or even bystanders.

OBJECT OF THE INVENTION

[0006] It is an aim of this invention to provide a trampoline roof which overcomes or ameliorates one or more of the disadvantages or problems described above, or which at least provides a useful alternative.

[0007] Other preferred objects of the present invention will become apparent from the following description.

SUMMARY OF INVENTION

[0008] In one form, although it need not be the only or indeed the broadest form, there is provided a trampoline roof comprising:

a resiliently flexible support structure comprising a plurality of line members; and

a shell that receives at least a portion of the line members;

wherein the shell has a plurality of alternating apexes and troughs.

[0009] Preferably the line members are elastic. Preferably the line members are made of an elastic cord. Preferably the line members are arranged radially. Preferably the line members meet at or around a central region of the shell. Preferably the central region of the shell is reinforced. Preferably the line members extend along the apexes of the shell. Preferably the apexes collectively define a plane, preferably a substantially horizontal plane. Preferably the troughs are inclined relative to the apexes.

[0010] Preferably the shell is made of a waterproof material. Preferably the shell has sleeves that receive portions, preferably majority portions, of the line members. Preferably the shell has a top and one or more sides. Preferably the sides are substantially perpendicular to the top. Preferably the plurality of apexes and troughs are located in the top. Preferably the line members extend

at least a substantial portion of the apexes of the top. The line members may further extend down at least a portion, preferably a reinforced portion, of the sides. Preferably the sides are shaped to define the apexes and troughs of the top. Preferably the top is formed from a plurality of substantially triangular panels. Preferably an upper peripheral edge of the shell formed between the top and the sides is substantially zigzagged.

[0011] Preferably the shell comprises pole receiving portions adapted to receive poles of a trampoline. Preferably the pole receiving portions are reinforced. Preferably the pole receiving portions are located in sides of the shell. Preferably the pole receiving portions are radially aligned with the apexes. Preferably the pole receiving portions comprise a pole connector. Preferably the pole connector removably connects at least one line member to at least one pole of a trampoline.

[0012] In another form, there is provided a trampoline, the trampoline comprising:

a frame;

a mat supported above at least a portion of the frame via spring members;

a plurality of poles that extend above the mat and are arranged around the mat; and

a trampoline roof as hereinbefore described;

wherein the trampoline roof is fitted to the poles that extend above the mat such that the apexes of the shell align with the poles and such that the troughs of the shell are located between the poles.

[0013] Preferably the trampoline roof is fitted to the poles by being affixed to the poles via the line members. Preferably the trampoline further comprises a safety net that encloses a chamber above the mat. The trampoline roof may be integral with the net, but is preferably separable. Preferably each radial apex corresponds with a pole.

[0014] The spring members are preferably coupled between the frame and the mat, either directly or indirectly. The spring members may be separate from the poles, may be affixed to the poles, or may be located in at least a portion of the poles. The spring members may be helical coil springs, but in preferred forms the spring members are resiliently flexible members. The resiliently flexible members may be located entirely above the mat.

[0015] Further features and advantages of the present invention will become apparent from the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] By way of example only, preferred embodiments of the invention will be described more fully hereinafter with reference to the accompanying figures, wherein:

[0017] Figure 1 illustrates a perspective view of a trampoline with a trampoline roof;

[0018] Figure 2 illustrates a close up cross sectional view illustrating the trampoline roof being attached to a trampoline pole; and

[0019] Figure 3 illustrates a close up cross sectional view illustrating the trampoline roof being attached to a trampoline pole in a different manner.

DETAILED DESCRIPTION OF THE DRAWINGS

[0020] Figure 1 illustrates a trampoline 10 having a frame 100, spring members 300 in the form of leaf springs supporting a mat 200 above frame 100, a safety net 400 surrounding the mat 200, poles 150 extending above the mat 200, and a trampoline roof 500.

[0021] The roof 500 has a top 530 and sides 540 which are substantially perpendicular to the top 530. The sides 540 surround the perimeter of the top 530. The roof 500 is supported by poles 150 and covers the top of the

trampoline 10 defining a chamber above the mat 200 and within the safety net 400.

[0022] The roof 500 has a plurality of alternating apexes 510 and troughs 520 located in the top 530. The apexes 510 extend radially around the roof 500 in a substantially horizontal plane. The troughs 520 extend radially around the roof 500 at an incline to the apexes 510. Each apex 510 corresponds to a pole 150, extending substantially perpendicularly between opposite poles 150.

[0023] Each apex 510 is formed by two substantially triangular pieces of cover material at an angle to each other along the apex 510. Each apex 510 is connected to adjacent apexes via trough 520. The sides 540 are shaped to form the apexes 510 and troughs 520 in the top 530. Particularly, each side 540 has a bottom edge, two side edges, and a top edge, wherein the top edge is formed from two inwardly inclined segments forming the trough 520. The two side edges are higher than the bottom of the trough 520 forming the apexes 510. The apexes 510 meet in central region 512 of roof 500 which, in a preferred form, is reinforced.

[0024] Although not apparent from figure 1, each apex 510 has a line member in the form of an elastic cord 550 which supports the apex 510 and prevents collapse of the roof 500. An end of the elastic cord 550 can be seen in figures 2 and 3. The elastic cord 550 is received in a sleeve of a shell portion of the roof 500 and is tensioned between the poles 150 to provide a supported, yet soft and resiliently flexible, roof 500. The elastic cords 550 can extend from a respective pole 150 to the central region 512 or, alternatively, between two opposed poles 150 via the central region 512.

[0025] Figure 2 illustrates an upper portion of a pole 150 where the roof 500 is attached pole 150. The roof 500 is also shown in cross section, revealing the elastic cord 550 surrounded by a shell 502. Preferably regions of the shell 502 around the pole 150 are reinforced for added strength and wear resistance. In the example shown in figure 2, the elastic cord 550 of the roof 500 is affixed to

a fixing 152 of the pole 150. The elastic cord 550 then extends along a sleeve portion of the shell 502 up the pole 150 to an upper end 154 of the pole 150 to the central region 512 of the roof 500 (not shown in figure 2). Connection of the elastic cord 550 to the pole 150 tensions the roof 500 as shown in figure 1. Without proper tensioning the roof 500 would collapse and fall in on itself.

[0026] Figure 3 illustrates a different method of attaching the roof 500 to a pole 150, which is better for retrofitting to existing poles 150 that do not have the necessary fixing 152 as illustrated in figure 2. A pole connector 560 is provided which is received inside a hollow 156 of pole 150. The pole connector 560 has a bias member 562, extending from a pole receiving portion 564, that presses against an inner surface of the hollow 156 of the pole 150 to retain the pole connector 560 therein. The pole connector 560 also has an elongate arm 566 that extends down the side of pole 150 to provide a fixing 568 below the top of the pole 150. The elastic cord 550 is affixed to the fixing 568 and the roof 500 is configured in a similar manner as shown in figure 2.

[0027] In use, the roof 500 can be applied to new and existing trampolines providing a cover that protects the trampoline, and users of the trampoline, from the elements. To apply the roof 500 it is placed on top of poles 150 and the elastic cords 550 are tensioned between opposed poles 150 providing a substantially taught horizontal surface of elastic cords 550 extending radially from the central region 512. The shell 502 of the roof 500 is supported by the elastic cords 550, with regions of the shell 502 adjacent the elastic cords 550 forming apexes 510 and regions between adjacent pairs of elastic cords 550 forming troughs 520. The troughs 520 incline downwards from the central region 512 providing a channel which adapted to convey any water that lands on the roof 500 away from the central region to an outer periphery of the roof 500.

[0028] Advantageously the roof 500 provides a cover that protects the trampoline, and any users therein, from the elements, including rain. Any water, e.g. from rain, which lands on the roof 500 is conveyed down troughs

520 to an outer periphery of the roof 500 under gravity. This prevents the roof 500 from collecting or 'pooling' water which can otherwise lead to collapse of the roof.

[0029] The roof 500 is not only shaped to convey water away, but does so without the need for a rigid, or semi-rigid, support structure comprising aluminium or fibreglass struts, or the like. This not only reduces the chance of injury occurring between a user and the support structure, but also improves durability as there are no struts to break. Furthermore, it reduces the complexity of the roof, making it easier to install, and also significantly reduces costs in manufacturing and transporting the roofs.

[0030] The trampoline illustrated in figure 1 is for example only and is not to be regarded as limiting. The roof can be used with other trampoline designs, including trampolines wherein the poles either have spring members therein (e.g. a resiliently flexible portion) or mounted thereto (e.g. a leaf spring located on the pole above the mat) to support the mat via depending support members such as webbing.

[0031] In this specification, adjectives such as first and second, left and right, top and bottom, and the like may be used solely to distinguish one element or action from another element or action without necessarily requiring or implying any actual such relationship or order. Where the context permits, reference to an integer or a component or step (or the like) is not to be interpreted as being limited to only one of that integer, component, or step, but rather could be one or more of that integer, component, or step etc.

[0032] The above description of various embodiments of the present invention is provided for purposes of description to one of ordinary skill in the related art. It is not intended to be exhaustive or to limit the invention to a single disclosed embodiment. As mentioned above, numerous alternatives and variations to the present invention will be apparent to those skilled in the art of the above teaching. Accordingly, while some alternative embodiments have

been discussed specifically, other embodiments will be apparent or relatively easily developed by those of ordinary skill in the art. The invention is intended to embrace all alternatives, modifications, and variations of the present invention that have been discussed herein, and other embodiments that fall within the spirit and scope of the above described invention.

[0033] In this specification, the terms 'comprises', 'comprising', 'includes', 'including', or similar terms are intended to mean a non-exclusive inclusion, such that a method, system or apparatus that comprises a list of elements does not include those elements solely, but may well include other elements not listed.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A trampoline roof including:
a resiliently flexible support structure comprising a plurality of line members;
and
a shell that receives at least a portion of the line members;
wherein the shell has a plurality of alternating apexes and troughs.
2. The trampoline roof according to Claim 1, wherein the line members are elastic cord.
3. The trampoline roof according to Claim 1 or Claim 2, wherein the line members are arranged radially which meet at or around a central region of the shell.
4. The trampoline roof according to Claim 3, wherein the central region of the shell is reinforced.
5. The trampoline roof according to any one of the preceding claims, wherein the line members extend along the apexes of the shell.
6. The trampoline roof according to any one of the preceding claims, wherein the apexes collectively define a substantially horizontal plane.
7. The trampoline roof according to any one of the preceding claims, wherein the troughs are inclined relative to the apexes.
8. The trampoline roof according to any one of the preceding claims, wherein the shell has sleeves that receive portions of the line members.
9. The trampoline roof according to any one of the preceding claims, wherein the shell has a top and one or more sides substantially perpendicular to the top.
10. The trampoline roof according to any one of the preceding claims, wherein the line members extend along at least a substantial portion of the apexes of the top.
11. The trampoline roof according to Claim 9 or Claim 10, wherein the line members further extend down at least a portion of the sides.

12. The trampoline roof according to any one of the Claims 9 to 11, wherein the sides are shaped to define the apexes and troughs of the top.
13. The trampoline roof according to any one of the preceding claims, wherein the shell comprises pole receiving portions adapted to receive poles of a trampoline.
14. The trampoline roof according to Claim 13, wherein the pole receiving portions are radially aligned with the apexes, the pole receiving portions comprising a pole connector.
15. The trampoline roof according to Claim 14, wherein the pole connector removably connects at least one line member to at least one pole of a trampoline.
16. A trampoline, including:
 - a frame; a mat supported above at least a portion of the frame via spring members;
 - a plurality of poles that extend above the mat and are arranged around the mat; and a trampoline roof as hereinbefore described;
 - wherein the trampoline roof is fitted to the poles that extend above the mat such that the apexes of the shell align with the poles and such that the troughs of the shell are located between the poles.
17. The trampoline roof according to Claim 16, wherein the trampoline roof is fitted to the poles by being affixed to the poles via the line members.

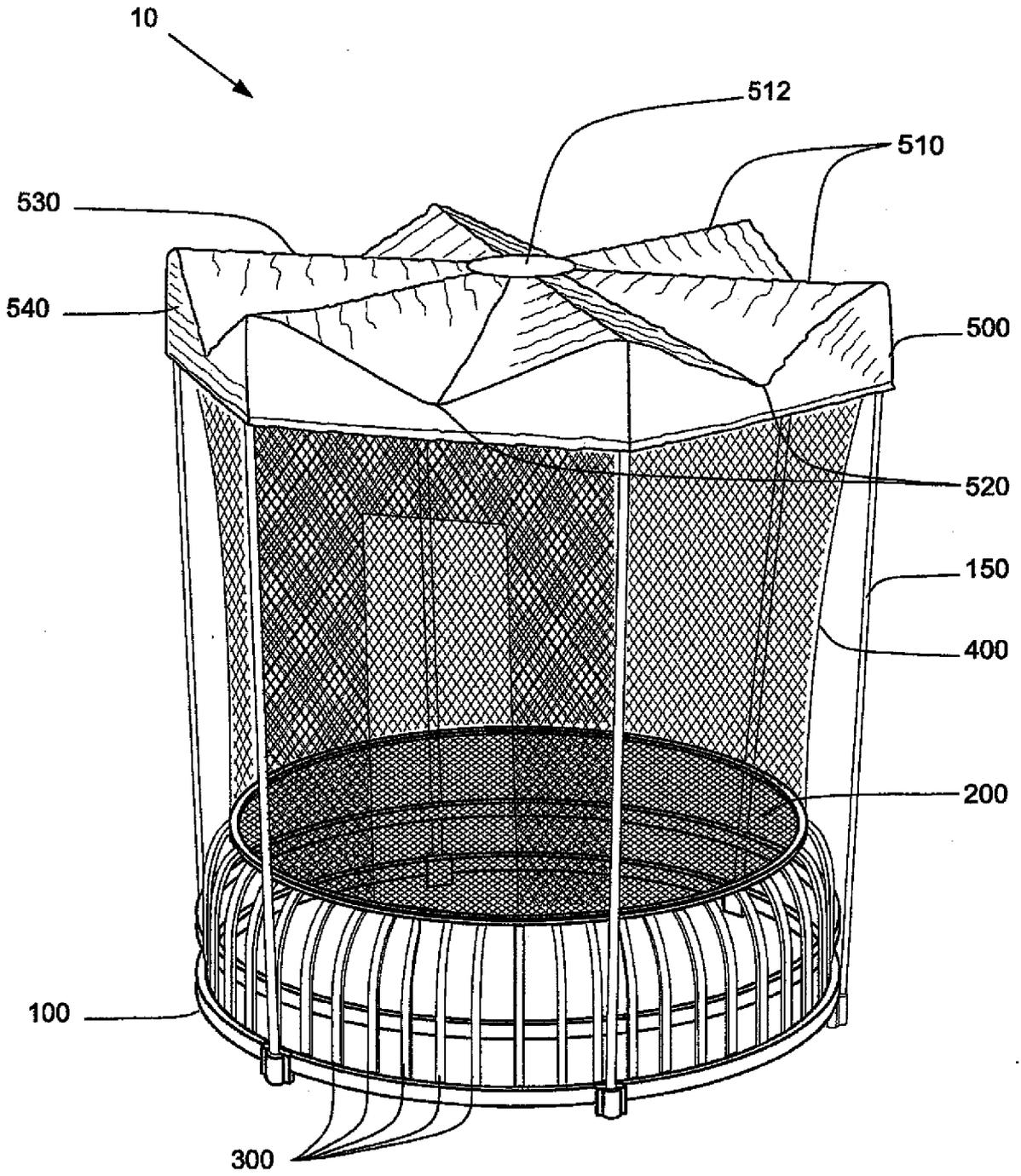


FIGURE 1

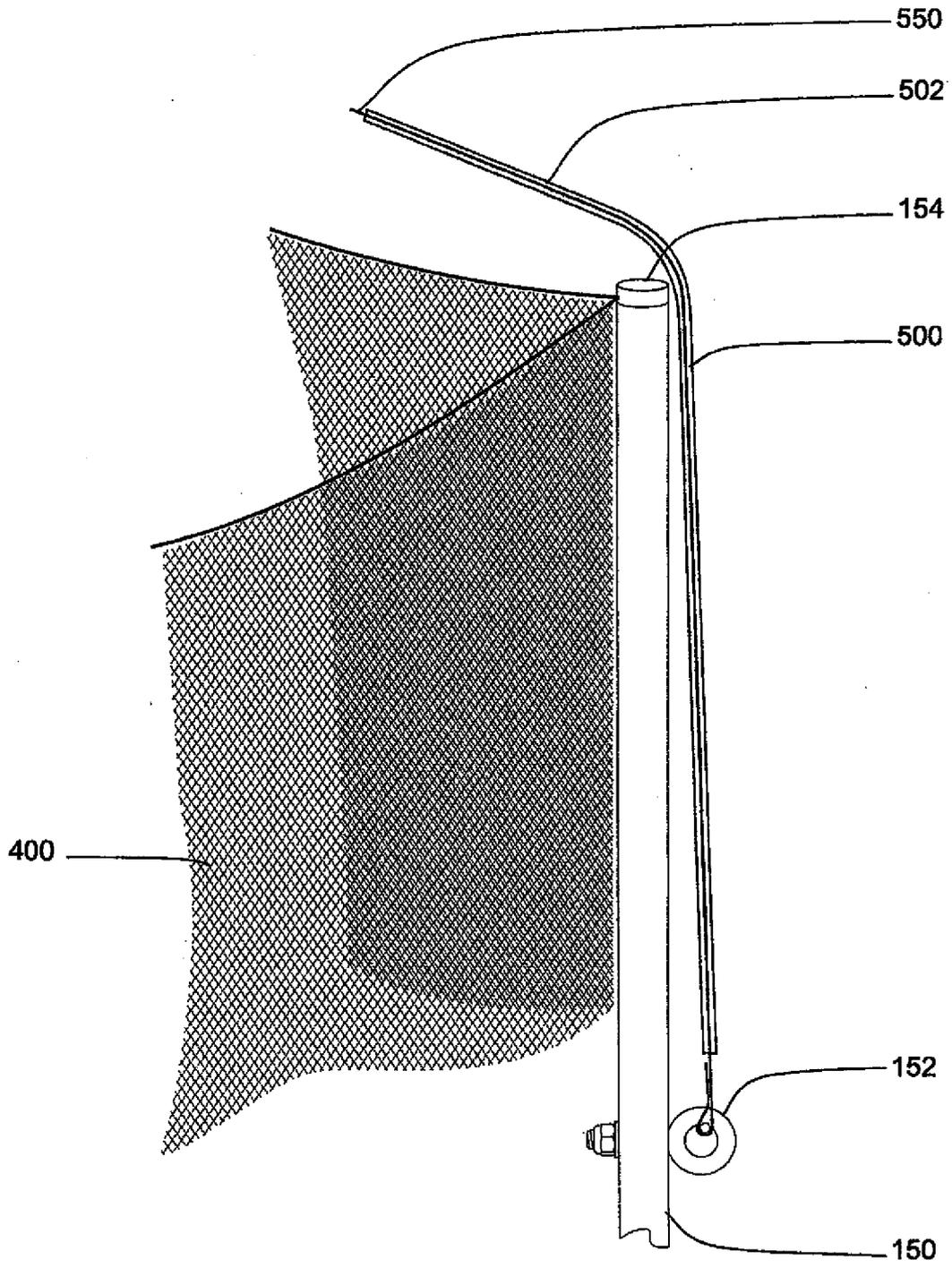


FIGURE 2

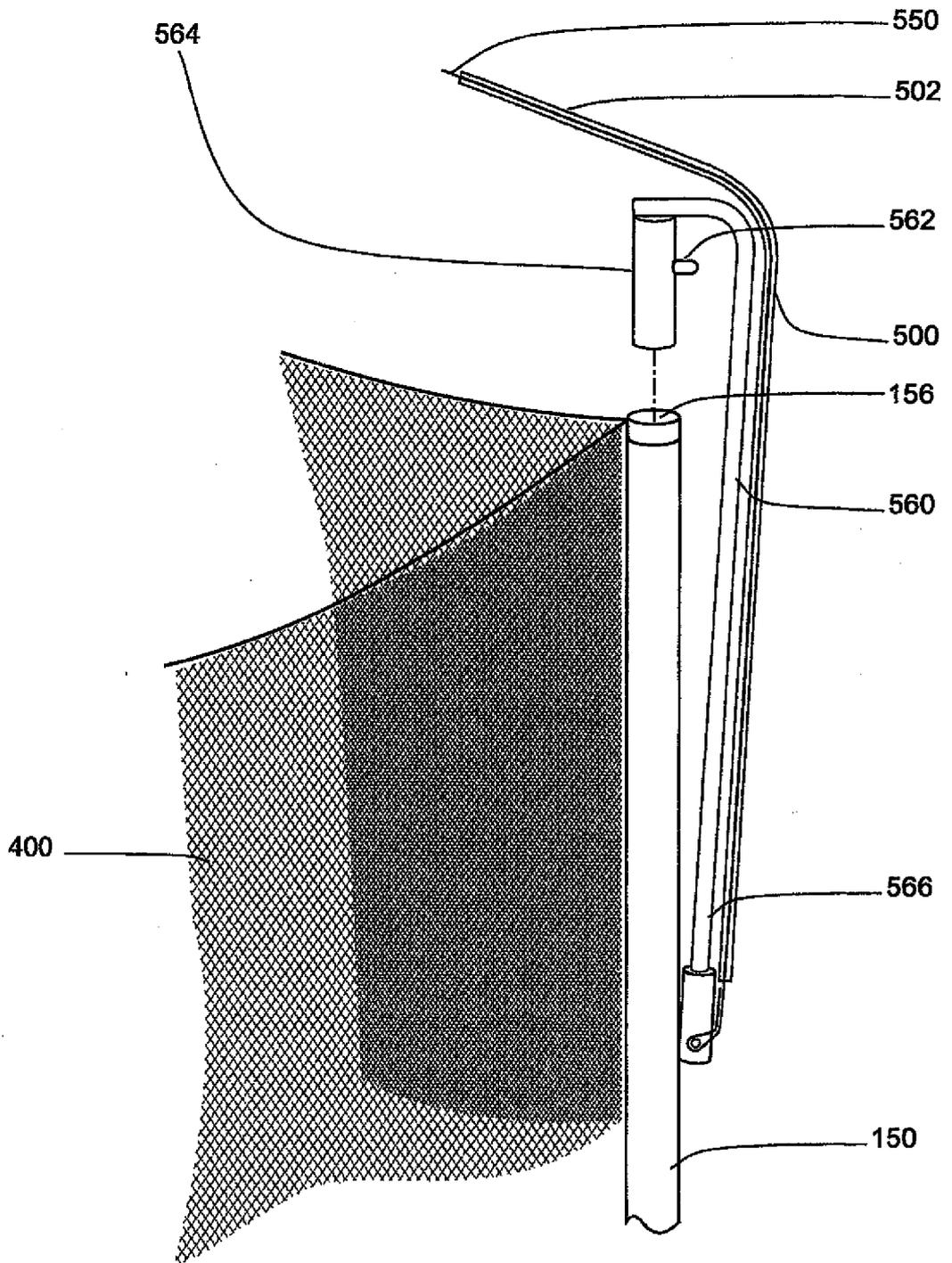


FIGURE 3