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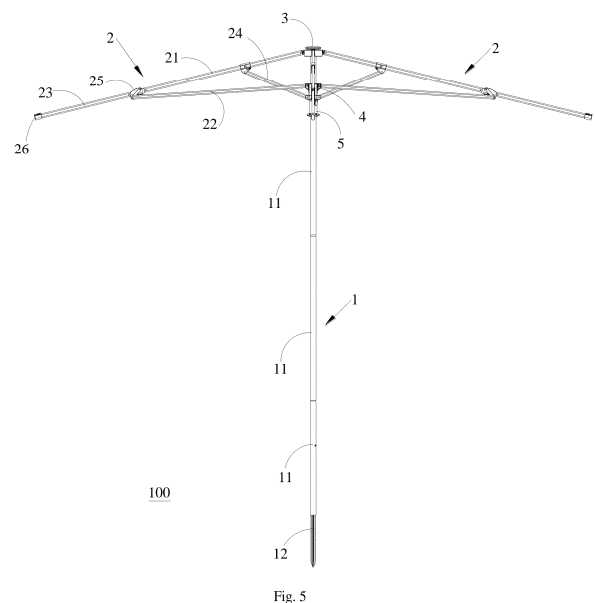
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(54) **FRAME FOR SHELTERING PRODUCT, JOINT, AND BEACH UMBRELLA**

(57) A frame for a sheltering product, a joint, and a beach umbrella. The frame for a sheltering product comprises a central support pole; a plurality of top frame units, which are supported by the central support pole and can relatively fold and unfold, wherein each top frame unit comprises a first top pole and a second top pole, the inner end of the first top pole being rotatably connected to a top cap; and a first slider, which is arranged on the central support pole and can move in a vertical direction, and which is located below the upper end of the central support pole, wherein the inner end of each second top pole is rotatably connected to the first slider. The first top pole, the second top pole, the central support pole, and the first slider form a crank and slider mechanism. The frame further comprises extension poles, wherein the inner end of each extension pole is pivotally connected to a top frame unit, in order to allow the extension pole to flip upwards relative to the top frame unit when the frame falls over sideways.



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Description

Related applications

[0001] This application claims the priority of Chinese patent applications CN 2023109965536, CN 2023221245022, CN 2023221248618, CN 202322124875X, CN 2023221299639, and CN 202322124522X, filed on August 8, 2023, the entire contents of which are incorporated herein by reference.

Technical Field

[0002] The present disclosure relates to outdoor products, and especially relates to a frame and a joint for a sheltering product, and a beach umbrella having the same.

Background

[0003] Outdoor shading products, typically beach umbrellas, are widely used in outdoor activities for sunshading or sheltering from rain. The beach umbrella usually uses a foldable frame, which can unfold or fold the sunshade umbrella, and can also be easily transported or stored. One type of beach umbrella adopts a foldable frame, which comprises a central rod located in the center and a plurality of top frame units that can be folded and unfolded, the central rod stands vertically on the ground (such as a beach), and inner end portions of the respective top frame units are connected to the upper end portion of the support rod and the respective top frame units extend radially outward along a radial direction of the central rod. Each top frame unit comprises three elongated rods, an inner end portion of a first elongated rod is hinged to an upper fixed block, an inner end portion of a second elongated rod is hinged to a lower fixed block, the upper fixed block is fixed to an upper end portion of the central rod, and the lower fixed block is fixed to the central rod and located at a distance below the upper fixed block; outer end portions of the first elongated rod and the second elongated rod are respectively hinged to different positions of a third elongated rod, and each top frame unit and the central rod form a four-bar linkage mechanism, so that each top frame unit can be folded and unfolded. However, this type of beach umbrella has the following defects: if the beach umbrella overturns on its side due to strong lateral winds or other reasons, the third elongated rod will be directly impacted. Although the third elongated rod may flip upwards to avoid direct impact, when the third elongated rod flips upwards, it will inevitably cause the first elongated rod and the second elongated rod to flip, posing a high risk of deformation or even breakage of the rods.

Summary

[0004] A first aspect of the present disclosure provides

a frame for a sheltering product including:

a central rod having an upper end portion and a lower end portion for supporting or fixing on the ground, the lower end portion being located below the upper end portion;

a plurality of top frame units supported by the central rod and capable of unfolding and folding, each top frame unit comprising a first top rod and a second top rod, and an inner end portion of each first top rod being rotatably connected to the upper end portion of the central rod;

a first slider arranged on the central rod and capable of moving in an up-down direction, the first slider being spaced apart from the upper end portion of the central rod, an inner end portion of each second top rod being rotatably connected to the first slider, and the first top rod being rotatably connected to the second top rod to form a crank-slider mechanism between the first top rod, the second top rod, the central rod, and the first slider; and

an extension rod with an inner end portions being pivotally connected to one of the top frame units to allow the extension rod to flip upwards relative to the one top frame unit when the frame overturns on its side to the ground.

[0005] In an embodiment, the frame further comprises a joint, wherein the joint is arranged on an outer end portion of one first top rod, an outer end portion of one second top rod is rotatably connected to the joint, and an inner end portion of the extension rod is rotatably connected to the joint and configured to only allow the extension rod to flip upwards relative to the one top frame unit when the frame overturns on its side to the ground. The extension rod is pivoted on the joint, and when the product falls to the ground, the extension rod will fold upwards to cushion the impact, avoiding direct impact on the end portion of the extension rod and reducing the risk of breakage or deformation of the extension rod. The extension rod also increases the sheltering area of the frame for a sheltering product.

[0006] In an embodiment, the joint has an accommodating groove, and when the frame is in an unfolded state, the outer end portion of the extension rod is accommodated in the accommodating groove, and the accommodating groove has an open upper portion to allow the extension rod to flip upwards. In addition to accommodating the inner end portion of the extension rod, the accommodating groove also restrict the direction of rotation of the extension rod, and only allow the extension rod to flip upwards relative to the joint when the frame for a sheltering product is in the unfolded state. Specifically, the extension rod is restrained by the bottom wall of the accommodating groove to prevent them from flipping downwards.

[0007] In an embodiment, the frame is in the unfolded state, centerlines of the extension rod and the one first top

rod coincide or are parallel to each other, the extension rod is connected to the joint via a first pivot, and the first pivot is located above the centerline of the extension rod.

[0008] In an embodiment, the one second top rod is connected to the joint via a second pivot, and the second pivot is located below the centerline of the extension rod.

[0009] In a specific embodiment, the joint comprises a body and a metal reinforcement sheet fixedly connected to the body, and the metal reinforcement sheet is provided with pivot holes for the first pivot and the second pivot to pass through, respectively. Wherein, each top frame unit comprises two second top rods, which are connected in parallel to the respective joint, and accordingly each joint comprises two metal reinforcement sheets respectively arranged on two opposite sides of the body.

[0010] In an embodiment, the outer end portion of the extension rod is provided with a connecting sheet, and the connecting sheet is provided with a connecting hole for connecting a cloth cover (for example, an umbrella cloth) of a sheltering product.

[0011] In an embodiment, when the frame is in a folded state, the joint and the central rod are close to each other, the first slider and the upper end portion of the central rod are close to each other, and the inner end portions of the second top rods and the inner end portions of the first top rods are close to each other.

[0012] In an embodiment, the first top rod and the second top rod of each top frame unit, and the central rod and the first slider thereon form a crank-slider mechanism. The first top rod and a slant support rod of each top frame unit, and the central rod and a second slider thereon form another crank-slider mechanism. When the frame for a sheltering product is in the unfolded state, both the first top rods and the second top rods are tilted, and their inner end portions are higher than their outer end portions.

[0013] In an embodiment, the length of the first top rods is smaller than the length of the second top rods.

[0014] In an embodiment, the central rod comprises a plurality of sub rods capable of being relatively retracted or detached. In an embodiment, the central rod further comprises a ground nail arranged on a bottommost sub rod.

[0015] In an embodiment, a spring is arranged between the upper end portion of the central rod and the first slider. The spring between the upper end portion of the central rod and the first slider provides assistance force when unfolding the frame for a sheltering product, which is more effort-saving when unfolding the product.

[0016] In an embodiment, wherein each top frame unit further comprises a slant support rod, and an upper end portion of the slant support rod is rotatably connected to the first or second top rod; the frame further comprises a second slider, the second slider is arranged on the central rod and capable of moving in the up-down direction, and is located below the first slider, and a lower end portion of each slant support rod is rotatably connected to the

second slider; each top frame unit is connected with one extension rod.

[0017] In an embodiment, when the frame for a sheltering product is in the unfolded state, the first slider and the second slider are locked to each other; when the frame for a sheltering product is in the folded state, the first slider and the second slider are detached from each other.

[0018] In an embodiment, one of the first slider and the second slider is provided with a locking member that can deform elastically and the other one is provided with a locking groove, when the frame for a sheltering product is in the unfolded state, the locking member is inserted into the locking groove, and the locking member has a lug that can be matched with a groove wall of the locking groove.

[0019] In an embodiment, each top frame unit comprises two second top rods arranged in parallel. In an embodiment, the respective slant support rod passes between the two second top rods. The provision of two second top rods of each top frame unit improves the overall strength of the top frame unit, while the size of the frame for a sheltering product after being folded will not increase. In another embodiment, each top frame unit comprises two first top rods arranged in parallel, and the provision of two first top rods enhances the overall strength of the top frame unit.

[0020] Another aspect of the present disclosure provides a frame for a sheltering product, having an unfolded state and a folded state, which includes:

a central rod having an upper end portion and a lower end portion for supporting or fixing on the ground, the upper end portion of the central rod being fixedly connected or integrated with a top cap;

a plurality of top frame units supported by the central rod and capable of unfolding and folding, each top frame unit comprising a first top rod and a second top rod, and an inner end portion of each first top rod being rotatably connected to the top cap;

a first slider arranged on the central rod and capable of moving in an up-down direction, the first slider being located below the top cap, and the first top rods being rotatably connected to the second top rods to form crank-slider mechanisms between the first top rods, the second top rods, the central rod, and the first slider; and

a spring in contact with or connected to the first slider; when the frame is in the folded state, the spring is deformed, such that having a trend to drive the first slider to slide downward.

[0021] In an embodiment, the spring is arranged between the top cap and the first slider.

[0022] In an embodiment, the spring is sleeved on the central rod, and the spring is pressed between the top cap and the first slider.

[0023] In an embodiment, the frame further comprises a second slider arranged on the central rod and capable

of moving in the up-down direction, and the second slider is located below the first slider; each of the top frame units further comprises a slant support rod, a lower end portion of the slant support rod is rotatably connected to the second slider, and an upper end portion of the slant support rod is rotatably connected to the first top rod or the second top rod.

[0024] In an embodiment, the first slider and/or the second slider comprises a sliding sleeve slideable sleeved on the central rod.

[0025] In an embodiment, a length of the slant support rod is smaller than length of the first top rod and a length of the second top rod. In an embodiment, the upper end of the slant support rod is rotatably connected to the first top rod, and a distance between a connection of the slant support rod and the first top rod and the outer end portion of the first top rod is less than half of the length of the first top rod. In an embodiment, a sum of the distance and the length of the slant support rod is less than or equal to the length of the second top rod.

[0026] After the frame is folded, the spring is in a deformed state (such as compressed), so that when it is unfolded, the spring returns to drive the first slider to slide downwards, providing assistance force to slide the first slider downwards, at the same time, the first top rods and the second top rods overcome their own gravity and flip upwards relative to the central rod, providing assistance force for the unfolding of the beach umbrella or frame, making it more convenient and effort-saving to unfold. Thus, the following problem is solved: when unfolding an existing beach umbrella, it is necessary to manually unfold each top frame unit, overcoming the gravity of the top frame unit itself to flip it upward, especially for beach umbrellas with greater weight or heavier loads, a relatively large amount of force is required to unfold the umbrella, making the process more strenuous and less convenient to operate.

[0027] A yet another aspect of the present disclosure provides a frame for a sheltering product, having an unfolded state and a folded state, which includes:

- a central rod;
- a plurality of top frame units supported by the central rod and capable of unfolding and folding;
- a first slider for rotatably connecting with first rods of the top frame units, the first slider being arranged on the central rod and capable of moving in an up-down direction;
- a second slider for rotatably connecting with second rods of the top frame units, the second slider being arranged on the central rod and capable of moving in an up-down direction; and
- a locking mechanism arranged on the first slider and/or the second slider, and configured for locking the first slider and the second slider;
- when the frame is in the unfolded state, the first slider and the second slider are spaced apart from each other, and the locking mechanism is in an unlocked

state; when the frame is in the folded state, the first slider and the second slider are close to each other, and the locking mechanism locks the first slider and the second slider to each other.

[0028] In an embodiment, the locking mechanism comprises a mutually matched locking member and a locking groove, wherein the locking member and the first slider are fixedly connected or integrated, and the locking groove is opened on the second slider, when the outdoor sheltering product is in the unfolded state, the locking member is inserted into the locking groove, and when the outdoor sheltering product is in the folded state, the locking member disengages from the locking groove.

[0029] In an embodiment, the locking member is elastic and capable of deforming elastically, and the locking member is provided with a lug that is capable of preventing the locking member from detaching from the locking groove.

[0030] In an embodiment, the lug extends outward from the outer surface of the locking member, and the lug has a limit surface facing upwards, and when the frame is in the unfolded state, the limit surface and the lower surface of the second slider are opposite or against the lower surface of the first slider.

[0031] In an embodiment, the lug has a guiding slope that gradually inclined outward from bottom to top.

[0032] In an embodiment, the lug is configured to deform inward under pressure while passing through the locking groove, and automatically reset after moving below the locking groove.

[0033] In an embodiment, two locking members are located at two opposite sides of the central rod, respectively.

[0034] In an embodiment, the second slider is located below the first slider, and the locking member extends downwardly from the first slider.

[0035] A locking mechanism is provided between the first slider and the second slider of the frame of the sheltering product, and when the first slider and the second slider are close to each other, the locking mechanism locks, the top frame units are locked, and the outdoor sheltering product is stably in the unfolded state; after the locking mechanism is unlocked, the first slider and the second slider can move away from each other, the top frame units will then turn towards the central rod and move closer, there is no need to provide locking members or slots on the central rod, avoiding additional processing of the central rod and adverse effects on the strength of the central rod. Thus, the following problem can be solved: most existing locking mechanisms are arranged between the central rod and its sliding components, requiring drilling operations or the installation of locking parts on the central rod. Since the entire load of the beach umbrella is basically borne by the central rod, the aforementioned operations may affect the strength of the central rod, or at least increase the machining difficulty (especially when the central rod is made of a metal

rod).

[0036] A fourth aspect of the present disclosure provides a frame of a sheltering product, including:

a central rod having an upper end portion and a lower end portion for supporting or fixing on the ground, the lower end portion being located below the upper end portion;

a plurality of top frame units supported by the central rod and capable of unfolding and folding with respect to each other, each top frame unit comprising a first top rod and a second top rod, and an inner end portion of each first top rod being rotatably connected to the upper end portion of the central rod, an inner end portion of each second top rod being movably connected to the central rod through a connecting block, the connecting block being located below the upper end portion of the central rod; at least one of the top frame units is provided with two second top rods arranged in parallel, wherein an outer end portion of the first top rod is rotatably connected to an outer end portion of at least one of the two second top rods.

[0037] In an embodiment, when the frame is in an unfolded state, the two second top rods of one top frame unit are arranged at the same level and have a gap, the first top rod directly faces the gap between the two second top rods; each top frame unit further comprises a slant support rod, an upper end portion of the slant support rod is rotatably connected to the first top rod, a lower end portion of the slant support rod is rotatably connected to a slider, the slider is arranged on the central rod and capable of moving in the up-down direction, and is located below the connecting block, and the lower end portion of the slant support rod passes through the gap between the two second top rods.

[0038] In an embodiment, when the frame is in the folded state, the slant support rod is housed between the two second top rods.

[0039] The frame for the sheltering product with first top rods and second top rods in its top frame unit that can rotate relative to each other, and employing two parallel first top rods, the strength of the top frame unit is effectively enhanced, reducing the risk of bending, deformation, or breakage of the first top rods. The following problem can be solved: the top frame unit consists of slender rods hinged together, and the sheltering fabric is primarily opened by the top frame unit. As the top frame unit needs to bear a relatively large load, the slender rods in the top frame unit are at a higher risk of bending, deformation, or even breakage.

[0040] A fifth aspect of the present disclosure provides a frame for a sheltering product, including:

a central rod having an upper end portion and a lower end portion for supporting or fixing on the ground, the lower end portion being located below the upper end

portion;

a plurality of top frame units supported by the central rod and capable of unfolding and folding with respect to each other, each top frame unit comprising a first top rod and a second top rod, and an inner end portion of each first top rod being rotatably connected to the upper end portion of the central rod, an inner end portion of each second top rod being movably connected to the central rod through a connecting block, the connecting block being located below the upper end portion of the central rod; at least one of the top frame units is provided with two second top rods arranged in parallel, wherein an outer end portion of the first top rod is rotatably connected to an outer end portion of at least one of the two second top rods.

[0041] In an embodiment, when the frame is in an unfolded state, the two second top rods of one top frame unit are arranged at the same level and have a gap, the first top rod directly faces the gap between the two second top rods; each top frame unit further comprises a slant support rod, an upper end portion of the slant support rod is rotatably connected to the first top rod, a lower end portion of the slant support rod is rotatably connected to a slider, the slider is arranged on the central rod and capable of moving in the up-down direction, and is located below the connecting block, and the lower end portion of the slant support rod passes through the gap between the two second top rods.

[0042] In an embodiment, when the frame is in the folded state, the slant support rod is housed between the two second top rods.

[0043] The frame for the sheltering product with first top rods and second top rods in its top frame unit that can rotate relative to each other, and employing two parallel second top rods, the strength of the top frame unit is effectively enhanced, reducing the risk of bending, deformation, or breakage of the first top rods. The following problem can be solved: the top frame unit consists of slender rods hinged together, and the sheltering fabric is primarily opened by the top frame unit. As the top frame unit needs to bear a relatively large load, the slender rods in the top frame unit are at a higher risk of bending, deformation, or even breakage.

[0044] A sixth aspect of the present disclosure provides a frame for a sheltering product including:

a central rod;

a top frame capable of being relatively unfolded and folded, the top frame comprises a plurality of extension rods capable of rotating relative to the central rod; and

a connecting sheet, an outer end portion of at least one extension rod is provided with the connecting sheet, and the connecting sheet comprises:

a connecting portion fixedly connected to the

outer end portion of the extension rod; and a wing for connecting with an umbrella cloth, the wing being fixedly connected or integrated with the connecting portion, and the wing extending from the top of the connecting portion away from the connecting portion and being in a sheet shape.

[0045] In one embodiment, the connecting portion comprises a sleeve, which is sleeved on the outer end portion of the extension rod.

[0046] In one embodiment, the sleeve is detachably connected with the extension rod by a fastener.

[0047] In an embodiment, the wing is provided with a hooking hole for a connecting piece of the umbrella cloth to clip in, the hooking hole has a clamping groove portion, the clamping groove portion has an opening for the connecting piece to slide in, and the opening faces the outer or lower side of the umbrella frame.

[0048] In an embodiment, the hooking hole further comprises a guide groove portion, the clamping groove portion is connected with the guide groove portion through the opening; a hole diameter or width of the guide groove portion is greater than a hole diameter or width of the clamping groove portions, the hooking hole is enclosed by a closed hole wall.

[0049] In an embodiment, the opening is opened on an outer edge of the connecting sheet, and the clamping groove portion extends inward from the outer edge of the connecting sheet.

[0050] In an embodiment, each connecting sheet comprises two wings, which extend horizontally from the connecting portion to two opposite sides of the connecting portion, and the wings are provided with sewing portions for sewing with the umbrella cloth.

[0051] The frame for a sheltering product, by connecting the cover cloth (for example, the umbrella cloth of a beach umbrella) of the sheltering product to the frame by the connecting sheet, and the connecting sheet being connected to the extension rod (for example, detachably connected through a screw), a large connection area, high connection strength, and reliable connection between the umbrella cloth and the wing can be achieved, since the thin sheet shaped wing is connected to the umbrella cloth (such as sewn together). The following problem can be solved: the connection strength of the fabric cover is poor, especially during the unfolding and folding process of the beach umbrella frame. The joint between the frame and the cover bears significant stress, which may cause the stitching to break or loosen, or even tear the cover. Additionally, connecting the cover to the frame is not convenient, and the disassembly is also cumbersome.

[0052] The sheltering product is a beach umbrella, including an umbrella frame and an umbrella cloth, the umbrella frame is the frame described above, the umbrella cloth is connected to the frame through one or more connecting sheets. In an embodiment, the umbrella cloth

includes a top cloth and an enclosing cloth suspended downwards from an outer edge of the top frame units, wherein the top cloth and the wing are connected by sewing, the enclosing cloth is provided with a connecting piece, the connecting piece comprises a connecting pin, a side wall of the connecting pin has a recessed portion, the connecting pin enters into the guide groove portion and the connecting pin is clamped on the wing.

[0053] A seventh aspect of the present disclosure relates to a joint for a sheltering product, the joint is configured for rotatably connecting a first rod and a second rod, the joint comprises a body and a metal reinforcement sheet connected to the body, the first rod and the body are connected through a first pivot, and the second rod and the body are connected through a second pivot; the metal reinforcement sheet has at least two end portions, one of which is provided with a first pivot hole for the first pivot to pass through, and another one of which is provided with a second pivot hole for the second pivot to pass through.

[0054] In an embodiment, the body is connected to a third rod through a fastener, the metal reinforcement sheet includes a third end portion, the third end portion is opened with a connecting hole for the fastener to pass through.

[0055] In an embodiment, centers of the first pivot hole, the second pivot hole and the connecting hole are not on the same straight line.

[0056] In an embodiment, the metal reinforcement sheet is L-shaped as a whole.

[0057] In an embodiment, when the sheltering product is unfolded, central lines of the first rod and the third rod coincide with or are parallel to each other, the first pivot hole is located above the central line of the first rod, and the second pivot hole is located below the central line of the first rod.

[0058] In an embodiment, the body has a pipe plug, the pipe plug is inserted into an outer end portion of the first top rod and fixed to the first top rod through a fastener.

[0059] In an embodiment, the joint has an accommodating groove, and an end portion of the extension rod is accommodated in the accommodating groove when the frame is unfolded, and an upper portion of the accommodating groove is open to allow the extension rod to rotate upwardly.

[0060] Optionally, a joint for a sheltering product, configured for rotatably connecting at least two rods, is provided. The joint comprises a body and a metal reinforcement sheet connected to the body, one of the at least two rods is connected to the body through a fastener, another one of the at least two rods is connected to the body through a pivot; the metal reinforcement sheet has at least two end portions, one of which is provided with a connecting hole for the fastener to pass through, and another one of which is provided with a pivot hole for the pivot to pass through.

[0061] The joint rotatably connecting multiple rods of sheltering product, the metal reinforcement plate extends from the connection point between the body and one rod

to the connection point between the body and another rod, thereby enhancing the strength of the rotating connection points between multiple rods. The following problem can be solved: in existing sheltering products such as beach umbrellas, the top frame typically uses elongated rods hinged together. When the beach umbrella tips over sideways or is subjected to external impacts during storage and transportation, the hinge points between these elongated rods often bear the brunt of the force. However, the strength at these joints is relatively low, which adversely affects the service life of the beach umbrella.

[0062] The sheltering product is a beach umbrella, and the frame includes a plurality of top frame units capable of unfolding and folding to support the cloth cover of the beach umbrella, each top frame unit is connected with a first rod, each top frame unit comprising a second top rod and a third top rod, and an inner end portion of the first rod being connected to the body through a first pivot, an inner end portion of the second rod being connected to the body through a second pivot, and an out end portion of the third rod being connected to the body through a fastener.

[0063] An umbrella is also provided by the present disclosure, which includes an umbrella frame and a cloth cover, and the umbrella frame is the above frame or includes the above joint.

[0064] The present disclosure has the following advantages: in the frame for a sheltering product of the present disclosure, the inner end portions of the extension rods are pivotally connected to the top frame units, when the sheltering product, such as a beach umbrella, overturns on its side to the ground, the extension rods flip upwards to cushion the impact force, the top frame units remain in an unfolded state, the first top rods and the second top rods thereof do not flip relative to each other, avoiding deformation or breakage of the extension rods due to significant instantaneous impact force, moreover, the rods of the top frame units do not flip relative to each other, thereby reducing the risk of deformation or breakage of the rods and improving the strength of the frame; meanwhile, the frame can be unfolded and folded, and the folded volume is small.

Brief Description of the Drawings

[0065] For more clearly explaining the technical solutions of the present disclosure, the accompanying drawings required to be used to in the description of the embodiments will be simply introduced below. Apparently, the drawings in the following description show merely some embodiments of the present disclosure, and those of ordinary skill in the art may derive other drawings from these accompanying drawings without creative efforts.

Fig. 1 is a three-dimensional diagram of a beach umbrella according to an embodiment of the present disclosure;

Fig. 2 is a three-dimensional diagram of another beach umbrella according to an embodiment of the present disclosure;

Fig. 3 and Fig. 4 are respectively three-dimensional diagrams of a frame for a sheltering product according to an embodiment of the present disclosure from two different perspectives;

Fig. 5 is a main view of the frame for a sheltering product shown in Fig. 3 and Fig. 4;

Fig. 6 is a top view of the frame for a sheltering product shown in Fig. 3 and Fig. 4;

Fig. 7 is a schematic diagram of another frame for a sheltering product according to an embodiment of the present disclosure from one perspective;

Fig. 8 is a vertical cross-sectional view of the frame for a sheltering product shown in Fig. 7;

Fig. 9 is a partially enlarged view of Part A in Fig. 8;

Fig. 10 is a schematic view of the frame for a sheltering product shown in Fig. 7 from another perspective;

Fig. 11 is a vertical cross-sectional view of the frame for a sheltering product shown in Fig. 10;

Fig. 12 is a partially enlarged view of Part B in Fig. 11;

Fig. 13 is a schematic view of the frame for a sheltering product shown in Fig. 7 during the folding process, wherein the first slider and second slider are detached from each other;

Fig. 14 is a schematic view of the frame for a sheltering product shown in Fig. 13 being further folded;

Fig. 15 is a schematic view of the frame for a sheltering product shown in Fig. 13 in a folded state;

Fig. 16 is a main view of one of the top frame units when in an unfolded state;

Fig. 17 and Fig. 18 are respectively the main and three-dimensional views of the top frame unit shown in Fig. 16 during the folding process;

Fig. 19 is a partially enlarged view of Part C in Fig. 18;

Fig. 20 is a main view of the top frame unit shown in Fig. 16 in a folded state;

Fig. 21 and Fig. 22 are respectively structure diagrams of a first slider from two different perspectives; Fig. 23 and Fig. 24 are respectively structure diagrams of a second slider from two different perspectives;

Fig. 25 is a structure diagram of a connecting sheet;

Fig. 26 is a structure diagram of a joint according to another embodiment of the present disclosure.

[0066] Wherein,

100 - frame for a sheltering product; 200 - cloth cover; 201 - sandbag;

1 - central rod; 11 - sub rod; 12 - ground nail;

2 - top frame unit; 21 - first top rod; 22 - second top rod; 23 - extension rod; 24 - slant support rod; 25 - joint; 251 - body; 251a - pipe plug; 252 - metal reinforcement sheet; 253 - impact cushion portion; 254 - accommodating groove; a1 - first pivot; a2 - second pivot; 26 - connecting sheet; 261 - sleeve;

262 - wing; 263 - hooking hole; 263a - clamping groove portion; 263b - guide groove portion;
 3 - top cap;
 4 - first slider; 41 - locking member; 411 - lug;
 5 - second slider; 51 - locking groove; 511 - groove wall;
 6 - spring.

Detailed Description of Exemplary Embodiments

[0067] The preferred embodiments of the present disclosure are explained below in detail combining with the accompanying drawings so that the advantages and features of the present disclosure can be easily understood by the skilled persons in the art. It should be noted that the explanation on these implementations is to help understanding of the present disclosure, and is not intended to limit the present disclosure. Further, the technical features involved in the various embodiments of the present disclosure described below may be combined with each other as long as they do not conflict with each other.

[0068] It should be noted that the orientation words "up", "down", "inner", and "outer" mentioned herein are described based on the position of the components when the frame for a sheltering product is in the unfolded state; "up" and "down" can be seen on the upper and lower sides of the paper in Fig. 5; "inner" and "outer" are defined with the central rod as a reference, "inner" specifically refers to the side or portion of a component closer to the central rod, and "outer" specifically refers to the side or portion of the component farther from the central rod.

[0069] The following embodiments provide a frame for a sheltering product that can provide sheltering space outdoors for sunsheltering or sheltering from rain. The frame for a sheltering product is foldable, has both unfolded and folded states, suitable for foldable sheltering products. Typically, the sheltering product can be a beach umbrella. The embodiment uses a beach umbrella as an example to provide a detailed description of the aforementioned frame. The embodiments provide a beach umbrella using this frame for a sheltering product, which can be used in places such as beaches.

[0070] As shown in Fig. 1 and Fig. 2, the beach umbrella comprises an umbrella frame and a cloth cover 200, the umbrella frame is specifically a frame for a sheltering product 100 described in detail below, and the cloth cover 200 is fixed to the frame for a sheltering product 100; when the frame for a sheltering product 100 is in the unfolded state, the cloth cover 200 is stretched to provide a larger sheltering area. The cloth cover 200 is provided with several sandbags 201 or connected to several sandbags 201 to further stabilize the cloth cover 200.

[0071] As shown in Fig. 3 to Fig. 6, the frame for a sheltering product 100 comprises a central rod 1 and a plurality of top frame units 2. The central rod is vertically arranged, and has an upper end portion and a lower end

portion for supporting or fixing on the ground. When in use, the central rod 1 stands vertically on the ground, and the lower end portion is fixed to the ground. Furthermore, the central rod 1 can be retracted or comprise a plurality of detachable sub rods 11, thereby having a smaller volume before assembly or after folding, reducing space occupation, and facilitating transportation or storage. Specifically, in this embodiment, the central rod 1 comprises three detachable sub rods 11, which are sequentially connected by screws or other fasteners, and before assembly, the three sub rods 11 are separated from each other to save packaging space. The lowest sub rod 11 can also be connected to a ground nail 12 for easy insertion into the ground. The plurality of top frame units 2 is supported by the central rod 1 and capable of unfolding and folding with respect to each other.

[0072] The upper end portion of the central rod 1 is fixedly connected with a top cap 3; or, the upper end portion of the central rod 1 has a top cap 3, namely, the top cap 3 and the central rod are integrated. The frame for a sheltering product 100 further comprises a first slider 4 and a second slider 5. The first slider 4 is movably arranged on the central rod 1 in an up-down direction, and the first slider 4 is located below the top cap 3. The second slider 5 is movably arranged on the central rod 1 in an up-down direction, and the second slider 5 is located below the first slider 4. Specifically, in this embodiment, the first slider 4 and the second slider 5 are sliding sleeves respectively sleeved on the central rod 1, and both are preferably sleeved on the uppermost sub rod 11 in a manner that can slide up and down. The top cap 3, the first slider 4, and the second slider 5 are arranged from top to bottom. The first slider 4 and the second slider 5 are respectively sliding sleeves slidably mounted on the central support rod 1. Furthermore, the top cap 3, the first slider 4, and the second slider 5 are all disposed on the uppermost one of the branch rods.

[0073] In a preferred embodiment, as shown in Fig. 7 to Fig. 12, the frame for a sheltering product 100 further comprises a spring 6, which is specifically a compression spring arranged between the top cap 3 and the first slider 4. The spring 6 is specifically sleeved on the central rod 1, with its upper end contacting the top cap 3 and its lower end contacting the first slider 4. When the frame for a sheltering product 100 is in the folded state, the spring 6 is deformed and has a trend to push the first slider 4 to slide downwards and away from the top cap 3, providing assistance force for the frame for a sheltering product 100 to unfold, making it easier for consumers to unfold the beach umbrella. When the frame for a sheltering product 100 is folded, each top frame unit 2 flips down and moves closer to the central rod 1 under its own gravity and/or the pulling force of the consumer, the first slider 4 is slid up relative to the top cap 3, and the spring 6 between them is in a compressed state. The spring 6 is sleeved over the central rod 1, with its upper end abutting against the top cap 3 and its lower end abutting against the first slider 4.

[0074] One end portion of each top frame unit 2 is

connected to the central rod 1, while the other end portion extends radially outward along the radial direction of the central rod 1, and the plurality of top frame units 2 is arranged at equal intervals along the circumferential direction of the central rod 1, so that the plurality of top frame units 2 are in a radial configuration. Each top frame unit 2 can be unfolded and folded, so that the entire frame for a sheltering product 100 can be folded, as shown in Fig. 13 to Fig. 15. In this embodiment, it specifically comprises four top frame units 2. The structure of each top frame unit 2 is same, and from a top view, the four top frame units 2 form a cross shaped shape centered on the central rod 1. Below is a detailed description using one of the top frame units 2 as an example.

[0075] In combination with the above Figs and as shown in Fig. 14 to Fig. 18, each top frame unit 2 comprises a first top rod 21, a second top rod 22, a slant support rod 24 and a joint 25, and each top frame unit 2 is further connected to an extension rod 23. The inner end portion of the extension rod 23 is pivotally connected to the top frame unit 2 to allow the extension rod 23 to flip upwards relative to the top frame unit 2 when the frame 100 overturns on its side to the ground. The inner end portion of the first top rod 21 is rotatably connected to the top cap 3; the joint 25 is arranged at the outer end portion of the first top rod 21, and the two are fixedly connected or integrated. The inner end portion of the second top rod 22 is rotatably connected to the first slider 4, and the outer end portion of the second top rod 22 is rotatably connected to the joint 25. The inner end portion of the extension rod 23 is rotatably connected to the joint 25, and the outer end portion thereof extends outward and is provided with a connecting sheet 26, the connecting sheet 26 is provided with a connecting hole or groove to facilitate connection with the cloth cover 200, providing a larger sheltering area. The upper end portion of the slant support rod 24 is rotatably connected to the first top rod 21 or the second top rod 22, and the lower end portion of the slant support rod 24 is rotatably connected to the second slider 5. Specifically, in this embodiment, the first top rod 21 of each top frame unit 2 is pivotally connected with the top cap 3, the second top rod 22 of each top frame unit 2 is pivotally connected with the first slider 4, and the slant support rod 24 of each top frame unit 2 is pivotally connected with the second slider 5. As shown in Fig. 12, the extension rod 23 is connected to the joint 25 via a first pivot a1, and the second top rod 22 is connected to the joint 25 via a second pivot a2, the first top rod 21 and the second top rod 22 of each top frame unit 2, and the central rod 1 and the first slider 4 thereon form a crank-slider mechanism; the first top rod 21 and the slant support rod 24 of each top frame unit 2, and the central rod 1 and the second slider 5 thereon form another crank-slider mechanism.

[0076] Furthermore, in this embodiment, each top frame unit 2 comprises two second top rods 22, which are connected in parallel between the same joint 25 and first slider 4 to enhance the strength of the top frame unit

2. There is a gap between the two second top rods 22, and the slant support rod 24 passes between the two second top rods 22 and is respectively connected to the first top rod 21 and the second slider 5. The length of the slant support rod 24 is less than that of the first top rod 21 and the second top rod 22, and the distance between the connection of the slant support rod 24 and the first top rod 21 and the outer end portion of the first top rod 21 shall be less than half of the length of the first top rod 21, and the sum of this distance and the length of the slant support rod 24 shall be less than or equal to the length of the second top rod 22. In addition, the difference in length between the first top rod 21 and the second top rod 22 is less than one tenth of the length of the second top rod 22; preferably, the length of the first top rod 21 is less than the length of the second top rod 22. When the frame for a sheltering product 100 is in the folded state, the upper end portion of the first top rod 21 and the upper end portion of the second top rod 22 are close to each other (the two are basically at the same level, or the height difference is much less than 1/10 of the length of the first top rod 21), and the lower end portion of the first top rod 21 is higher than the upper end portion of the second top rod 22. When the frame for a sheltering product 100 is in the folded state, in each top frame unit 2, the slant support rod 24 is accommodated between the two second top rods 22 to make full use of the internal space and avoid the excessive overall volume after folding.

[0077] In some other embodiments, each top frame unit 2 comprises two first top rods 21, while one second top rod 22. The two first top rods 21 are connected in parallel between the same joint 25 and the top cap 3 to enhance the strength of the top frame unit 2. The slant support rod 24 is rotationally connected with at least one of the first top rods 21.

[0078] Further, in addition to rotatably connecting the extension rod 23 to the first top rod 21 and the second top rod 22, the joint 25 also has a limiting function in the rotation of the extension rod 23; specifically, the joint 25 is configured to only allow the extension rod 23 to flip upwards relative to the top frame unit 2 when the frame for a sheltering product overturns on its side to the ground. As shown in Fig. 9 and Fig. 19, the joint 25 has an accommodating groove 254, and the outer end portion of the extension rod 23 is accommodated in the accommodating groove 254 when the frame for a sheltering product 100 is in the unfolded state. The upper portion of the accommodating groove 254 is open to allow the extension rod 23 to rotate and detach from the accommodating groove 254, while being close to the first top rod 21. When the sheltering product is in the unfolded state, the centerline of the extension rod 23 and the centerline of the first top rod 21 coincide or are parallel to each other, and the accommodating groove 254 extends along the centerline of the extension rod 23. The upper portion and the outer end of the accommodating groove 254 are open, the bottom of the accommodating groove 254 is closed, and when the frame for a sheltering

product 100 is in the unfolded state, the extension rod 23 leans against the lower portion of the accommodating groove 254, the bottom wall of the accommodating groove 254 has a rotation limit effect on the extension rod 23, which can prevent the extension rod 23 from flipping downwards, and the extension rod 23 can be flipped upwards to be close to the first top rod 21. When the frame for a sheltering product 100 is in the unfolded state, the first pivot a1 is located above the centerline of the extension rod 23, and the second pivot a2 is located below the centerline of the extension rod 23.

[0079] The joint 25 has an impact cushion portion 253 that lands on the ground when the frame for a sheltering product 100 overturns on its side, when the frame for a sheltering product 100 overturns on its side to the ground or is placed tilted to the ground, the impact cushion portion 253 of the joint 25 lands on the ground to support the entire frame; at this time, the impact cushion portion 253 protrudes outward relative to the first pivot a1, the second pivot a2, the inner end portion of the extension rod 23 and the outer end portion of the second top rod 22, which effectively avoids the end portions of the rods (especially the outer end portion of the second top rod 22) from directly touching the ground, thereby reducing the risk of bending, deformation, or breakage of the rods.

[0080] The joint 25 comprises a body 251 and a metal reinforcement sheet 252 fixedly connected to the body 251, and the body 251 is a plastic member that can be processed using an integral injection molding process. The metal reinforcement sheet 252 can be made of alloy sheets with better strength such as steel sheets. Further, the metal reinforcement sheet 252 extends from the first pivot a1 to the second pivot a2, and the two end portions of the metal reinforcement sheet 252 are respectively provided with pivot holes for the first pivot a1 and the second pivot a2 to pass through. The first pivot a1 passes through upper end portions of the body 251 and the metal reinforcement sheet 252, the second pivot a2 passes through lower end portions of the body 251 and the metal reinforcement sheet 252, and the metal reinforcement sheet 252 can be connected to the body 251 via the first pivot a1 and the second pivot a2, effectively strengthening the connection strength between the first top rod 21, the second top rod 22, and the extension rod 23. In this embodiment, each top frame unit 2 comprises two second top rods 22, which are connected in parallel to the joint 25, and accordingly there are two metal reinforcement sheets 252 respectively arranged on two opposite sides of the body 251. The body 251 of joint 25 further has a pipe plug 251a, the pipe plug 251a is inserted into the outer end portion of the first top rod 21 and fixed to the first top rod 21 through a fastener such as a screw or a rivet.

[0081] In some other embodiments, as shown in Fig. 26, the metal reinforcement sheet 252 has three end portions and is overall L-shaped. Two of the end portions of the metal reinforcement sheet 252 are provided with pivot holes for the first pivot a1 and the second pivot a2 to pass through, respectively; the third end portion is pro-

vided with a connecting hole, through which a fastener a3 such as a screw or a rivet passes and fixedly connects the joint 25 (specifically the pipe plug 251a and the third end portion of the metal reinforcement sheet 252) to the outer end portion of the first top rod 21. The strength of the connection between the first top rod 21, the second top rod 22, and the extension rod 23 is effectively strengthened.

[0082] As shown in Fig. 3, Fig. 5, Fig. 7, Fig. 8, and Fig. 16, the outer end portion of each extension rod 23 is provided with a connecting sheet 26, for conveniently connecting the cloth cover 200 of the sheltering product. In some embodiments, the cloth cover 200 is composed of a top cloth, which is covered above the top frame, and its outer edge is connected to the connecting sheets 26 on the plurality of top frame units 2; in other embodiments, the cloth cover 200 further comprises enclosing cloths, which are suspended downwards from the outer edge of the top frame units 2, and the upper edge of each enclosing cloth is connected to at least two adjacent connecting sheets 26 of the top frame units 2; the connecting pieces 26 realize the connection between the top cloth and the enclosing cloths and the umbrella frame 100. Specifically, as shown in Fig. 25, the connecting sheet 26 comprises a connecting portion, the connecting portion is specifically a sleeve 261, which is detachably sleeved on the outer end portion of the extension rod 23; further, the sleeve 261 is fixed to the extension rod 23 through a fastener (such as a screw). The connecting sheet 26 further comprises one or more wings 262, which are fixedly connected or integrated with the sleeve 261. The wing(s) 262 are generally in a thin sheet shape, roughly parallel to the cloth cover. Each connecting sheet 26 has two wings 262, which extend horizontally from the sleeve 261 to different sides, that is, the two wings 262 are located on opposite sides of the sleeve 261. The top cloth and the wings 262 are connected by sewing, and the wings 262 can be provided with one or more turns of sewing portions with reduced thickness.

[0083] Hooking holes 263 are provided on the wings 262 to facilitate the connection of the enclosing cloths. In this embodiment, the hooking holes 263 run through the wings 262 in the up-down direction. The hooking holes 263 has clamping groove portions 263a, and the clamping groove portions 263a has openings facing the outer or lower sides of the umbrella frame. The hooking holes 263 further have guide groove portions 263b, which are connected to the clamping groove portions 263a through the above openings; the hole diameter or width of the guide groove portion 263b is greater than that of the clamping groove portions 263a, and the overall hooking hole 263 is in the shape of a gourd, and the hooking holes 263 are enclosed by closed hole walls; further, the guide groove portions 263b are circular holes, and the clamping groove portions 263a are U-shaped holes. In some other embodiments, the hooking holes 263 are only composed of clamping groove portions 263a, the hole wall thereof is not closed and has a notch (i.e. the opening), the clamp-

ing groove portions 263a are U-shaped as a whole in a top view; namely, the openings are opened on the outer edge of the connecting sheet 26, that is, the clamping groove portions 263a extend inward from the edge of the connecting sheet 26, thereby facilitating the connection pieces on the enclosing cloths to slide in.

[0084] The enclosing cloths of the outdoor sheltering product mentioned above is connected with several connecting pieces, which comprise connecting pins, and side walls of the connecting pins have recessed portions (such as circular grooves). When mounting the enclosing cloths, the connecting pins are inserted into the guide groove portions 263b and slid into the clamping groove portions 263a from the openings or are directly slid into the clamping groove portions 263a from the openings, and the recessed portions are stuck on the wings 262 (specifically, hole wall of the hooking holes 263) to prevent the connecting pins from sliding out of the clamping groove portions 263a. This embodiment is different from the conventional connection method between the cloth cover and the frame, and has good connection strength. Not only is the connection of the cloth cover convenient, but also the connection is reliable, reducing the risk of tearing or damage at the connections between the cloth cover and the rods during the folding or unfolding process of the rods. After the umbrella frame is unfolded, under the tension of the umbrella cloth itself, the connecting pins remain in a state of mutual clamping with the connecting sheet 26, without sliding out from the openings.

[0085] The frame for a sheltering product 100 is provided with a locking mechanism. When the frame for a sheltering product 100 is in the unfolded state, the locking mechanism is in a locked state, and the first slider 4 and the second slider 5 are locked to each other, the locking mechanism locks the first slider 4 and the second slider 5. When the frame for a sheltering product 100 is in the folded state, the locking mechanism is in an unlocked state, and the first slider 4 and the second slider 5 are detached from each other. The locking mechanism includes a mutually matched locking member and a locking groove. As shown in Fig. 18 to Fig. 22, one of the first slider 4 and the second slider 5 has a locking member 41 capable of deforming elastically, and the other one is provided with a locking groove 51, and the locking mechanism comprises the locking member 41 and the locking groove 51. When the frame for a sheltering product 100 is in the unfolded state, the locking member 41 is inserted into the locking groove 51, and the locking member 41 has a lug 411 that is matched with the groove wall of the locking groove 51. Specifically, in this embodiment, as shown in Fig. 12, the first slider 4 has a pair of downward extending locking members 41, and lower portions of the locking members 41 are further provided with lugs 411 protruding outwards; the second slider 5 has locking grooves 51 that runs through up and down, the locking members 41 can be inserted into the locking grooves 51, the lugs 411 can be clamped by groove walls 511 facing downwards of the second slider 5, and after

the locking members 41 are inserted into the locking grooves 51 and locked in place, the upper surfaces of the lugs 411 can press against the groove walls 511, thereby avoiding the locking members 41 from sliding out. When unlocking, the lugs 411 are pressed inward to avoid the limitations of the groove walls 511 mentioned above, and the locking members 41 can slide out of the locking grooves 51. Further, the outer surfaces of the lugs 411 further have guide slopes for easy insertion into the locking grooves 51. The lugs 411 are configured to be pressed inward and deform as they pass through the locking groove 51, and automatically reset after moving below the locking groove 51. The lugs 411 then pop outward, with their limiting surfaces facing or pressing against the groove wall 511, preventing the locking member 41 from disengaging upward from the locking groove 51. To unlock, press both lugs 411 inward, then pull the second slider 5 downward to achieve unlocking. By providing a locking mechanism between the first slider 4 and the second slider 5, there is no need to provide locking members or slots on the central rod 1, avoiding additional processing of the central rod 1, and also avoiding adverse effects on the strength of the central rod 1.

[0086] As shown in the above accompanying drawings, when the frame for a sheltering product 100 is in the unfolded state, the ground nail 12 at the bottom of the central rod 1 can be fixed in the ground, and it is further firmed through the sandbag 201 of the cloth cover 200; the plurality of top frame units 2 are unfolded outward, and the cloth cover 200 is stretched; the first slider 4 is located at a distance below the top cap 3, the second slider 5 is close to and locked with the first slider 4, and the spring 6 can be in its initial state; the inner end portion of the extension rod 23 is located in the accommodating groove 254 of the joint 25, the centerlines of the extension rod 23 and the first top rod 21 are preferably collinear, and the centerlines of the two second top rods 22 are located on opposite sides of the centerline of the first top rod 21 from a top view. Both the first top rod 21 and the second top rods 22 are tilted, and their inner end portions are higher than their outer end portions. The slant support rod 24 is also arranged obliquely, and the outer end portion is higher than the inner end thereof.

[0087] When the frame for a sheltering product 100 is in a folded state, each top frame unit 2 is close to the central rod 1. Specifically, the joint 25 of each top frame unit 2 and the central rod 1 (specifically the lower end portion of the uppermost sub rod 11) are close to each other, that is, the outer end portion of the first top rod 21, the outer end portion of the second top rod 22, the slant support rod 24 and the extension rod 23 are close to the central rod 1; the first slider 4 and the second slider 5 are detached from each other and slide upwards until they are close to the top cap 3, and the spring 6 is compressed; the inner end portion of the second top rod 22 and the inner end portion of the first top rod 21 are close to each other.

[0088] When the frame for a sheltering product 100 is folded, the lugs 411 on the two locking members 41 are

pressed inwards, the second slide 5 is moved downwards and is detached from the first slide 4, driving the slant support rod 24 to close to the central rod 1, so that the first top rod 21 and the second top rod 22 are then close to the central rod 1, and at the same time, the first slide 4 is pushed upward to close to the top cap 3; finally, the extension rod 23 is flipped upwards and close to the first top rod 21 to complete the folding of the frame. When the above sheltering product is unfolded, the extension rod 23 is flipped downwards to unfold, pushing the second slider 5 upwards, at the same time, with the assistance of the reset force of the spring 6, the first slider 4 is slid downwards until the locking members 41 are inserted into the second slider 5, each top frame unit 2 is fully unfolded, and the entire frame is directly locked in the unfolded state.

[0089] The frame for a sheltering product 100 of this embodiment can be applied to outdoor sheltering products such as beach umbrellas, and when the sheltering product falls to the ground, the extension rod 23 flips upwards to cushion the impact force and improve the strength of the frame, meanwhile the top frame unit 2 does not need to be deformed or folded. The frame for a sheltering product 100 can be unfolded and folded, and the folded volume is small. Wherein, two second top rods 22 of each top frame unit 2 are provided, improving the overall strength of the top frame units, while the size of the frame for a sheltering product 100 after being folded will not increase. In addition, the spring 6 between the top cap 3 and the first slider 4 provides assistance when unfolding the frame for a sheltering product 100, which is more labor-saving when unfolding the product. Except for the extension rod 23, the entire top frame unit 2 is linked with the first slider 4 and the second slider 5, making it easier to unfold and fold; while the extension rod 23 is pivotally connected to the joint 25, when the product falls to the ground, the extension rod 23 will flip upwards to cushion the impact, avoiding direct impact on the end portion of the extension rod 23 and reducing the risk of breakage or deformation of the extension rod 23.

[0090] As shown in the description and the claims, the terms "comprising" and "including" only indicate the steps and elements that have been clearly identified, and these steps and elements do not constitute an exclusive list, a method or device may further comprise other steps or elements. The term "and/or" used herein includes any combination of one or more related listed items.

[0091] It should be noted that, unless otherwise specified, when a feature is referred to as "fixed" or "connected" to another feature, it can be directly fixed or connected to another feature, or indirectly fixed or connected to another feature. In addition, the descriptions such as upper, lower, left, and right used in the present disclosure are only relative to the mutual positional relationships of the various components of the present disclosure in the accompanying drawings.

[0092] It can be further understood that the terms

"first", "second", etc. are used to describe various information, but this information should not be limited to these terms. These terms are only used to distinguish the same type of information from each other and do not indicate a specific order or degree of importance. In fact, expressions such as "first" and "second" can be used interchangeably. For example, without departing from the scope of the present disclosure, the first information can also be referred to as the second information, and similarly, the second information can also be referred to as the first information.

[0093] The embodiments described above are only for illustrating the technical concepts and features of the present disclosure, are preferred embodiments, and are intended to make those skilled in the art being able to understand the present disclosure and thereby implement it, and should not be concluded to limit the protective scope of this disclosure.

Claims

1. A frame for a sheltering product, comprising:

a central rod having an upper end portion and a lower end portion for supporting or fixing on the ground, the lower end portion being located below the upper end portion;

a plurality of top frame units supported by the central rod and capable of unfolding and folding, each top frame unit comprising a first top rod and a second top rod, and an inner end portion of each first top rod being rotatably connected to the upper end portion of the central rod;

a first slider arranged on the central rod and capable of moving in an up-down direction, the first slider being spaced apart from the upper end portion of the central rod, an inner end portion of each second top rod being rotatably connected to the first slider, and the first top rod being rotatably connected to the second top rod, such that the first top rod, the second top rod, the central rod, and the first slider form a crank-slider mechanism; and

an extension rod with an inner end portion being pivotally connected to one of the top frame units to allow the extension rod to flip upwards relative to the one top frame unit when the frame overturns on its side to the ground.

2. The frame for a sheltering product as in claim 1, is characterized in that, further comprising a joint, wherein the joint is arranged on an outer end portion of one first top rod, an outer end portion of one second top rod is rotatably connected to the joint, and an inner end portion of the extension rod is rotatably connected to the joint and configured to only allow the extension rod to flip upwards relative to

the one top frame unit when the frame overturns on its side to the ground.

3. The frame for a sheltering product as in claim 2, is **characterized in that**, the joint has an accommodating groove, and when the frame is in an unfolded state, the outer end portion of the extension rod is accommodated in the accommodating groove, and the accommodating groove has an open upper portion to allow the extension rod to flip upwards. 5
4. The frame for a sheltering product as in claim 2 or 3, is **characterized in that**, when the frame is in the unfolded state, centerlines of the extension rod and the one first top rod coincide or are parallel to each other, the extension rod is connected to the joint via a first pivot, and the first pivot is located above the centerline of the extension rod. 10
5. The frame for a sheltering product as in claim 4, is **characterized in that**, the one second top rod is connected to the joint via a second pivot, and the second pivot is located below the centerline of the extension rod. 15
6. The frame for a sheltering product as in claim 5, is **characterized in that**, the joint comprises a body and a metal reinforcement sheet fixedly connected to the body, and the metal reinforcement sheet is provided with pivot holes for the first pivot and the second pivot to pass through, respectively. 20
7. The frame for a sheltering product as in claim 2, is **characterized in that**, when the frame is in a folded state, the joint and the central rod are close to each other, the first slider and the upper end portion of the central rod are close to each other, and the inner end portions of the second top rods and the inner end portions of the first top rods are close to each other. 25
8. The frame for a sheltering product as in claim 7, is **characterized in that**, length of the first top rods is smaller than length of the second top rods; the central rod comprises a plurality of sub rods that can be relatively retracted or detached, and/or the central rod further comprises a ground nail arranged on a lowermost sub rod. 30
9. The frame for a sheltering product as in any one of the preceding claims, is **characterized in that**, a spring is arranged between the upper end portion of the central rod and the first slider. 35
10. The frame for a sheltering product as in any one of the preceding claims, is **characterized in that**, each top frame unit further comprises a slant support rod, and an upper end portion of the slant support rod is rotatably connected to the first or second top rod; the 40

frame further comprises a second slider, the second slider is arranged on the central rod and capable of moving in the up-down direction, and is located below the first slider, and a lower end portion of each slant support rod is rotatably connected to the second slider; each top frame unit is connected with one extension rod.

11. The frame for a sheltering product as in claim 10, is **characterized in that**, when the frame is in the unfolded state, the first slider and the second slider are locked to each other; when the frame for a sheltering product is in the folded state, the first slider and the second slider are detached from each other; one of the first slider and the second slider is provided with a locking member that can deform elastically and the other one is provided with a locking groove, when the frame is in the unfolded state, the locking member is inserted into the locking groove, and the locking member has a lug that matched with a groove wall of the locking groove. 45
12. The frame for a sheltering product as in claim 10 or 11, is **characterized in that**, each top frame unit comprises two second top rods arranged in parallel, and the slant support rod passes between the two second top rods; or, each top frame unit comprises two first top rods arranged in parallel. 50
13. A frame for a sheltering product, having an unfolded state and a folded state, comprising:
 - a central rod having an upper end portion and a lower end portion for supporting or fixing on the ground, the upper end portion of the central rod being fixedly connected or integrated with a top cap;
 - a plurality of top frame units supported by the central rod and capable of unfolding and folding, each top frame unit comprising a first top rod and a second top rod, and an inner end portion of each first top rod being rotatably connected to the top cap;
 - a first slider arranged on the central rod and capable of moving in an up-down direction, the first slider being located below the top cap, and the first top rods being rotatably connected to the second top rods, such that the first top rod, the second top rod, the central rod, and the first slider form a crank-slider mechanism; and
 - a spring in contact with or connected to the first slider;
 - when the frame is in the folded state, the spring is deformed, such that having a trend to drive the first slider to slide downward.
14. The frame as in claim 13, is **characterized in that**, the spring is arranged between the top cap and the 55

first slider.

15. The frame as in claim 14, is **characterized in that**, the spring is sleeved on the central rod, and the spring is pressed between the top cap and the first slider.
16. The frame as in any one of claims 13 to 16, is **characterized in that**, the frame further comprises a second slider arranged on the central rod and capable of moving in the up-down direction, and the second slider is located below the first slider; each of the top frame units further comprises a slant support rod, a lower end portion of the slant support rod is rotatably connected to the second slider, and an upper end portion of the slant support rod is rotatably connected to the first top rod or the second rod.
17. The frame as in claim 16, is **characterized in that**, the first slider and/or the second slider comprises a sliding sleeve slideable sleeved on the central rod.
18. The frame as in claim 16 or 17, is **characterized in that**, a length of the slant support rod is smaller than length of the first top rod and a length of the second top rod. In an embodiment, the upper end of the slant support rod is rotatably connected to the first top rod, and a distance between a connection of the slant support rod and the first top rod and the outer end portion of the first top rod is less than half of the length of the first top rod. In an embodiment, a sum of the distance and the length of the slant support rod is less than or equal to the length of the second top rod.
19. A frame for a sheltering product, having an unfolded state and a folded state, comprising:

a central rod;

a plurality of top frame units supported by the central rod and capable of unfolding and folding; a first slider for rotatably connecting with first rods of the top frame units, the first slider being arranged on the central rod and capable of moving in an up-down direction;

a second slider for rotatably connecting with second rods of the top frame units, the second slider being arranged on the central rod and capable of moving in an up-down direction; and a locking mechanism arranged on the first slider and/or the second slider, to lock the first slider and the second slider;

when the frame is in the unfolded state, the first slider and the second slider are spaced apart from each other, and the locking mechanism is in an unlocked state; when the frame is in the folded state, the first slider and the second slider are close to each other, and the locking mechanism

locks the first slider and the second slider to each other.

20. The frame as in claim 18, is **characterized in that**, the locking mechanism comprises a mutually matched locking member and a locking groove, wherein the locking member and the first slider are fixedly connected or integrated, and the locking groove is opened on the second slider, when the outdoor sheltering product is in the unfolded state, the locking member is inserted into the locking groove, and when the outdoor sheltering product is in the folded state, the locking member disengages from the locking groove.
21. The frame as in claim 20, is **characterized in that**, the locking member is elastic and capable of deforming elastically, and the locking member is provided with a lug that is capable of preventing the locking member from detaching from the locking groove.
22. The frame as in claim 21, is **characterized in that**, the lug extends outward from the outer surface of the locking member, and the lug has a limit surface facing upwards, and when the frame is in the unfolded state, the limit surface and the lower surface of the second slider are opposite or against the lower surface of the first slider.
23. The frame as in claim 21 or 22, is **characterized in that**, the lug has a guiding slope that gradually inclined outward from bottom to top.
24. The frame as in any one of claims 21 to 23, is **characterized in that**, the lug is configured to deform inward under pressure while passing through the locking groove, and automatically reset after moving below the locking groove.
25. The frame as in any one of claims 20 to 24, is **characterized in that**, two locking members are located at two opposite sides of the central rod, respectively.
26. The frame as in any one of claims 20 to 25, is **characterized in that**, the second slider is located below the first slider, and the locking member extends downwardly from the first slider.
27. A frame of a sheltering product, comprising:

a central rod having an upper end portion and a lower end portion for supporting or fixing on the ground, the lower end portion being located below the upper end portion;
a plurality of top frame units supported by the central rod and capable of unfolding and folding with respect to each other, each top frame unit

comprising a first top rod and a second top rod, and an inner end portion of each first top rod being rotatably connected to the upper end portion of the central rod, an inner end portion of each second top rod being movably connected to the central rod through a connecting block, the connecting block being located below the upper end portion of the central rod;

at least one of the top frame units is provided with two second top rods arranged in parallel, wherein an outer end portion of the first top rod is rotatably connected to an outer end portion of at least one of the two second top rods.

28. The frame as in claim 27, is **characterized in that**, when the frame is in an unfolded state, the two second top rods of one top frame unit are arranged at the same level and have a gap, the first top rod directly faces the gap between the two second top rods; each top frame unit further comprises a slant support rod, an upper end portion of the slant support rod is rotatably connected to the first top rod, a lower end portion of the slant support rod is rotatably connected to a slider, the slider is arranged on the central rod and capable of moving in the up-down direction, and is located below the connecting block, and the lower end portion of the slant support rod passes through the gap between the two second top rods.

29. The frame as in claim 28, is **characterized in that**, when the frame is in the folded state, the slant support rod is housed between the two second top rods.

30. A frame for a sheltering product, comprising:

a central rod having an upper end portion and a lower end portion for supporting or fixing on the ground, the lower end portion being located below the upper end portion;

a plurality of top frame units supported by the central rod and capable of unfolding and folding with respect to each other, each top frame unit comprising a first top rod and a second top rod, and an inner end portion of each first top rod being rotatably connected to the upper end portion of the central rod, an inner end portion of each second top rod being movably connected to the central rod through a connecting block, the connecting block being located below the upper end portion of the central rod;

at least one of the top frame units is provided with two first top rods arranged in parallel, wherein an outer end portion of the second top rod is rotatably connected to an outer end portion of at least one of the two first top rods.

31. The frame as in claim 30, is **characterized in that**, when the frame is in an unfolded state, the two first

top rods are arranged at the same level, the second top rod is located directly below the two first top rods or directly faces a gap between the two first top rods.

32. The frame as in claim 31, is **characterized in that**, each top frame unit further comprises a slant support rod, an upper end portion of the slant support rod is rotatably connected to at least one of the two first top rods, a lower end portion of the slant support rod is rotatably connected to a slider, the slider is arranged on the central rod and capable of moving in the up-down direction, and is located below the connecting block.

33. A frame for a sheltering product comprising:

a central rod;

a top frame capable of being relatively unfolded and folded, the top frame comprises a plurality of extension rods capable of rotating relative to the central rod; and

a connecting sheet, an outer end portion of at least one extension rod is provided with the connecting sheet, and the connecting sheet comprises:

a connecting portion fixedly connected to the outer end portion of the extension rod; and

a wing for connecting with an umbrella cloth, the wing being fixedly connected or integrated with the connecting portion, and the wing extending from the top of the connecting portion away from the connecting portion and being in a sheet shape.

34. The frame as in claim 33, is **characterized in that**, the connecting portion comprises a sleeve, which is sleeved on the outer end portion of the extension rod.

35. The frame as in claim 34, is **characterized in that**, the sleeve is detachably connected with the extension rod by a fastener.

36. The frame as in any one of claims 33 to 35, is **characterized in that**, the wing is provided with a hooking hole for a connecting piece of the umbrella cloth to clip in, the hooking hole has a clamping groove portion, the clamping groove portion has an opening for the connecting piece to slide in, and the opening faces an outer or lower side of the umbrella frame.

37. The frame as in claim 36, is **characterized in that**, the hooking hole further comprises a guide groove portion, the clamping groove portion is connected with the guide groove portion through the opening; a hole diameter or width of the guide groove portion is

greater than a hole diameter or width of the clamping groove portions, the hooking hole is enclosed by a closed hole wall.

38. The frame as in claim 36, is **characterized in that**, the opening is opened on an outer edge of the connecting sheet, and the clamping groove portion extends inward from the outer edge of the connecting sheet. 5
39. The frame as in any one of claims 33 to 38, is **characterized in that**, each connecting sheet comprises two wings, which extend horizontally from the connecting portion to two opposite sides of the connecting portion, and the wings are provided with sewing portions for sewing with the umbrella cloth. 10
40. A joint for a sheltering product, for rotatably connecting a first rod and a second rod, comprising a body and a metal reinforcement sheet connected to the body, the first rod and the body are connected through a first pivot, and the second rod and the body are connected through a second pivot; the metal reinforcement sheet has at least two end portions, one of which is provided with a first pivot hole for the first pivot to pass through, and another one of which is provided with a second pivot hole for the second pivot to pass through. 15 20 25
41. The frame as in claim 40, is **characterized in that**, the body is connected to a third rod through a fastener, the metal reinforcement sheet includes a third end portion, the third end portion is opened with a connecting hole for the fastener to pass through. 30 35
42. The frame as in claim 41, is **characterized in that**, centers of the first pivot hole, the second pivot hole and the connecting hole are not on the same straight line. 40
43. The frame as in claim 42, is **characterized in that**, the metal reinforcement sheet is L-shaped as a whole. 45
44. The frame as in claim 42, is **characterized in that**, when the sheltering product is unfolded, central lines of the first rod and the third rod coincide with or are parallel to each other, the first pivot hole is located above the central line of the first rod, and the second pivot hole is located below the central line of the first rod. 50
45. The frame as in any one of claims 40 to 45, is **characterized in that**, the body has a pipe plug, the pipe plug is inserted into an outer end portion of the first top rod and fixed to the first top rod through a fastener. 55
46. The frame as in any one of claims 40 to 45, is **characterized in that**, the joint has an accommodating groove, and an end portion of the extension rod is accommodated in the accommodating groove when the frame is unfolded, and an upper portion of the accommodating groove is open to allow the extension rod to rotate upwardly.
47. A joint for a sheltering product, for rotatably connecting at least two rods, comprising a body and a metal reinforcement sheet connected to the body, one of the at least two rods is connected to the body through a fastener, another one of the at least two rods is connected to the body through a pivot; the metal reinforcement sheet has at least two end portions, one of which is provided with a connecting hole for the fastener to pass through, and another one of which is provided with a pivot hole for the pivot to pass through.
48. A beach umbrella comprising an umbrella frame and a cloth cover, is **characterized in that**, the umbrella frame is the frame as in any one of claims 1 to 39 or including the joint as in any one of claims 10 to 47.
49. The beach umbrella as in claim 48, is **characterized in that**, the cloth cover is connected to the umbrella frame through one or more connecting sheets.
50. The beach umbrella as in claim 49, is **characterized in that**, the umbrella cloth includes a top cloth and an enclosing cloth suspended downwards from an outer edge of the top frame units, wherein the top cloth and the wing are connected by sewing, the enclosing cloth is provided with a connecting piece, the connecting piece comprises a connecting pin, a side wall of the connecting pin has a recessed portion, the connecting pin enters into the guide groove portion and the connecting pin is clamped on the wing.

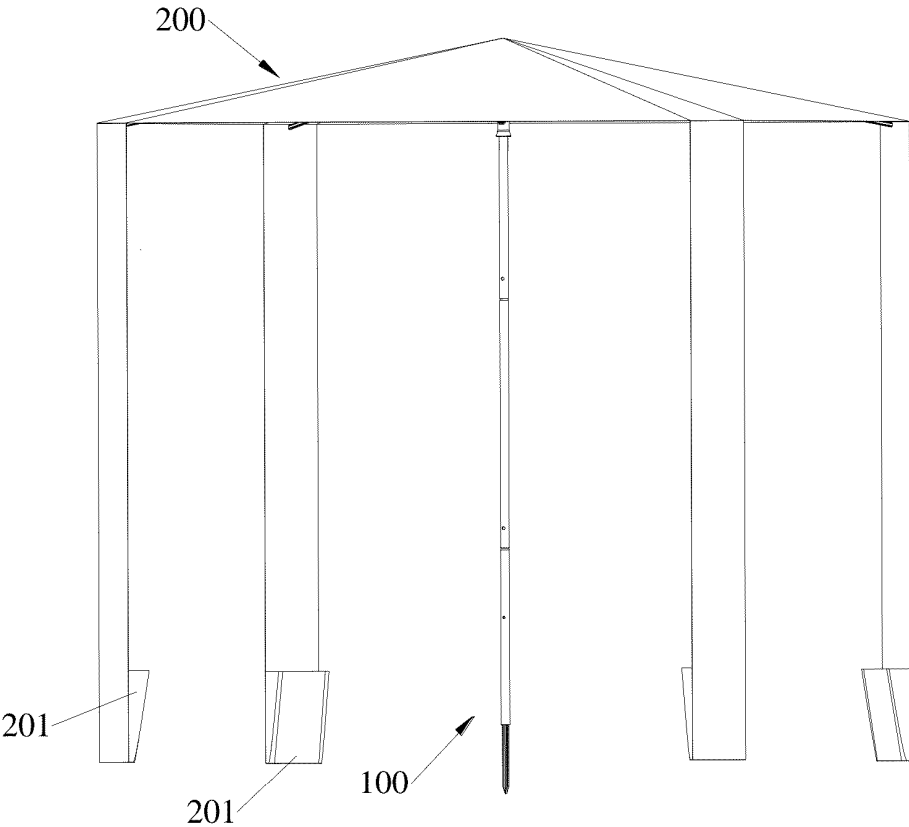


Fig. 1

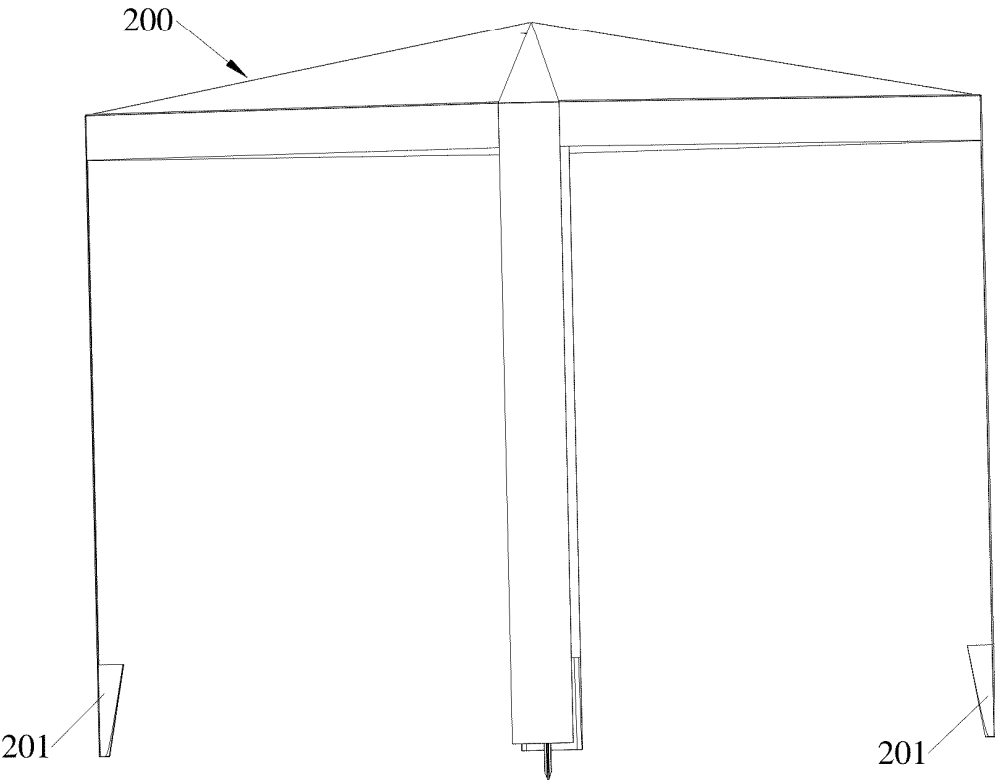


Fig. 2

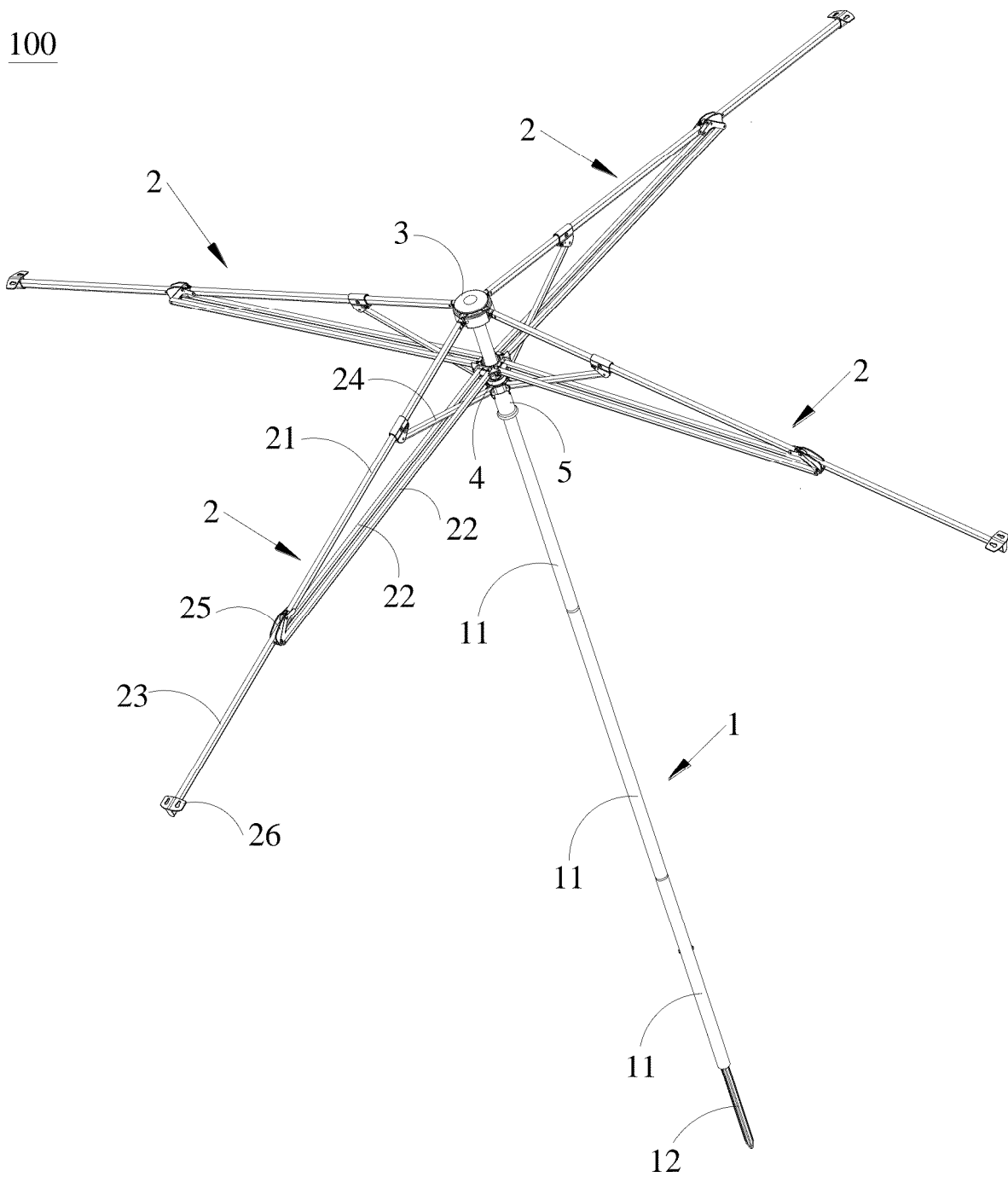


Fig. 3

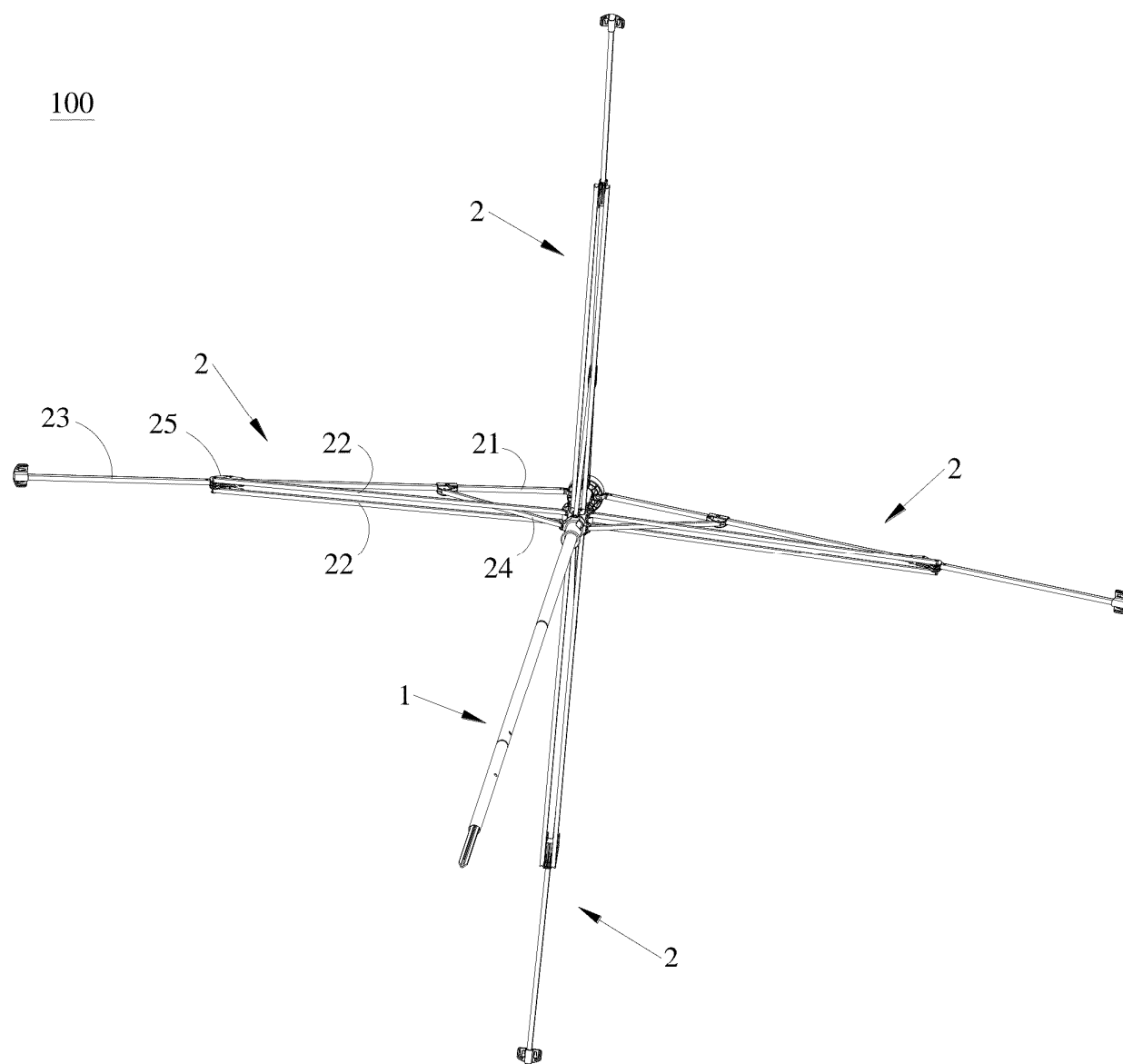


Fig. 4

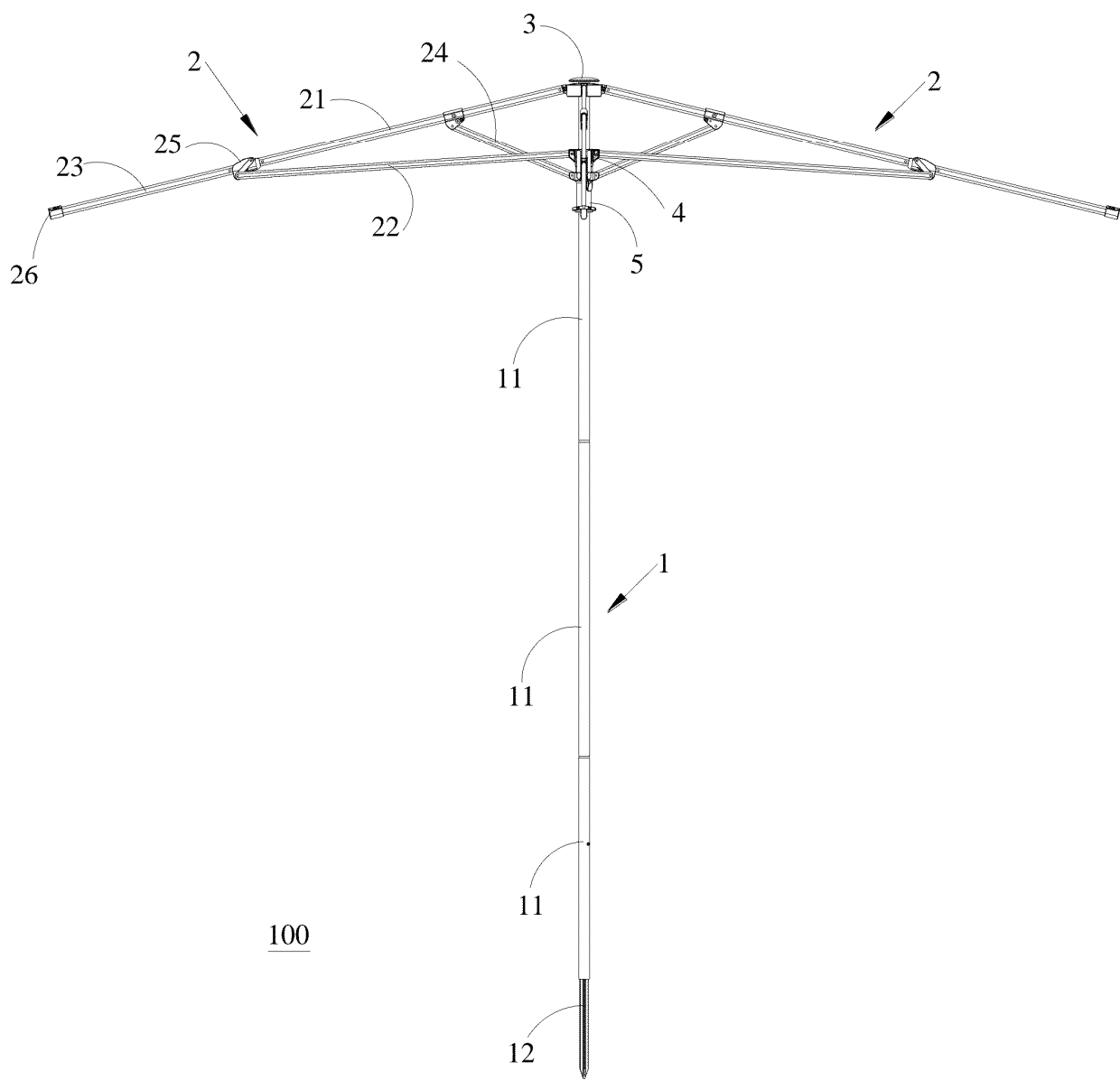


Fig. 5

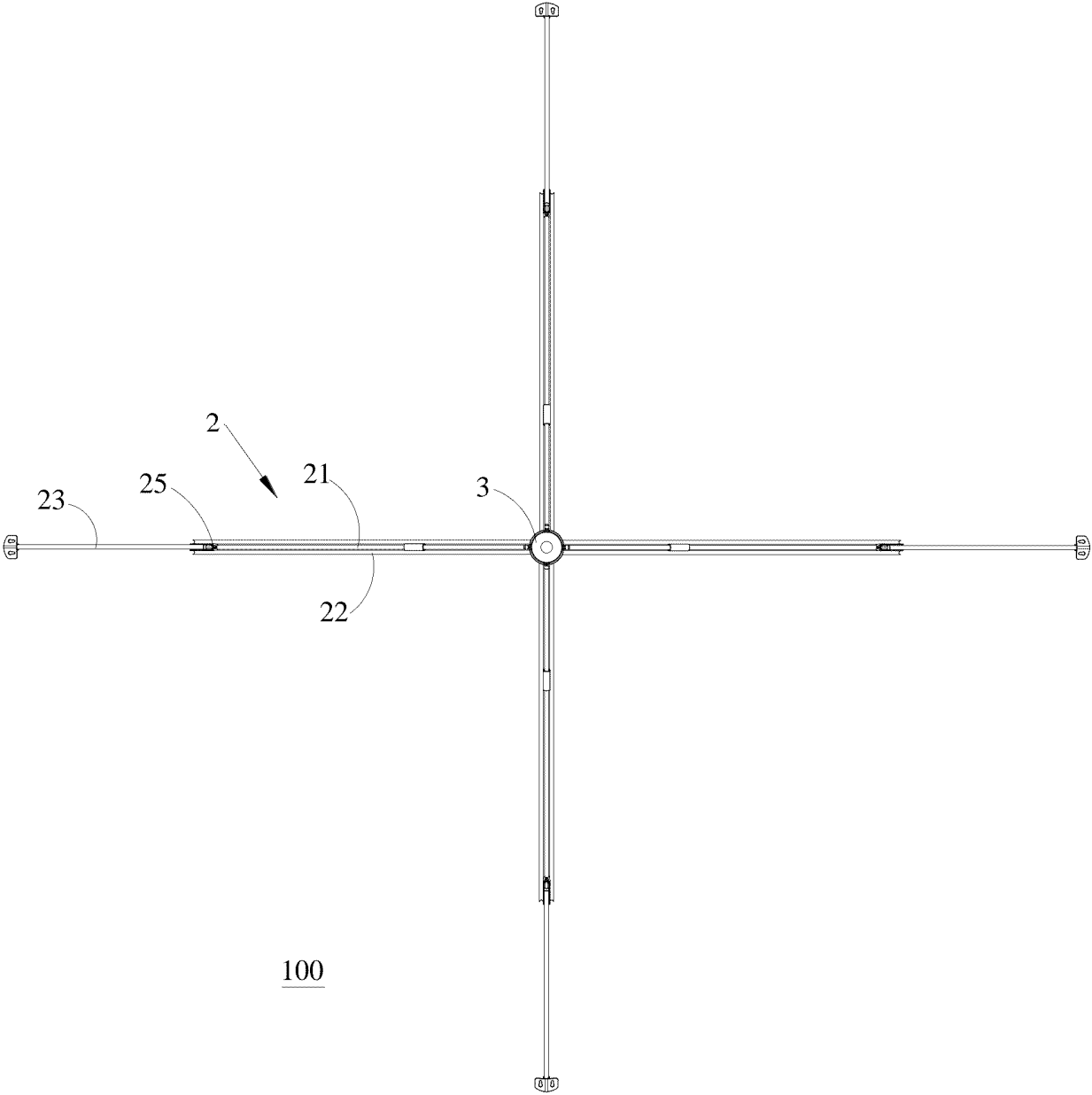


Fig. 6

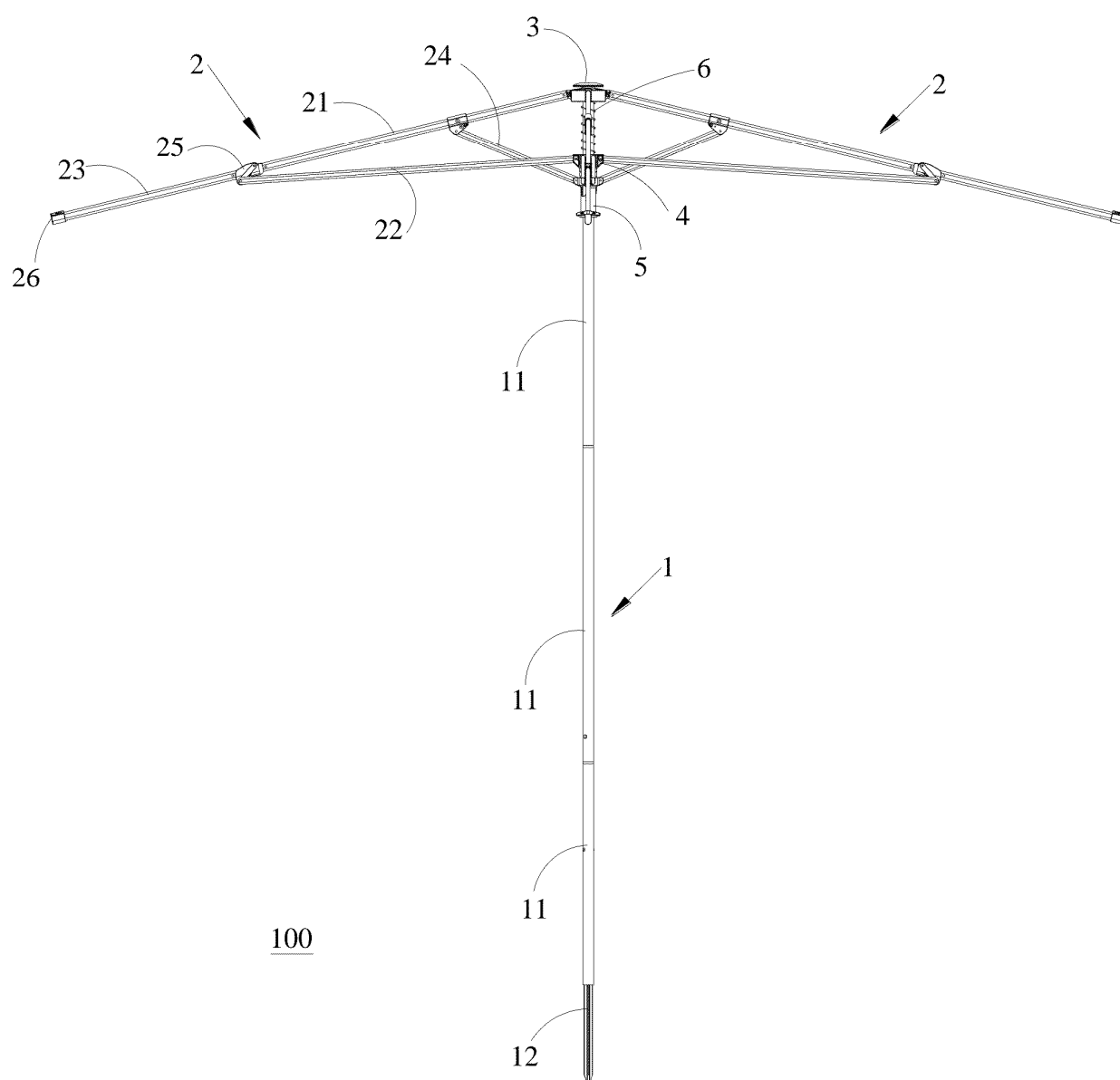


Fig. 7

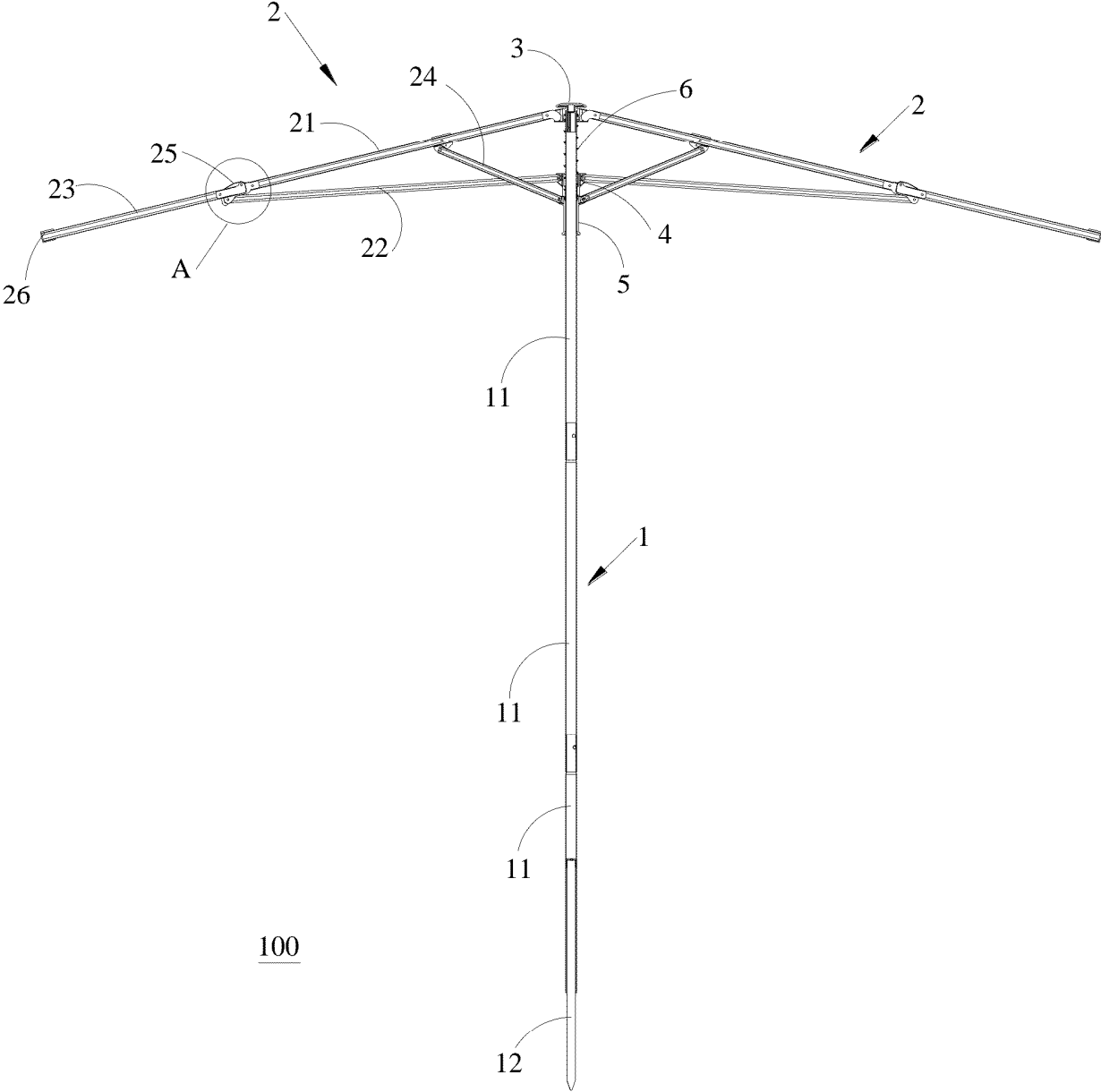


Fig. 8

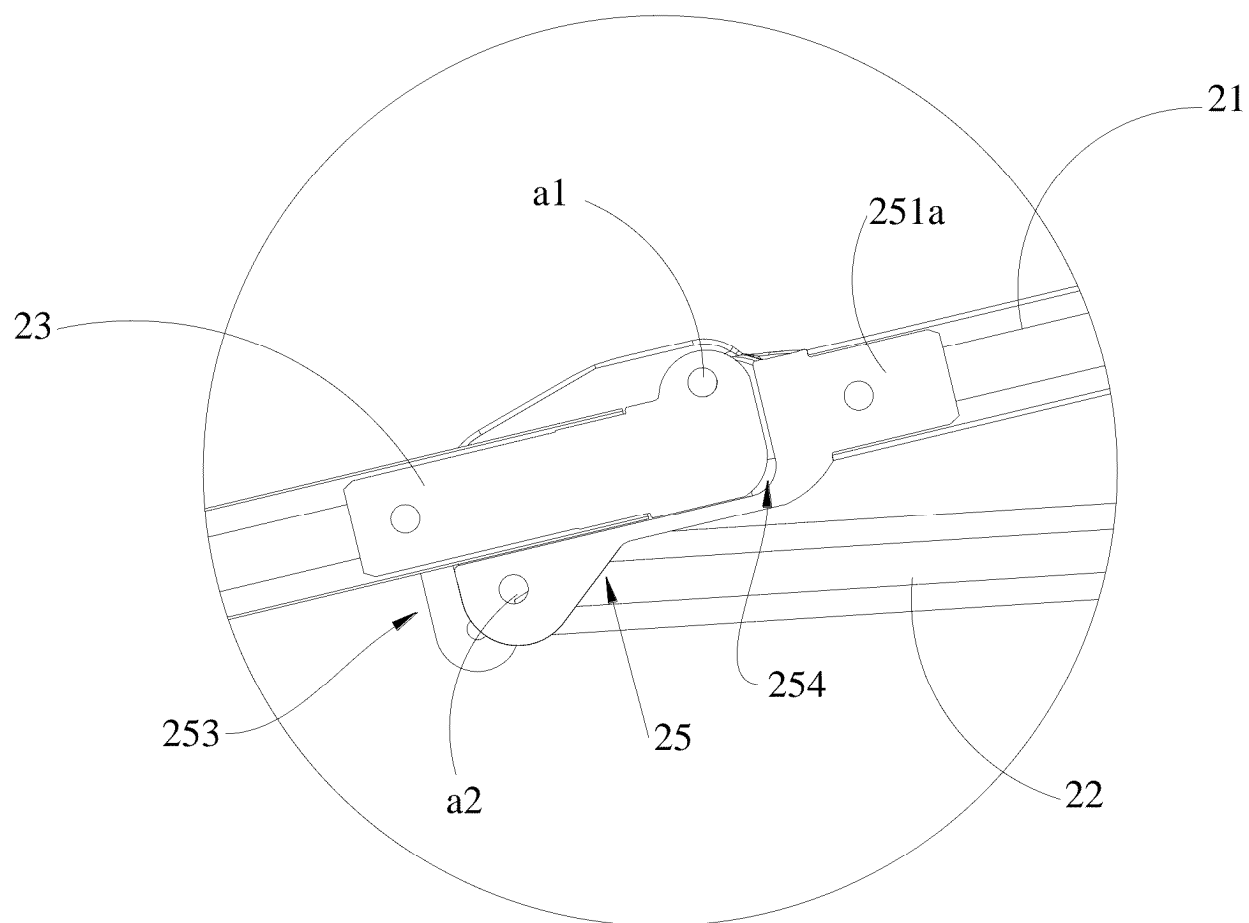


Fig. 9

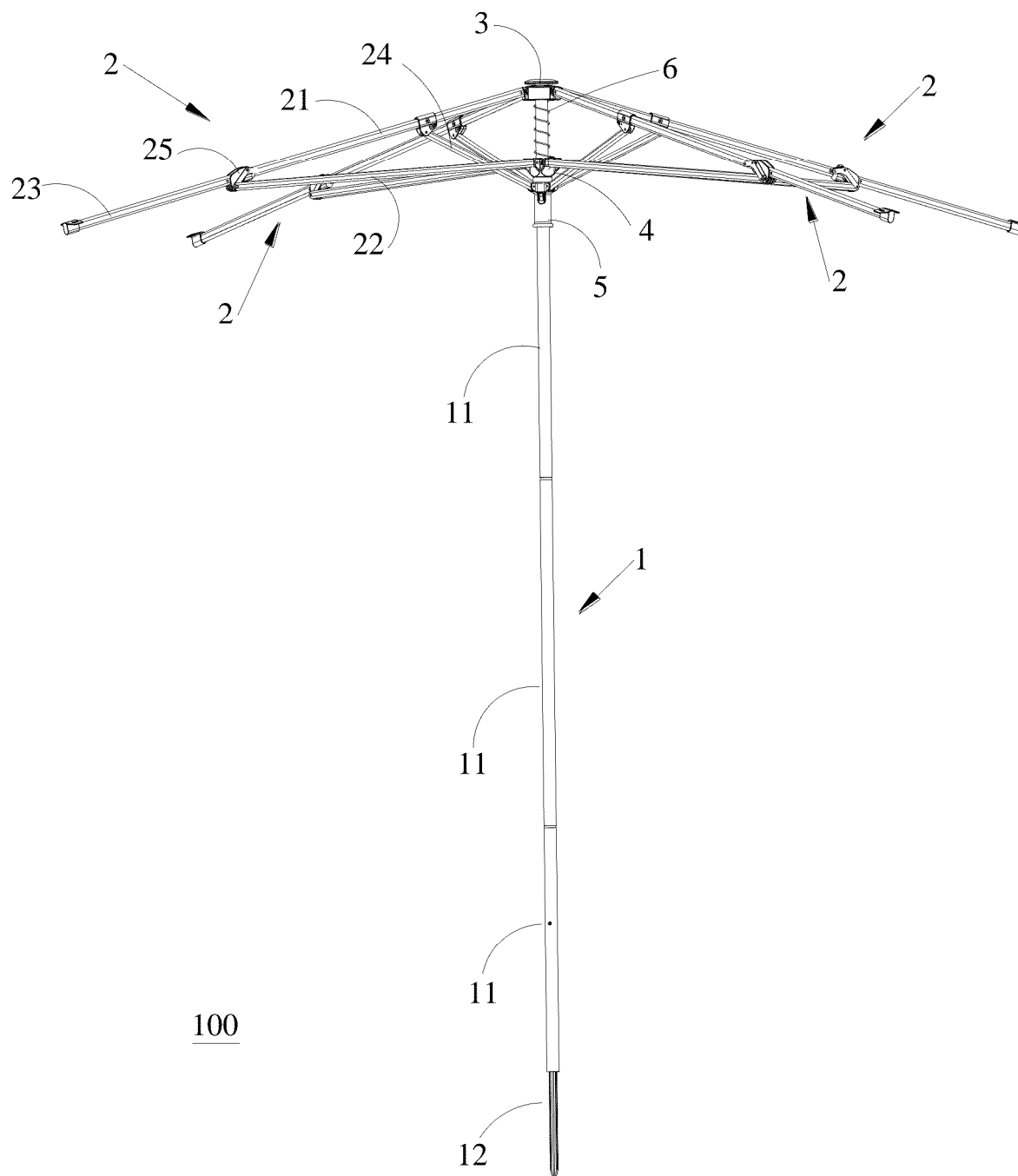
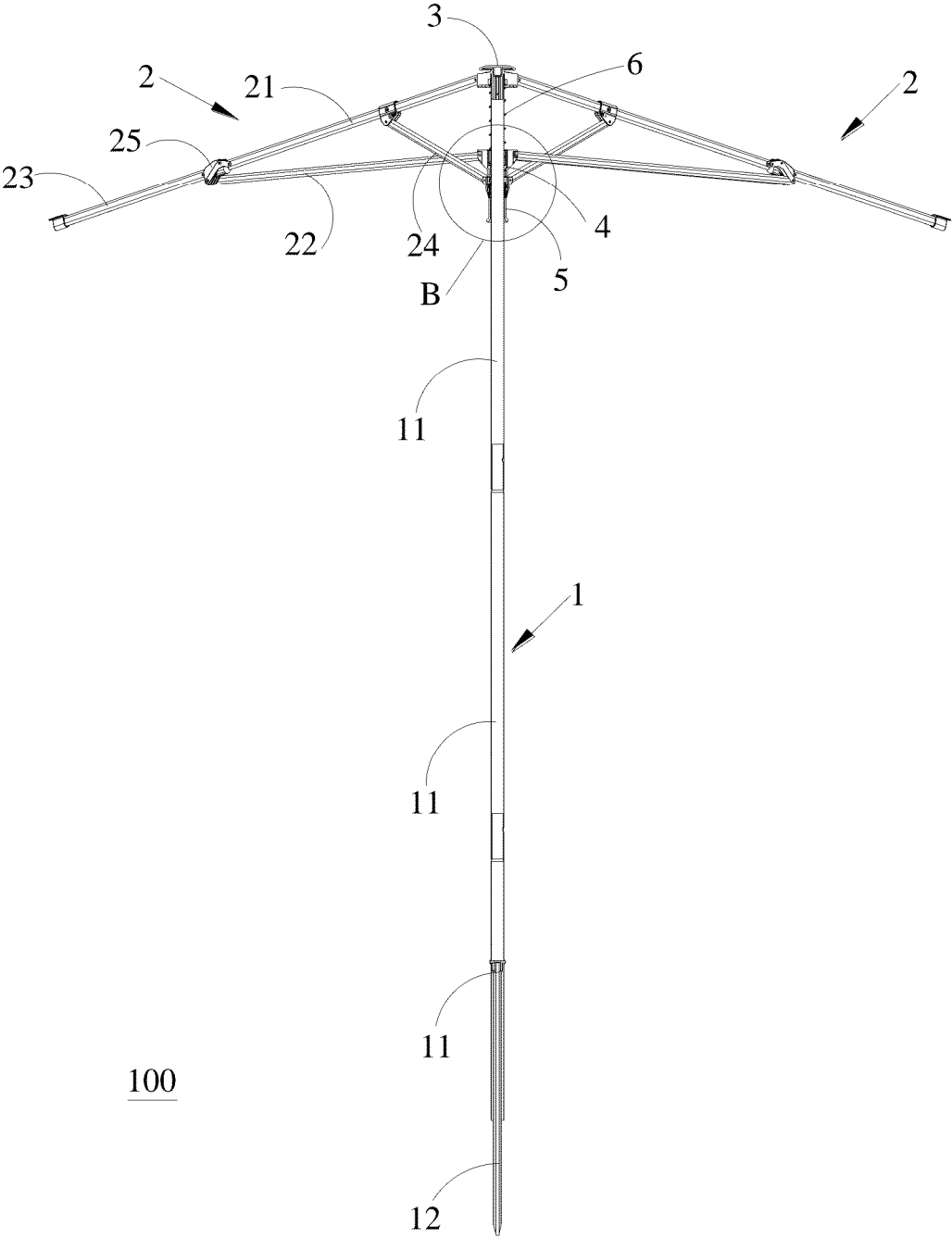


Fig. 10



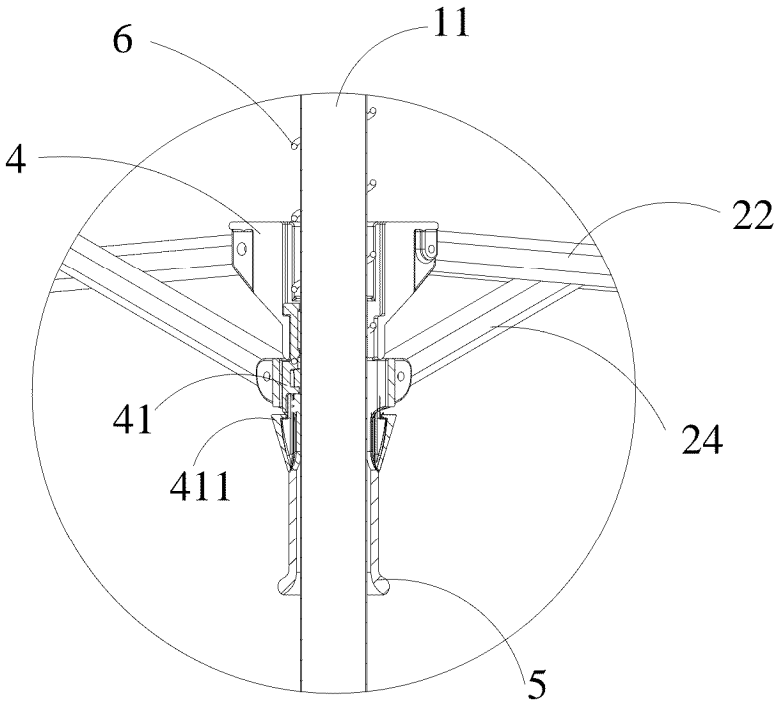


Fig. 12

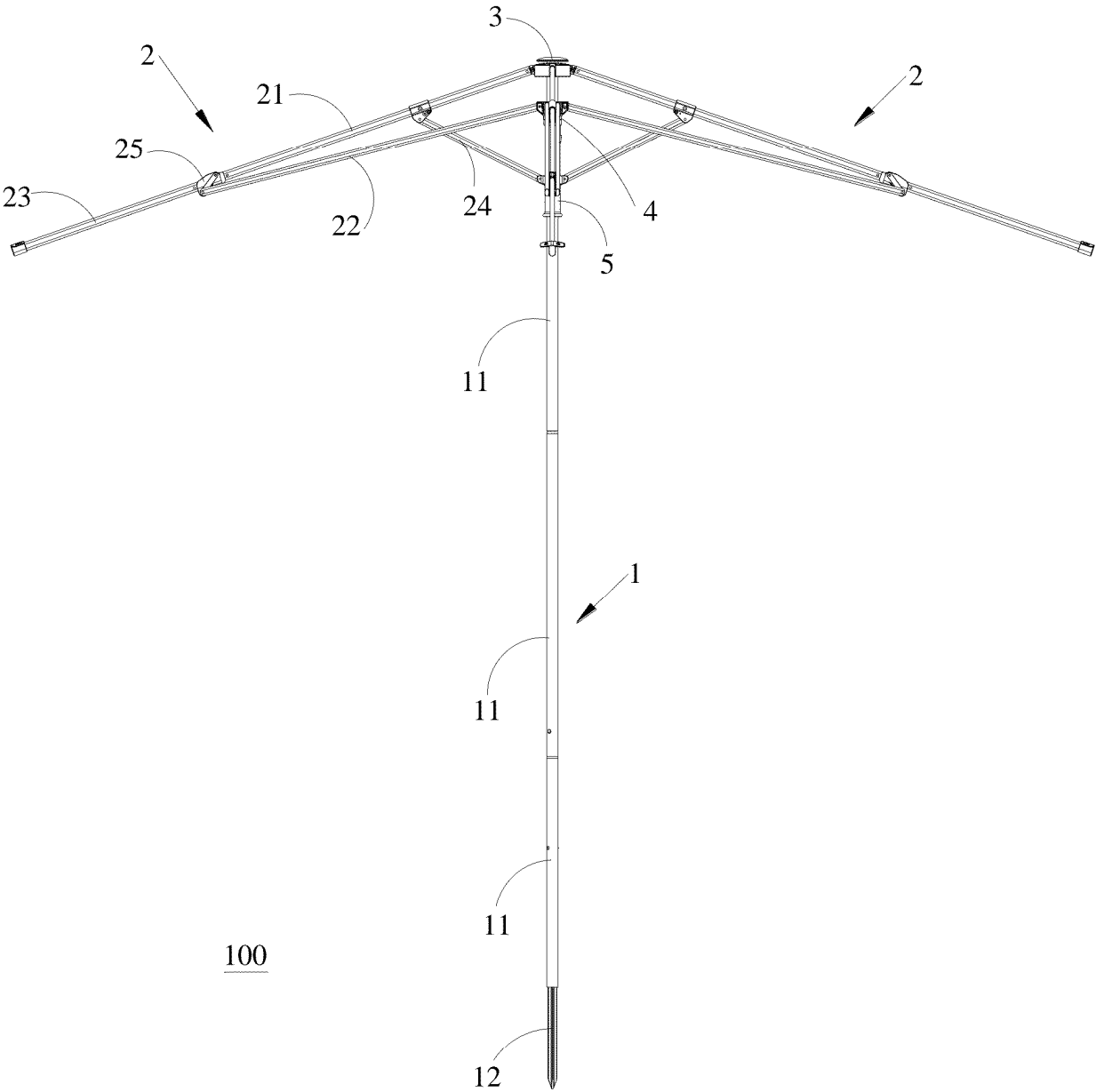


Fig. 13

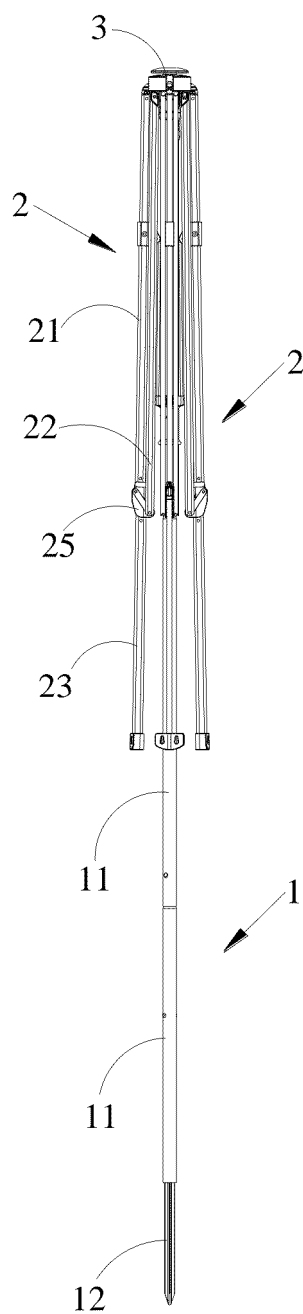


Fig. 14

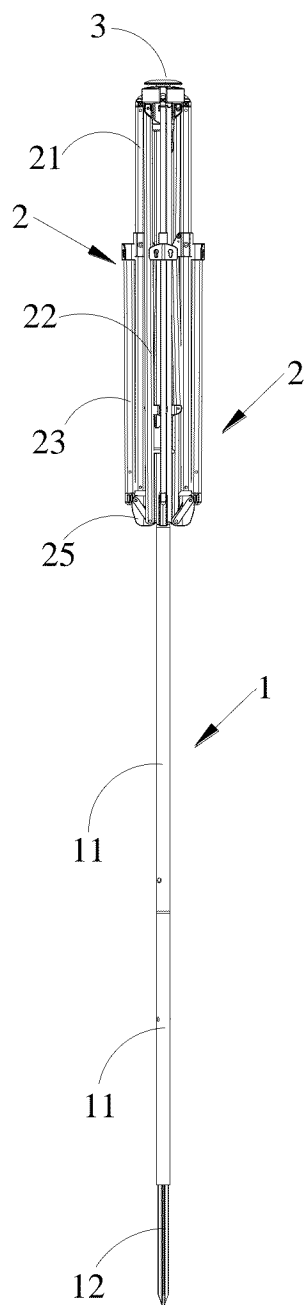


Fig. 15

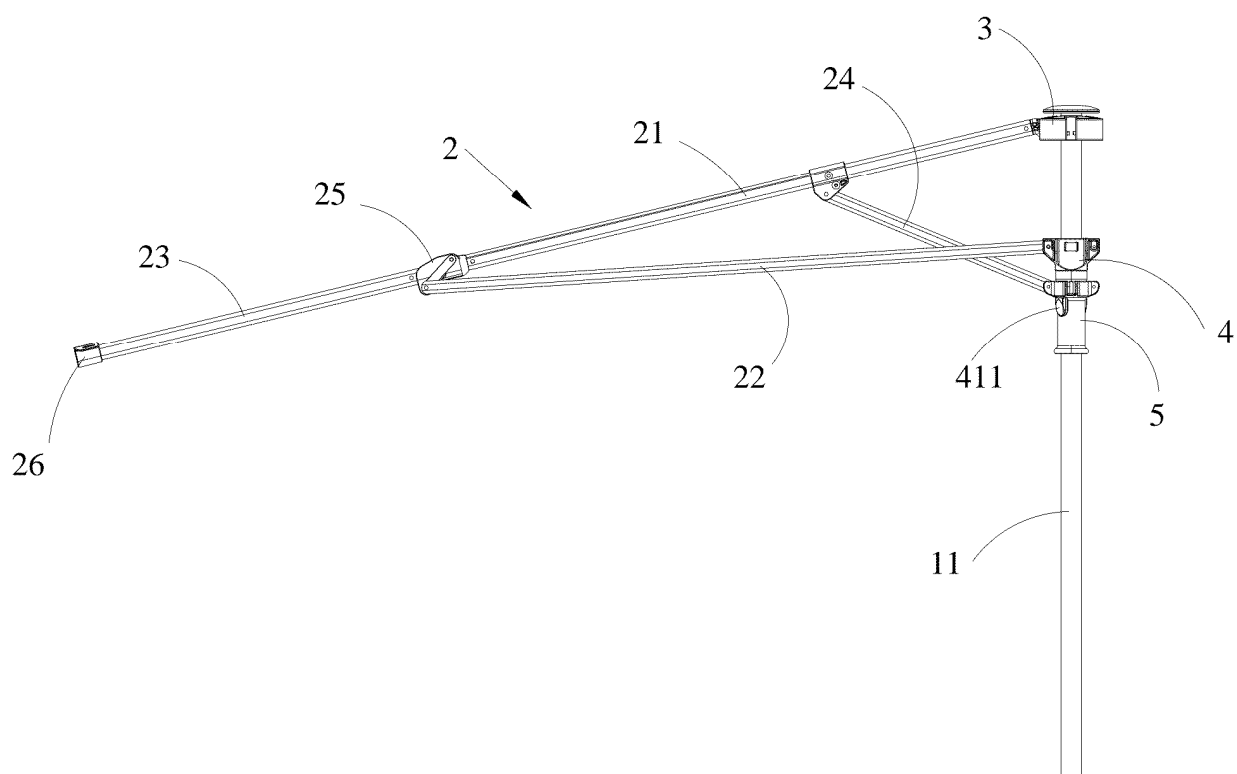


Fig. 16

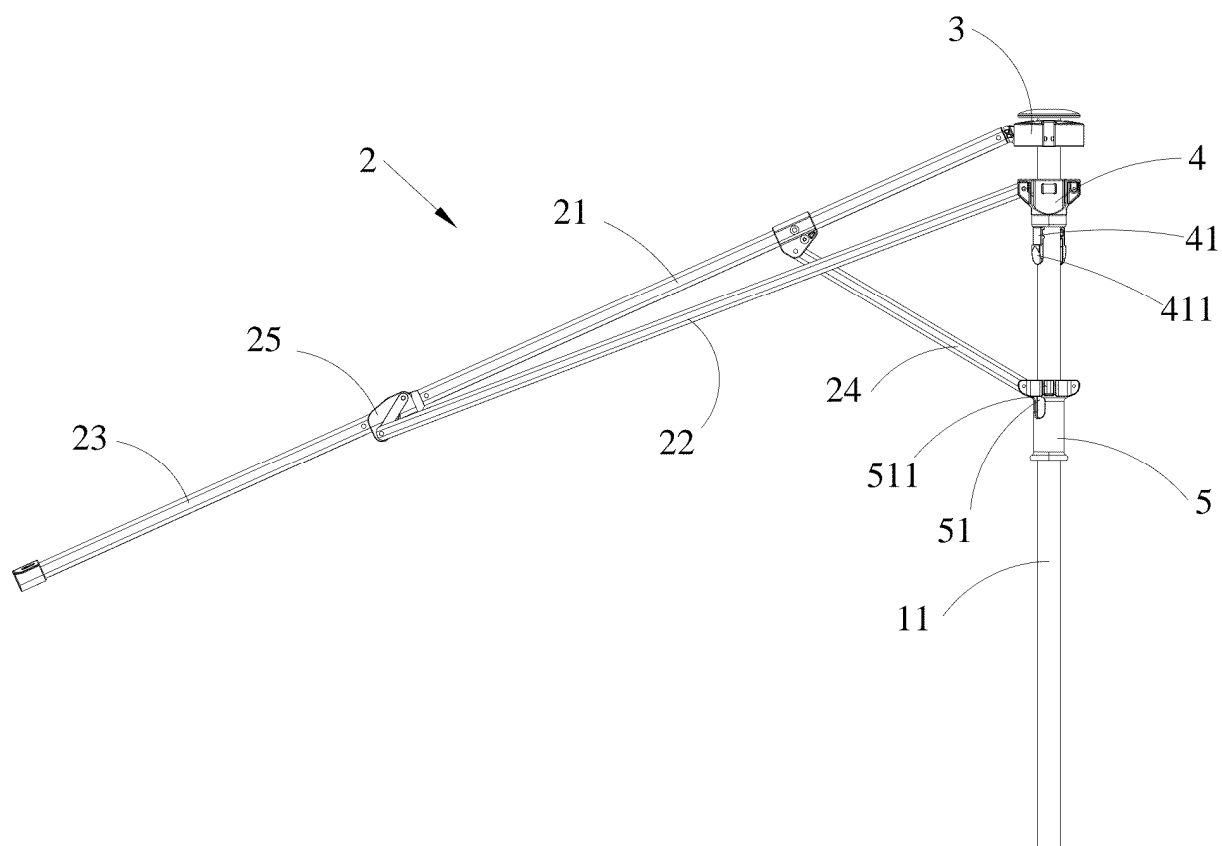


Fig. 17

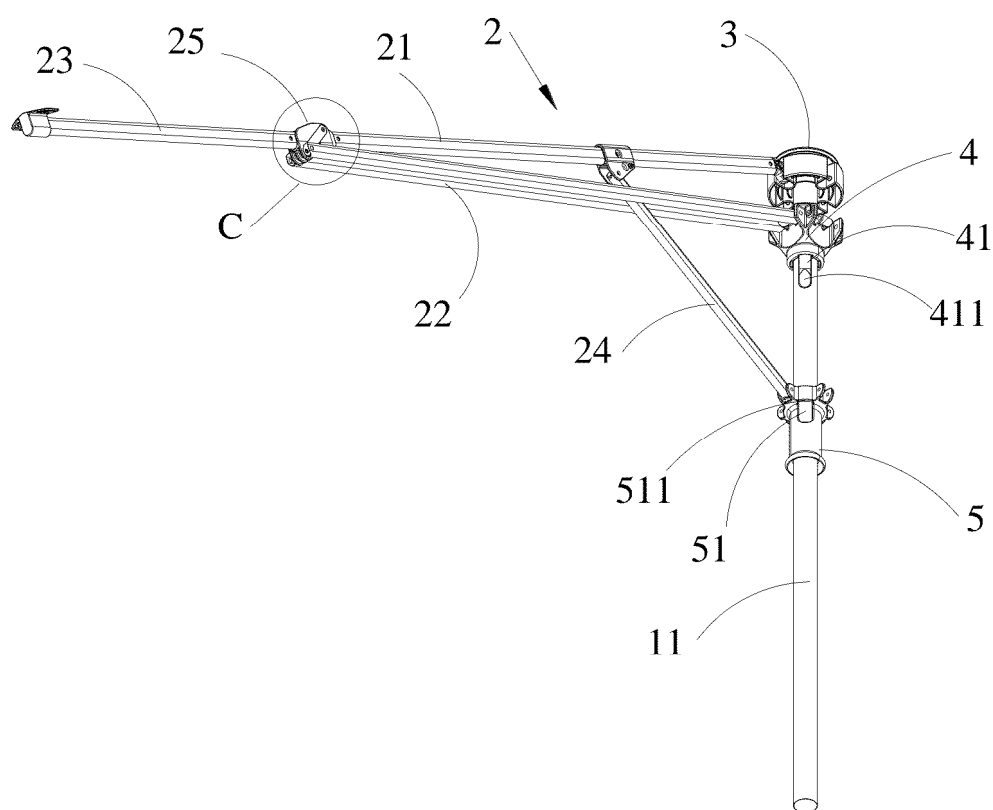


Fig. 18

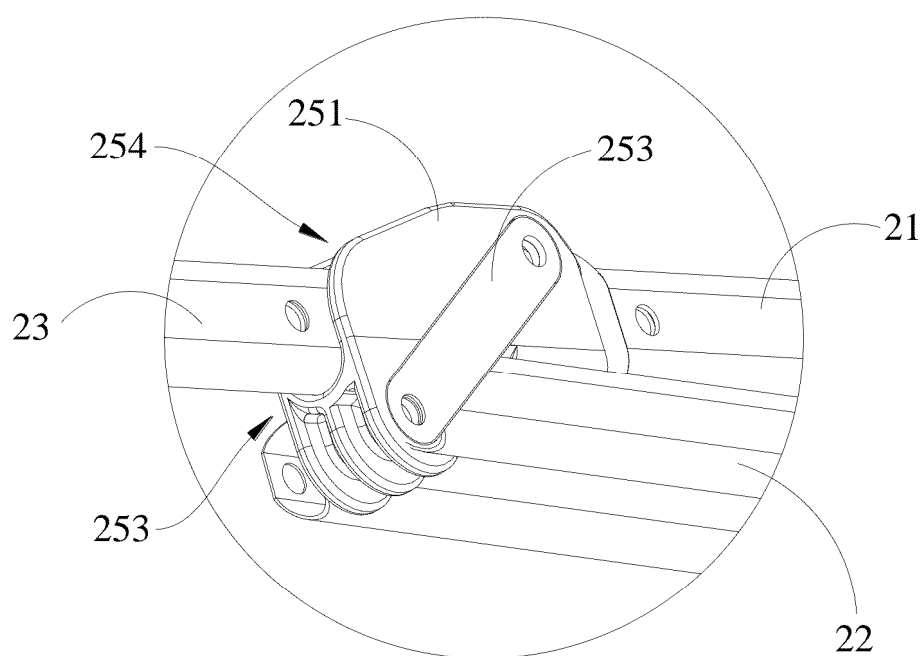


Fig. 19

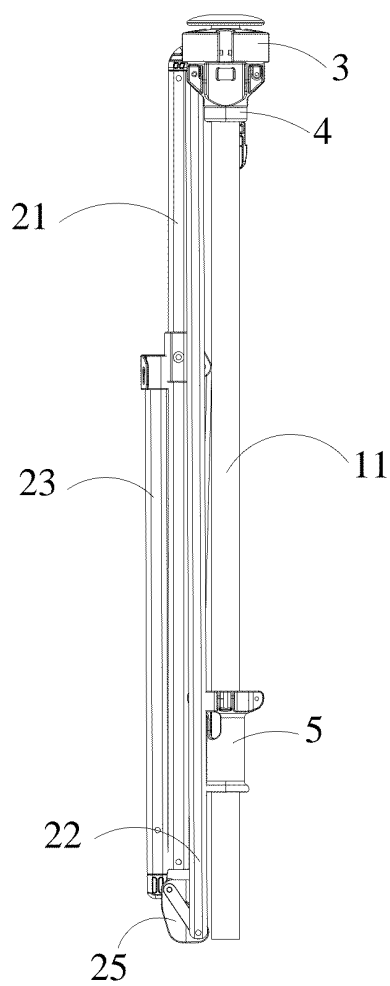


Fig. 20

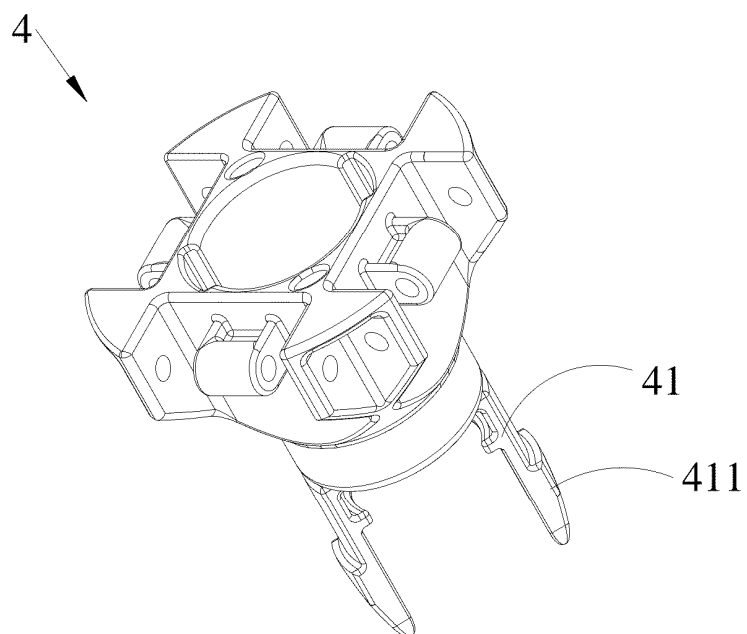


Fig. 21

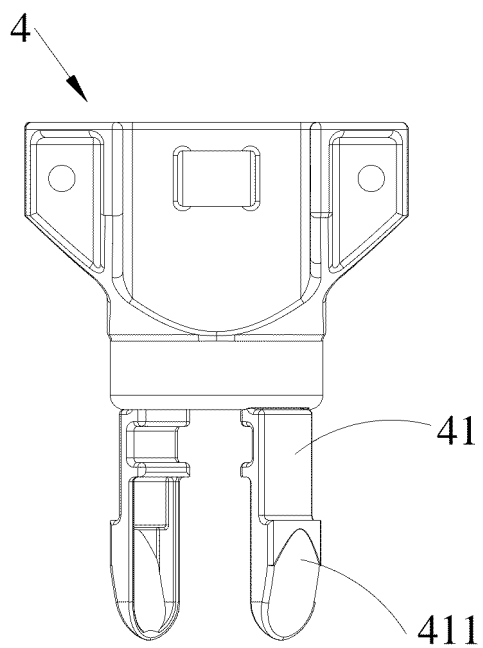


Fig. 22

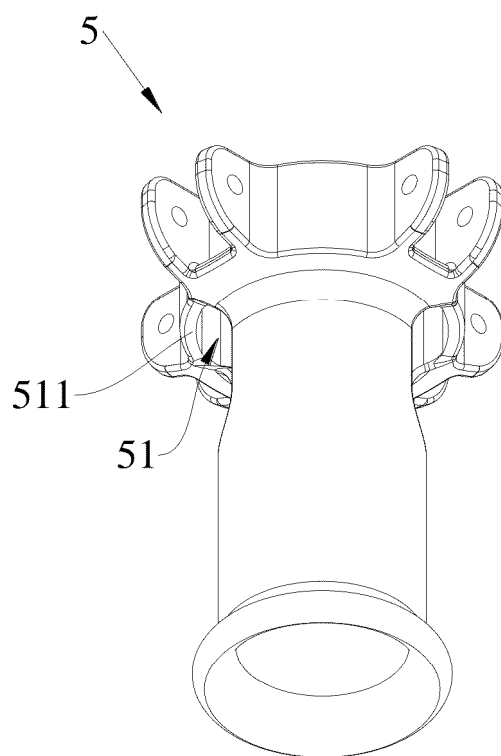


Fig. 23

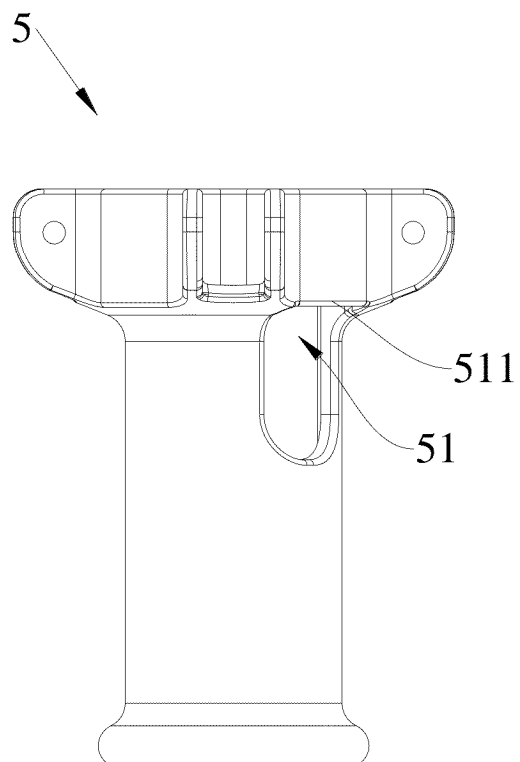


Fig. 24

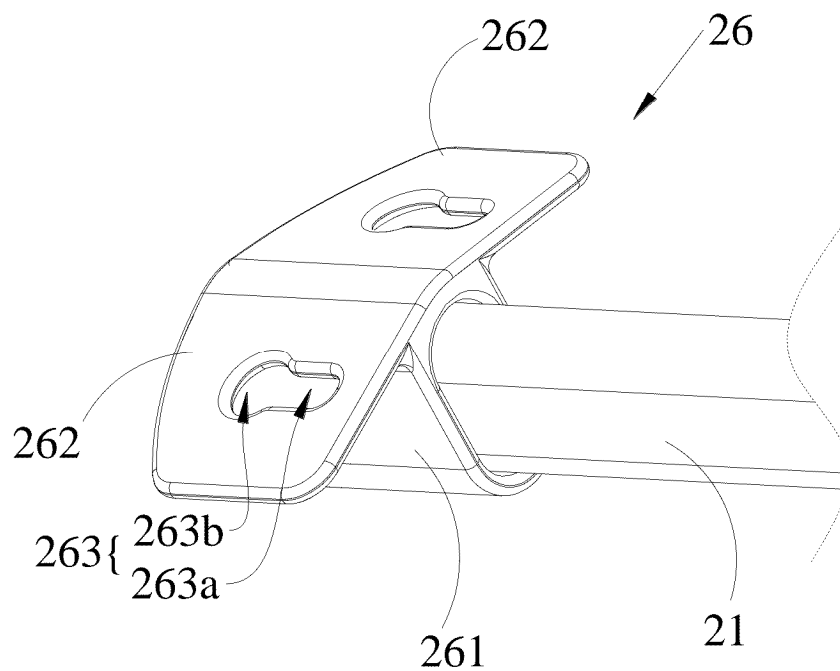


Fig. 25

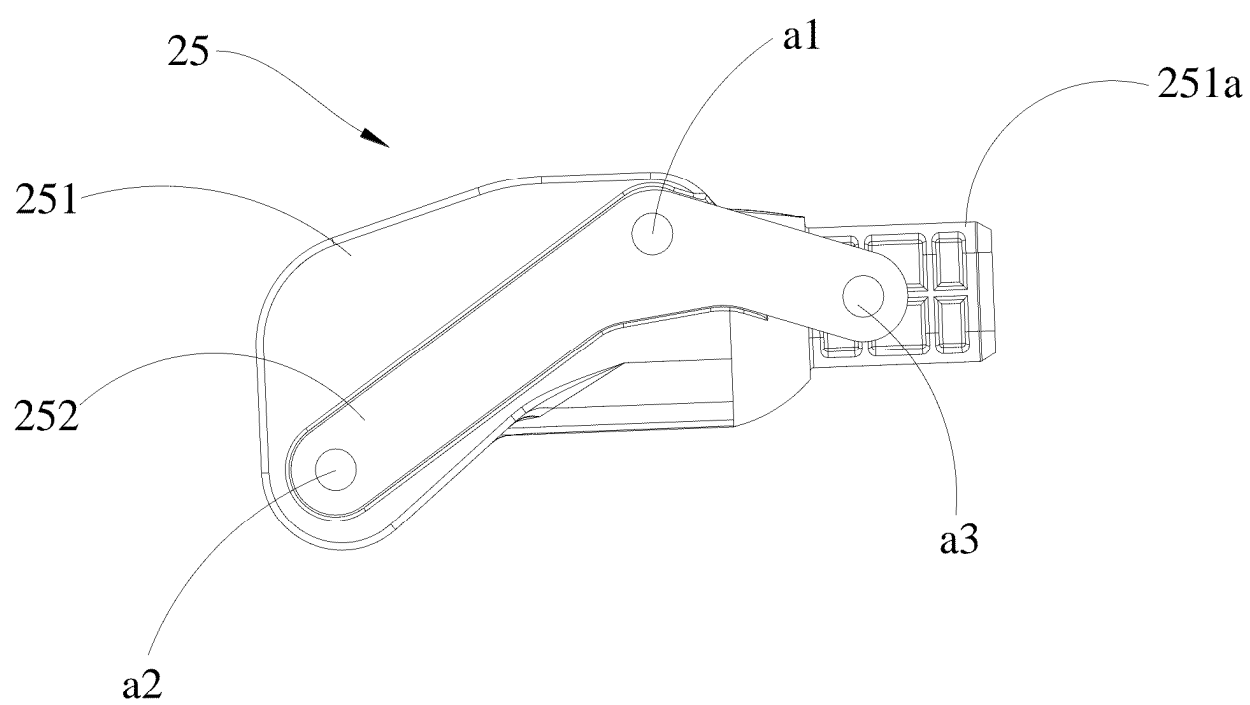


Fig. 26

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2024/089693

A. CLASSIFICATION OF SUBJECT MATTER

A45B 25/00(2006.01)i; A45B 25/06(2006.01)i; A45B 25/02(2006.01)i; A45B 25/18(2006.01)i; A45B 23/00(2006.01)i

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)

IPC: A45B

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)

CNABS: CNTXT; CNKI; VEN; USTXT; WOTXT; GBTXT; JPTXT; EPTXT; ENTXTC; Web of Science: 伞, 杆, 肋, 骨, 翻转, 旋转, 转动, 关节, 加强, 弹簧, 滑动, 锁, 布, 帘, 挂, 孔, umbrella, rod, rotate, joint, reinforce, spring, slide, slip, lock, cloth, hang, hole

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 117064148 A (WEIZI E-COMMERCE (SHANGHAI) CO., LTD.) 17 November 2023 (2023-11-17) description, paragraphs [0003]-[0102], and figures 1-26	1-50
PX	CN 220587663 U (WEIZI E-COMMERCE (SHANGHAI) CO., LTD.) 15 March 2024 (2024-03-15) description, paragraphs [0003]-[0073], and figures 1-26	1-50
PX	CN 220423324 U (WEIZI E-COMMERCE (SHANGHAI) CO., LTD.) 02 February 2024 (2024-02-02) description, paragraphs [0003]-[0075], and figures 1-26	1-50
PX	CN 220587666 U (WEIZI E-COMMERCE (SHANGHAI) CO., LTD.) 15 March 2024 (2024-03-15) description, paragraphs [0003]-[0070], and figures 1-26	1-50
PX	CN 220423323 U (WEIZI E-COMMERCE (SHANGHAI) CO., LTD.) 02 February 2024 (2024-02-02) description, paragraphs [0003]-[0078], and figures 1-26	1-50

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"D" document cited by the applicant in the international application	"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
"E" earlier application or patent but published on or after the international filing date	"&" document member of the same patent family
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

21 July 2024

Date of mailing of the international search report

02 August 2024

Name and mailing address of the ISA/CN

China National Intellectual Property Administration (ISA/
CN)
China No. 6, Xitucheng Road, Jimenqiao, Haidian District,
Beijing 100088

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2024/089693

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 220587665 U (WEIZI E-COMMERCE (SHANGHAI) CO., LTD.) 15 March 2024 (2024-03-15) description, paragraphs [0003]-[0076], and figures 1-26	1-50
PX	CN 220587664 U (WEIZI E-COMMERCE (SHANGHAI) CO., LTD.) 15 March 2024 (2024-03-15) description, paragraphs [0003]-[0102], and figures 1-26	1-50
X	CN 1531887 A (CHEN, Fengchun) 29 September 2004 (2004-09-29) description, page 4, line 8 to page 6, line 35, and figures 1-16	1-9, 13-15, 40-48
Y	CN 1531887 A (CHEN, Fengchun) 29 September 2004 (2004-09-29) description, page 4, line 8 to page 6, line 35, and figures 1-16	10-12, 16-18, 48-50
X	CN 205813809 U (TANG, Zilin) 21 December 2016 (2016-12-21) description, paragraphs [0022]-[0029], and figures 1-3	19-26, 48
Y	CN 205813809 U (TANG, Zilin) 21 December 2016 (2016-12-21) description, paragraphs [0022]-[0029], and figures 1-3	10-12, 16-18, 28, 29, 32, 48-50
X	CN 110448022 A (GUIDONG HONGTAIXING OUTDOOR PRODUCT CO., LTD.) 15 November 2019 (2019-11-15) description, paragraphs [0018]-[0030], and figures 1-11	27, 30, 31, 48
Y	CN 110448022 A (GUIDONG HONGTAIXING OUTDOOR PRODUCT CO., LTD.) 15 November 2019 (2019-11-15) description, paragraphs [0018]-[0030], and figures 1-11	12, 28, 29, 32, 48-50
X	US 2015013736 A1 (PRO PERFORMANCE SPORTS, LLC) 15 January 2015 (2015-01-15) description, paragraphs [0015]-[0029], and figures 1-11	33-39, 48-50
Y	US 2015013736 A1 (PRO PERFORMANCE SPORTS, LLC) 15 January 2015 (2015-01-15) description, paragraphs [0015]-[0029], and figures 1-11	49, 50
X	CN 203182191 U (SUSINO (JINJIANG) UMBRELLA CO., LTD.) 11 September 2013 (2013-09-11) description, paragraphs [0003]-[0026], and figures 1-7	1-6, 48
X	CN 217487852 U (JINMANCHANG INDUSTRIAL (HEYUAN) CO., LTD.) 27 September 2022 (2022-09-27) description, paragraphs [0008]-[0039], and figures 1-8	13-18, 48
X	CN 2484789 Y (YOU, Qingquan) 10 April 2002 (2002-04-10) description, page 1, line 12 to page 3, line 32, and figures 1-4	27, 48
X	CN 203692731 U (FUJIAN YUSIMENG UMBRELLA INDUSTRIAL CO., LTD.) 09 July 2014 (2014-07-09) description, paragraphs [0003]-[0017], and figures 1-3	30, 31, 48
X	CN 216416285 U (JINJIANG JIATAIXIN UMBRELLA INDUSTRY MANUFACTURING LIMITED COMPANY) 03 May 2022 (2022-05-03) description, paragraphs [0003]-[0027], and figures 1-4	33-39, 48-50
A	CN 206699609 U (HUIZHOU TOPUMBRELLA CO., LTD.) 05 December 2017 (2017-12-05) entire document	1-50
A	CN 203974902 U (ANHUI BAIJIAI CHILDREN'S PRODUCT CO., LTD.) 03 December 2014 (2014-12-03) entire document	1-50
A	CN 217242959 U (ZHEJIANG TIANWEI RAIN GEAR CO., LTD.) 23 August 2022 (2022-08-23) entire document	1-50
A	CN 209750059 U (LI, Xingwen) 10 December 2019 (2019-12-10) entire document	1-50

Form PCT/ISA/210 (second sheet) (July 2022)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2024/089693

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 2719078 Y (CHEN, Guangyong) 24 August 2005 (2005-08-24) entire document	1-50
A	CN 2473957 Y (FU TAI UMBRELLA WORKS LTD.) 30 January 2002 (2002-01-30) entire document	1-50

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2024/089693

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The claims relate to four inventions, specifically as follows:

1. independent claims 1, 13, 19, 27, 30 and 33 relate to a support for shielding a product;
2. independent claims 40 and 47 relate to a joint for shielding a product;
3. independent claim 48, when referring to claims 1, 13, 19, 27, 30 and 33, relates to a beach umbrella; and
4. independent claim 48, when referring to claims 40 and 47, relates to a beach umbrella.

Inventions 1 and 3 respectively relate to a support for shielding a product, and a beach umbrella comprising the support, which belong to an inventive concept; and inventions 2 and 4 respectively relate to a joint for shielding a product, and a beach umbrella comprising the joint, which belong to an inventive concept.

The same or corresponding technical feature between inventions 1 and 3 and invention 2 and between invention 1 and invention 4 merely lies in "being used for shielding a product", and the same or corresponding technical features between invention 3 and invention 4 merely lie in "a beach umbrella, which comprises an umbrella frame and a cloth cover, and is used for shielding a product". The above same or corresponding technical features are all common general knowledge in the art, and therefore inventions 1 and 3 and inventions 2 and 4 do not have a same or corresponding special technical feature that defines a contribution which the inventions make over the prior art, do not have a technical relationship therebetween, do not belong to a single general inventive concept, and thus do not comply with the requirement of unity of invention and do not comply with PCT Rule 13.1.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

- Remark on Protest**
- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
 - ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
 - ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2024/089693

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Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 117064148 A	17 November 2023	None	
CN 220587663 U	15 March 2024	None	
CN 220423324 U	02 February 2024	None	
CN 220587666 U	15 March 2024	None	
CN 220423323 U	02 February 2024	None	
CN 220587665 U	15 March 2024	None	
CN 220587664 U	15 March 2024	None	
CN 1531887 A	29 September 2004	CN 1219477 C	21 September 2005
CN 205813809 U	21 December 2016	None	
CN 110448022 A	15 November 2019	None	
US 2015013736 A1	15 January 2015	US 8991412 B2	31 March 2015
CN 203182191 U	11 September 2013	None	
CN 217487852 U	27 September 2022	None	
CN 2484789 Y	10 April 2002	None	
CN 203692731 U	09 July 2014	None	
CN 216416285 U	03 May 2022	None	
CN 206699609 U	05 December 2017	None	
CN 203974902 U	03 December 2014	None	
CN 217242959 U	23 August 2022	None	
CN 209750059 U	10 December 2019	None	
CN 2719078 Y	24 August 2005	None	
CN 2473957 Y	30 January 2002	None	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 2023109965536 [0001]
- CN 2023221245022 [0001]
- CN 2023221248618 [0001]
- CN 202322124875X [0001]
- CN 2023221299639 [0001]
- CN 202322124522X [0001]