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(54) **ELECTRIC STRAIGHT ROD UMBRELLA CAPABLE OF BEING OPENED AND CLOSED WITHOUT SHORT UMBRELLA RIBS**

(57) The present invention discloses an electric straight rod umbrella capable of being opened and closed without short umbrella ribs, including an umbrella column and umbrella ribs, where a driving mechanism is arranged in an inner cavity of the umbrella column, the top end of the umbrella column is provided with an opening, the top end of the umbrella column is provided with an outer umbrella disk, the driving mechanism includes a push rod capable of moving up and down and an inner umbrella disk arranged at the top end of the push rod, tail ends of the umbrella ribs are articulated with the inner

umbrella disk, the umbrella ribs are provided with assembly holes, the umbrella ribs are articulated with the outer umbrella disk through locking screws matched with the assembly holes, and the push rod can move up and down to unfold or fold the umbrella ribs. In the present application, a push rod of a motor is used for driving, so that the operation is convenient. Moreover, through the cooperation of an outer umbrella disk, a push rod, an inner umbrella disk and a pull rod, a sunshade umbrella can be opened stably. Umbrella ribs are more stable when the umbrella is opened and closed.

Description

Technical Field

[0001] The present invention belongs to the technical field of outdoor sunshade umbrellas, and specifically relates to an electric straight rod umbrella capable of being opened and closed without short umbrella ribs.

Background

[0002] Outdoor sunshade umbrellas are generally large in size, and their umbrella rib structures generally include long umbrella ribs and short umbrella ribs for supporting. Umbrella ribs have multiple structures, which is complicated in assembly, and short umbrella ribs are prone to damage during actual use. Therefore, short umbrella ribs are not used in some products, and long umbrella ribs are connected to a pull rod directly. However, this connection method also has the problem of shaking of the sunshade umbrella during the opening and closing processes.

[0003] In addition, at present, sunshade umbrellas are developing towards intelligence. Specifically, the umbrella can be opened automatically, and the opening and closing processes are labor-saving and convenient. During use, it is found that the driving thrust of a pneumatic rod of the sunshade umbrella capable of being opened and closed automatically is unstable, and the sunshade umbrella is prone to shaking during the opening and closing processes.

Summary

[0004] In order to compensate for the shortcomings of the prior art, the present invention provides a technical solution of an electric straight rod umbrella capable of being opened and closed without short umbrella ribs, which can ensure that a sunshade umbrella can be opened and closed conveniently and stably, and the umbrella will not shake or sway during the opening process.

[0005] The electric straight rod umbrella capable of being opened and closed without short umbrella ribs includes an umbrella column and umbrella ribs, where a driving mechanism is arranged in an inner cavity of the umbrella column, the top end of the umbrella column is provided with an opening, the top end of the umbrella column is provided with an outer umbrella disk, the driving mechanism includes a push rod capable of moving up and down and an inner umbrella disk arranged at the top end of the push rod, tail ends of the umbrella ribs are articulated with the inner umbrella disk, the umbrella ribs are provided with assembly holes, the umbrella ribs are articulated with the outer umbrella disk through locking screws matched with the assembly holes, and the push rod can move up and down to unfold or fold the umbrella ribs.

[0006] Further, the outer umbrella disk is provided with multiple position-limiting grooves, and the umbrella ribs are arranged in the position-limiting grooves.

[0007] Further, the inner umbrella disk is articulated with a pull rod, and the other end of the pull rod is articulated with the tail ends of the umbrella ribs.

[0008] Further, a side wall of the umbrella column is provided with a groove, and the pull rod is limited in the groove.

[0009] Further, the top end of the umbrella column is provided with an upper end cover, the upper end cover includes a sleeve and a cover plate arranged at an end of the sleeve, and the diameter of the cover plate is greater than the diameter of the sleeve.

[0010] Further, a base is arranged at the bottom of the umbrella column, the base is a circular base, and solid tires are arranged at the edge of the base.

[0011] Further, the base is provided with an assembly tube, and the bottom end of the umbrella column is inserted into the assembly tube.

[0012] Further, the driving mechanism includes a battery pack and a push rod motor, the battery pack is fixed through battery pack fixing seats, the push rod can be driven by the push rod motor to move up and down, and the push rod motor is electrically connected to the battery pack.

[0013] Further, a push rod sliding seat is fixedly arranged in the inner cavity of the umbrella column, the push rod is inserted in the sliding seat, the push rod is provided with a pressing block, the upper side of the push rod motor and the lower side of the push rod sliding seat are respectively provided with position-limiting switches, and the pressing block abuts against the position-limiting switches respectively in the processes of moving up and down with the push rod to send a control signal.

[0014] Further, the upper and lower ends of the push rod motor are respectively provided with motor fixing seats, the push rod motor is fixed in the inner cavity of the umbrella column through the motor fixing seats, and the position-limiting switch is fixed on the motor fixing seat on the upper side.

[0015] Compared with the prior art, the present invention has the following advantages:

In the present application, a push rod of a motor is used for driving, so that the operation is convenient. Moreover, through the cooperation of an outer umbrella disk, a push rod, an inner umbrella disk and a pull rod, a sunshade umbrella can be opened stably. Umbrella ribs are more stable when the umbrella is opened and closed.

[0016] Solid tires are fixedly arranged at the edge of a base, so that the base is convenient to roll to move the straight rod umbrella.

Brief Description of Drawings

[0017]

FIG. 1 is a schematic structural diagram of the pre-

sent application;

FIG. 2 is a schematic assembly diagram of umbrella ribs and an umbrella column of a straight rod umbrella;

FIG. 3 is a schematic cross-sectional diagram of a straight rod umbrella of the present application;

FIG. 4 is a schematic assembly diagram of umbrella ribs and umbrella disks; and

FIG. 5 is a schematic structural diagram of a driving mechanism.

Detailed Description

[0018] The present invention is further described below with reference to the accompanying drawings.

[0019] As shown in FIG. 1 to FIG. 5, an electric straight rod umbrella capable of being opened and closed without short umbrella ribs includes an umbrella column 100 and umbrella ribs 200, where a driving mechanism 300 is arranged in an inner cavity of the umbrella column 100, the top end of the umbrella column 100 is provided with an opening, the top end of the umbrella column 100 is provided with an outer umbrella disk 400, the driving mechanism 300 includes a push rod 310 capable of moving up and down and an inner umbrella disk 500 arranged at the top end of the push rod 310, tail ends of the umbrella ribs 200 are articulated with the inner umbrella disk 500, the umbrella ribs 200 are provided with assembly holes 210, the umbrella ribs 200 are articulated with the outer umbrella disk 400 through locking screws 600 matched with the assembly holes 210, and the push rod 310 can move up and down to unfold or fold the umbrella ribs 200. The driving mechanism 300 further includes a battery pack 320 and a push rod motor 330, the battery pack 320 is fixed through battery pack fixing seats 321, the push rod 310 can be driven by the push rod motor 330 to move up and down, and the push rod motor 330 is electrically connected to the battery pack 320. A push rod sliding seat 130 is fixedly arranged in the inner cavity of the umbrella column 100, the push rod 310 is inserted in the sliding seat 130, the push rod 310 is provided with a pressing block 340, the upper side of the push rod motor 330 and the lower side of the push rod sliding seat 130 are respectively provided with position-limiting switches 350, and the pressing block 340 abuts against the position-limiting switches 350 respectively in the processes of moving up and down with the push rod 310 to send a control signal. The upper and lower ends of the push rod motor 330 are respectively provided with motor fixing seats 331, the push rod motor 330 is fixed in the inner cavity of the umbrella column 100 through the motor fixing seats 331, and the position-limiting switch 350 is fixed on the motor fixing seat 331 on the upper side. The position-limiting switches 350 act as sensors and are in signal connection with the push rod motor to send a control signal.

[0020] The inner umbrella disk 500 is articulated with a pull rod 510, and the other end of the pull rod 510 is

articulated with the tail ends of the umbrella ribs 200. A side wall of the umbrella column 100 is provided with a groove 110, and the pull rod 510 is limited in the groove 110.

[0021] The outer umbrella disk 400 is provided with multiple position-limiting grooves 410, and the umbrella ribs 200 are arranged in the position-limiting grooves 410. The top end of the umbrella column 100 is provided with an upper end cover 120, the upper end cover 120 includes a sleeve 121 and a cover plate 122 arranged at an end of the sleeve 121, and the diameter of the cover plate 122 is greater than the diameter of the sleeve 121.

[0022] A base 700 is arranged at the bottom of the umbrella column 100, the base 700 is a circular base, and solid tires 710 are arranged at the edge of the base 700. The base 700 is provided with an assembly tube 720, and the bottom end of the umbrella column 100 is inserted into the assembly tube 720.

[0023] During the assembly process, the umbrella ribs are connected to the outer umbrella disk through the locking screws, and then connected to the inner umbrella disk at the top of the push rod through the cooperation of the pull rod. During the opening and closing processes of the umbrella, a triangle is formed between the umbrella ribs and the pull rod, so that the umbrella ribs can move more stably.

[0024] When the umbrella is fully unfolded, the pressing block on the push rod of the motor will abut against the position-limiting switch on the sliding seat of the motor to send a stop signal to a circuit board, so that the motor stops rotating. When the umbrella needs to be folded, the pressing block moves down until the pressing block touches the position-limiting switch arranged on the motor fixing seat to send a stop signal, and at this time, the umbrella is fully folded.

Claims

1. An electric straight rod umbrella capable of being opened and closed without short umbrella ribs, comprising an umbrella column (100) and umbrella ribs (200), wherein a driving mechanism (300) is arranged in an inner cavity of the umbrella column (100), the top end of the umbrella column (100) is provided with an opening, the top end of the umbrella column (100) is provided with an outer umbrella disk (400), the driving mechanism (300) comprises a push rod (310) capable of moving up and down and an inner umbrella disk (500) arranged at the top end of the push rod (310), tail ends of the umbrella ribs (200) are articulated with the inner umbrella disk (500), the umbrella ribs (200) are provided with assembly holes (210), the umbrella ribs (200) are articulated with the outer umbrella disk (400) through locking screws (600) matched with the assembly holes (210), and the push rod (310) can move up and down to unfold or fold the umbrella ribs (200).

2. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 1, wherein the outer umbrella disk (400) is provided with multiple position-limiting grooves (410), and the umbrella ribs (200) are arranged in the position-limiting grooves (410). 5
3. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 1, wherein the inner umbrella disk (500) is articulated with a pull rod (510), and the other end of the pull rod (510) is articulated with the tail ends of the umbrella ribs (200). 10
4. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 3, wherein a side wall of the umbrella column (100) is provided with a groove (110), and the pull rod (510) is limited in the groove (110). 15
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5. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 1, wherein the top end of the umbrella column (100) is provided with an upper end cover (120), the upper end cover (120) comprises a sleeve (121) and a cover plate (122) arranged at an end of the sleeve (121), and the diameter of the cover plate (122) is greater than the diameter of the sleeve (121). 25
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6. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 1, wherein a base (700) is arranged at the bottom of the umbrella column (100), the base (700) is a circular base, and solid tires (710) are arranged at the edge of the base (700). 35
7. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 6, wherein the base (700) is provided with an assembly tube (720), and the bottom end of the umbrella column (100) is inserted into the assembly tube (720). 40
8. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 1, wherein the driving mechanism (300) comprises a battery pack (320) and a push rod motor (330), the battery pack (320) is fixed through battery pack fixing seats (321), the push rod (310) can be driven by the push rod motor (330) to move up and down, and the push rod motor (330) is electrically connected to the battery pack (320). 45
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9. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 8, wherein a push rod sliding seat (130) is fixedly arranged in the inner cavity of the umbrella column (100), the push rod (310) is inserted in the sliding seat (130), the push rod (310) is provided with a pressing block (340), the upper side of the push rod motor (330) and the lower side of the push rod sliding seat (130) are respectively provided with position-limiting switches (350), and the pressing block (340) abuts against the position-limiting switches (350) respectively in the processes of moving up and down with the push rod (310) to send a control signal. 55
10. The electric straight rod umbrella capable of being opened and closed without short umbrella ribs according to claim 9, wherein the upper and lower ends of the push rod motor (330) are respectively provided with motor fixing seats (331), the push rod motor (330) is fixed in the inner cavity of the umbrella column (100) through the motor fixing seats (331), and the position-limiting switch (350) is fixed on the motor fixing seat (331) on the upper side.

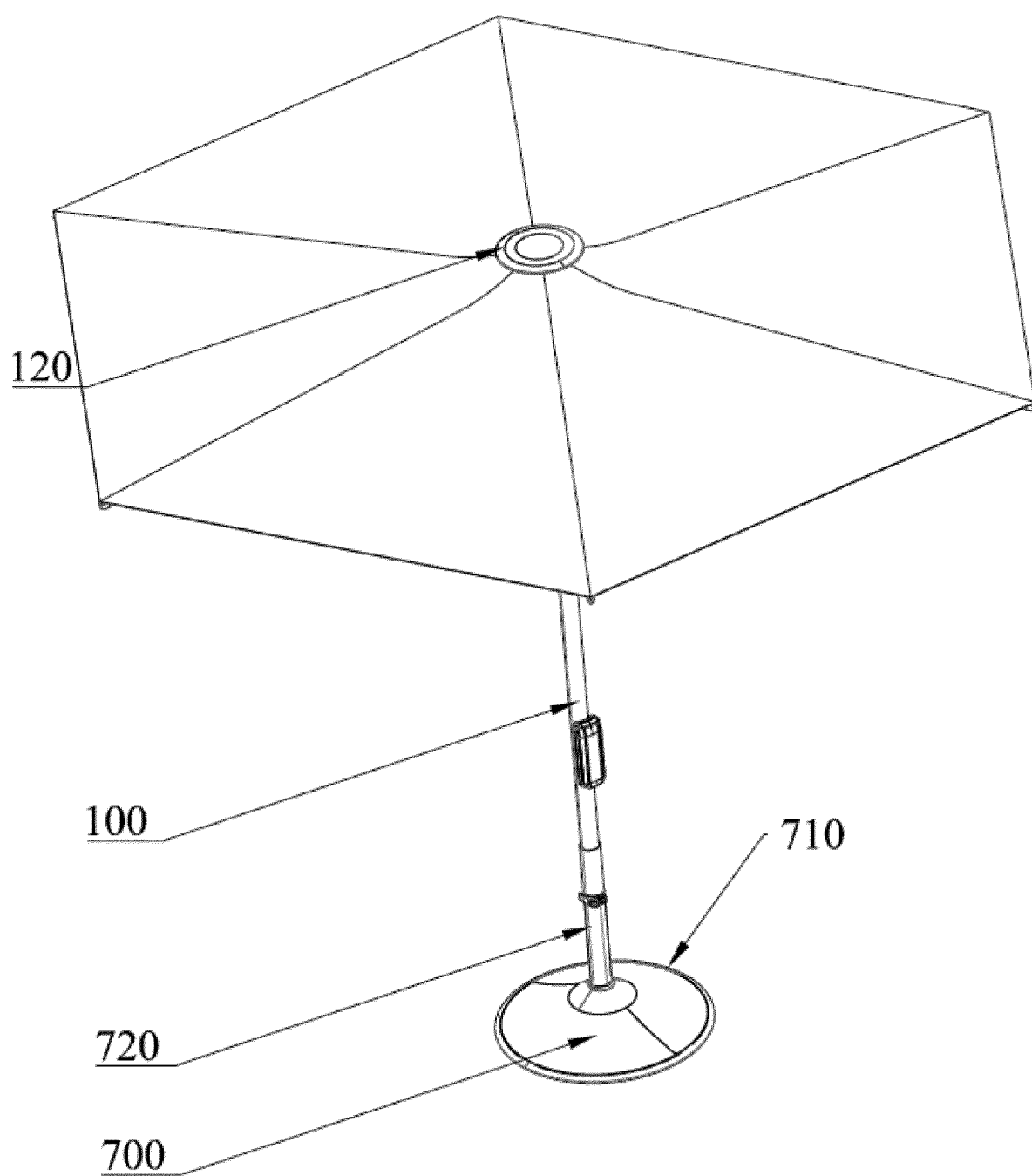


FIG. 1

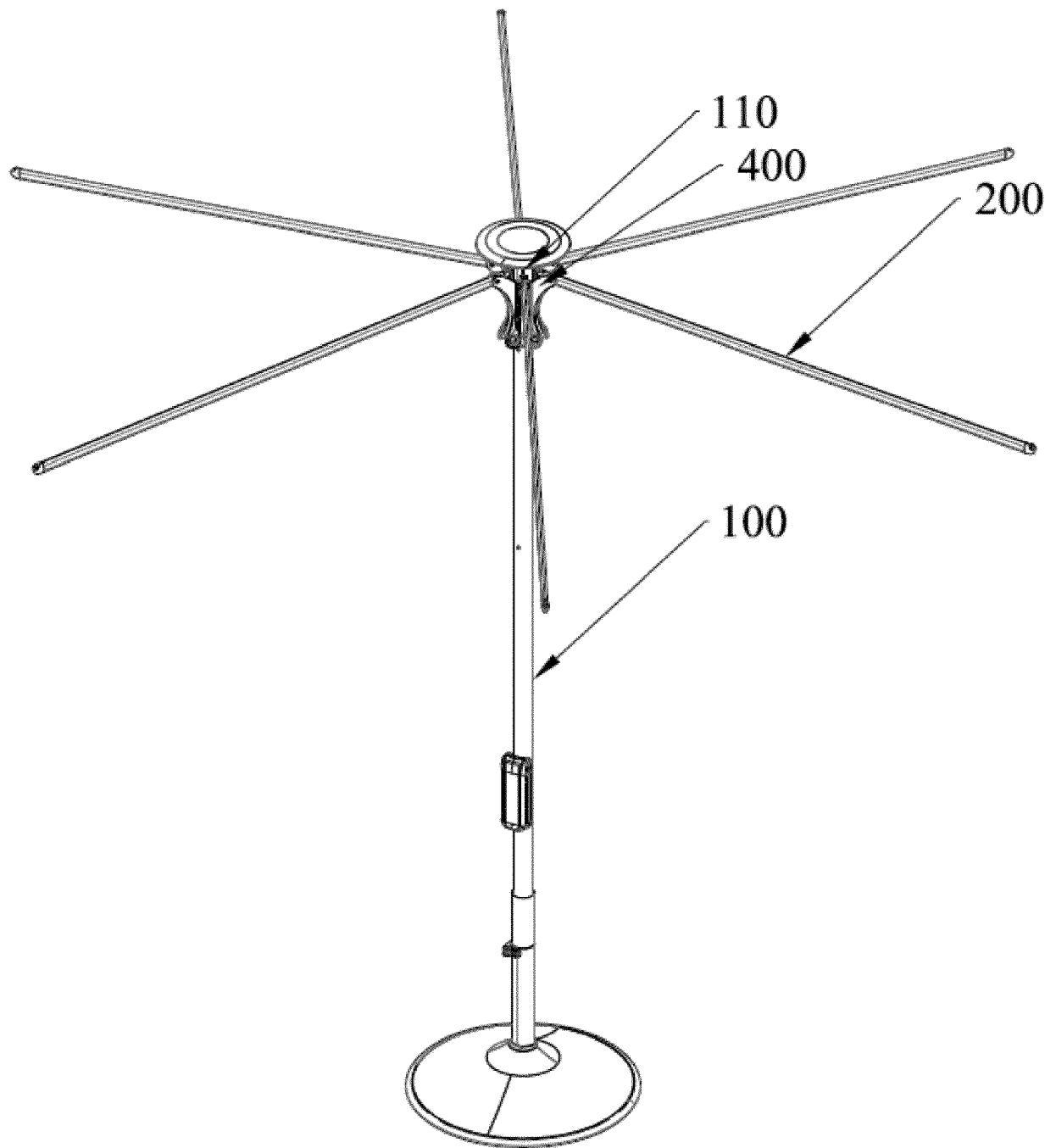


FIG. 2

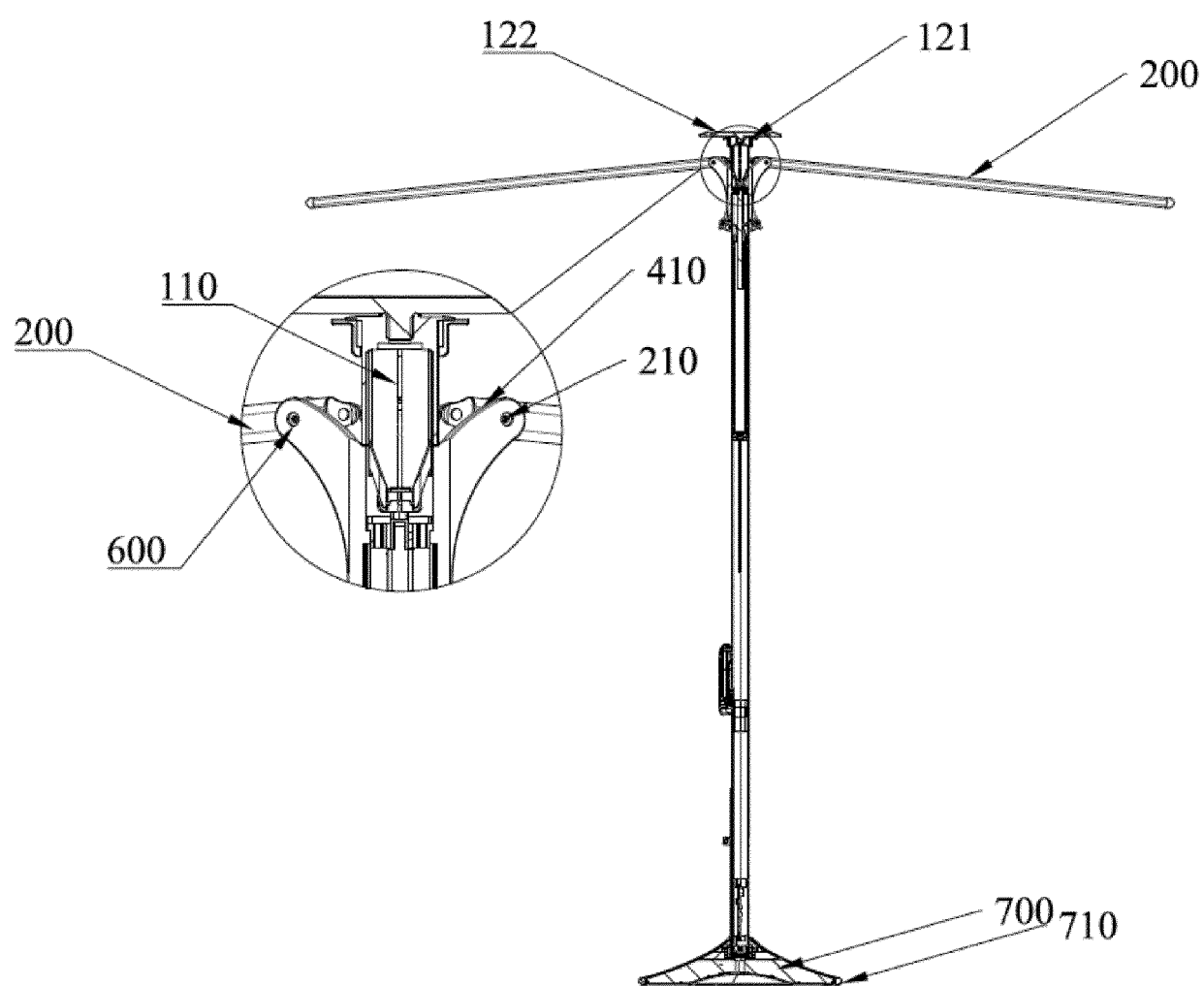


FIG. 3

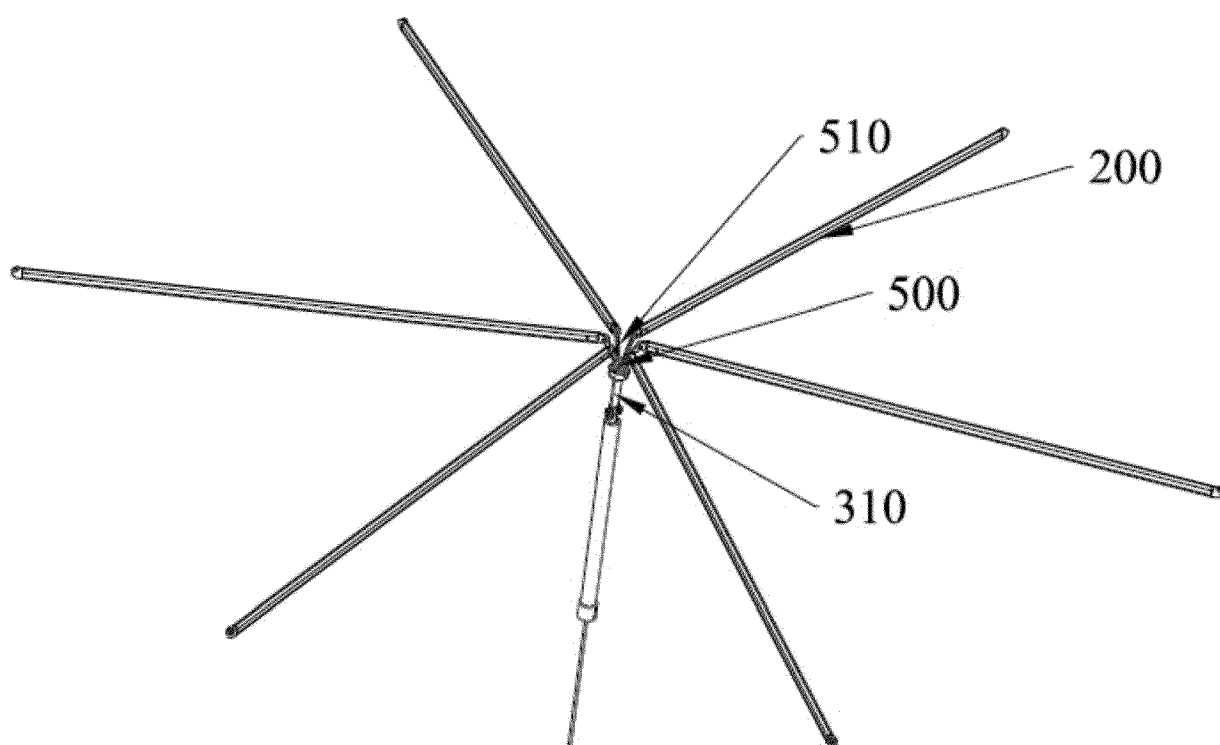


FIG. 4

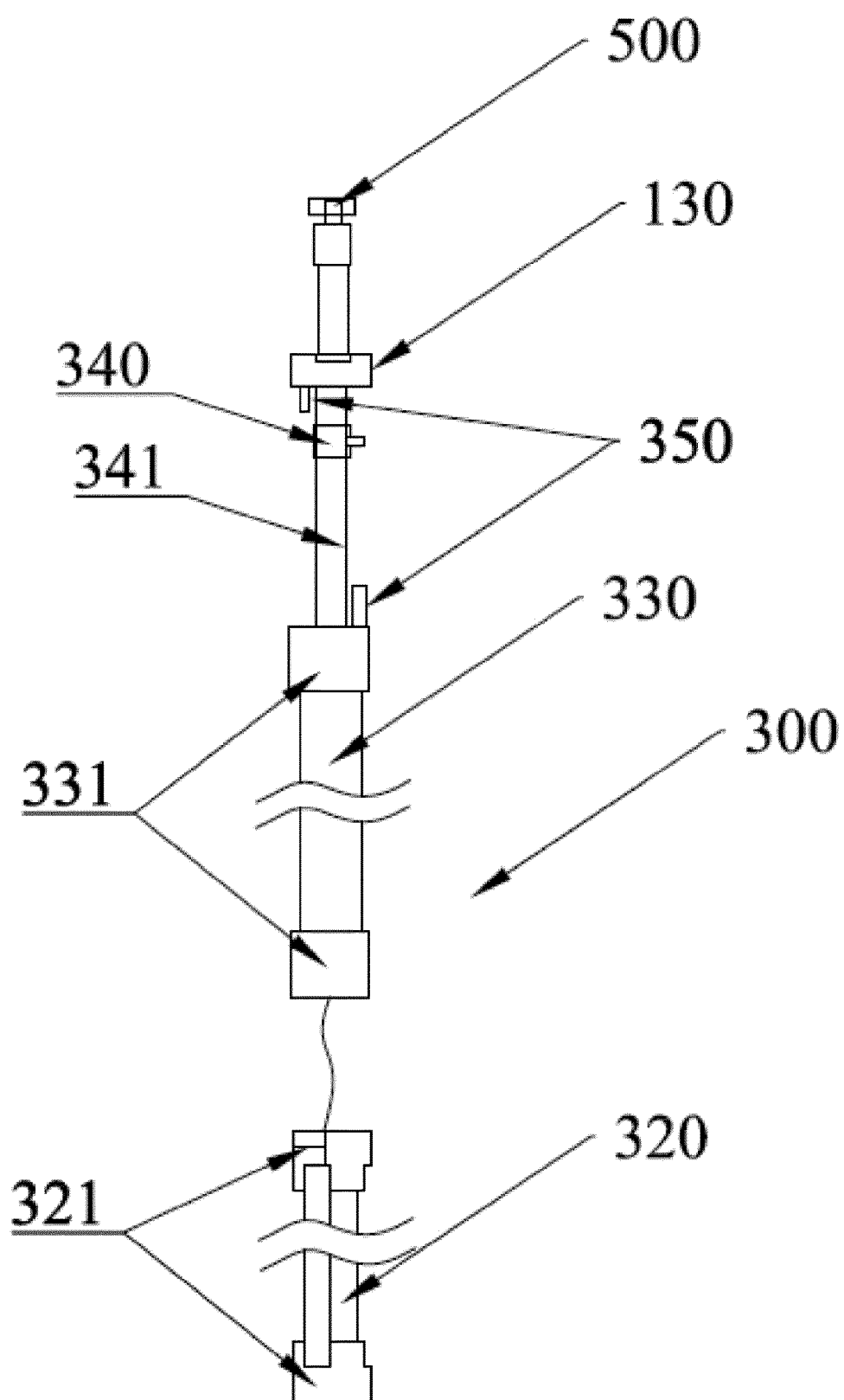


FIG. 5



EUROPEAN SEARCH REPORT

Application Number

EP 24 15 1479

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		29 May 2024	Fidalgo Marron, B
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EP 24 15 1479

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