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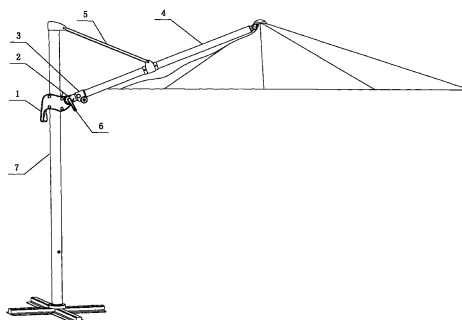
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[54] 实用新型名称

遮阳吊伞摇手装置

[57] 摘要

遮阳吊伞摇手装置，遮阳吊伞安装支架技术领域，其特征在于包括相互配合连接的扶手机构、摇手机构和转向机构，扶手机构内安装有与把手开关连动配合的弹性定位销，扶手机构前端设置包括摇手轴及与绕绳轮的摇手机构，绕绳轮上绕接设置用于控制伞面张合的伞绳，扶手机构前端通过与摇手轴同轴活动配合的左摇手壳、右摇手壳连接设置转向机构，转向机构内设置用于连接外管的斜齿套及相互啮合的蜗轮。所述的遮阳吊伞摇手装置通过扶手机构控制左右倾斜度，通过转向机构控制前后倾斜度，并通过摇手机构控制伞面张合，使遮阳吊伞可以在前后、左右方向的任何角度调节，以选择适当的遮阳角度，提高遮阳效果，同时具有结构简单、简洁美观、使用方便等特点。



1. 遮阳吊伞摇手装置，其特征在于包括相互配合连接的扶手机构（1）、摇手机构（2）和转向机构（3），套接设置在直杆（7）上的扶手机构（1）由左扶手壳（101）、右扶手壳（102）配合构成，扶手机构（1）内安装有与直杆（7）上设置的定位孔（7b）插接配合的弹性定位销（111），弹性定位销（111）与扶手机构（1）上设置的把手开关（107）连动配合，扶手机构（1）前端内腔配合设置摇手机构（2），摇手机构（2）包括摇手轴（206）及与其套接配合的绕绳轮（209），绕绳轮（209）上绕接设置用于控制伞面张合的伞绳（211），扶手机构（1）前端两外侧设置与摇手机构（2）同轴活动配合的左摇手壳（201）、右摇手壳（202），相互配合的左摇手壳（201）、右摇手壳（202）前端连接设置转向机构（3），转向机构（3）包括相互配合的左转向壳（301）、右转向壳（302），左转向壳（301）、右转向壳（302）内设置用于连接外管（4）的斜齿套（304）及相互啮合的蜗轮（303），斜齿套（304）与左摇手壳（201）、右摇手壳（202）前端活动套接配合。

2. 如权利要求1所述的遮阳吊伞摇手装置，其特征在于所述的把手开关（107）通过传动销（106）、前后设置的传动杠杆件（104）及相应的连接绳（103）与弹性定位销（111）连动连接。

3. 如权利要求1所述的遮阳吊伞摇手装置，其特征在于扶手机构（1）内腔配合设置用于套接直杆（7）的直杆滑套（109），直杆滑套（109）内侧四周设置与直杆（7）滑动配合的凸点（114）。

4. 如权利要求1所述的遮阳吊伞摇手装置，其特征在于所述的把手开关（107）与扶手机构（1）壳体之间连接设置把手开关弹簧（108）。

5. 如权利要求1所述的遮阳吊伞摇手装置，其特征在于所述的弹性定位销

(111)通过定位销弹簧(113)与连接设置在扶手机构(1)内腔的固定套(112)弹性滑动配合。

6. 如权利要求1所述的遮阳吊伞摇手装置，其特征在于所述的斜齿套(304)与左摇手壳(201)、右摇手壳(202)之间配合设置深沟球轴承(306)，并在前端配合设置轴用弹性挡圈(307)。

7. 如权利要求1所述的遮阳吊伞摇手装置，其特征在于所述的摇手轴(206)与扶手机构(1)之间配合设置扭簧(208)、垫圈(207)。

8. 如权利要求1所述的遮阳吊伞摇手装置，其特征在于所述的左摇手壳(201)、右摇手壳(202)分别通过铜垫片(205)、轴用弹性挡圈(204)活动连接在摇手轴(206)上，外端分别设置定位用左摇手壳堵头(203)、右摇手壳堵头(210)。

9. 如权利要求1所述的遮阳吊伞摇手装置，其特征在于所述的摇手轴(206)、蜗轮(303)一端分别配合设置与摇手柄(6)连接的连接孔。

遮阳吊伞摇手装置

技术领域

本实用新型属于遮阳吊伞安装支架技术领域，具体涉及一种遮阳吊伞摇手装置。

背景技术

直杆遮阳吊伞现有结构中通常包括吊伞张合和倾斜度调节两个独立的机构，控制吊伞张合的机构一般设置在直立杆的下端，有的是通过摇手摇动带动扶手壳上下滑动同时使伞面开合，有的是单通过直立杆下端摇手打开伞面后推扶手壳等，传统结构的直杆遮阳吊伞，消费者在使用时必须蹲下或者是弯腰才能握住摇手打开伞面。而同类型的直杆遮阳吊伞采用的倾斜度调节机构，有的是在斜杆尾端延伸一根支杆用来调节伞面左右倾斜，当需要伞面左右倾斜时，首先要将支杆拉开向左或向右移动到一定角度后，再将支杆回直拉回原位固定于直立杆上。从上述情况看来不仅使消费者使用不便，而且存在着结构烦琐、装配复杂及生产成本高等缺陷。

实用新型内容

本实用新型旨在提供一种集吊伞张合控制及左右倾斜度调节、前后倾斜度调节于一体的遮阳吊伞摇手装置技术方案，以克服现有技术中存在的问题。

所述的遮阳吊伞摇手装置，其特征在于包括相互配合连接的扶手机构、摇手机构和转向机构，套接设置在直杆上的扶手机构由左扶手壳、右扶手壳配合构成，扶手机构内安装有与直杆上设置的定位孔插接配合的弹性定位销，弹性定位销与扶手机构上设置的把手开关连动配合，扶手机构前端内腔配合

设置摇手机构，摇手机构包括摇手轴及与其套接配合的绕绳轮，绕绳轮上绕接设置用于控制伞面张合的伞绳，扶手机构前端两外侧设置与摇手机构同轴活动配合的左摇手壳、右摇手壳，相互配合的左摇手壳、右摇手壳前端连接设置转向机构，转向机构包括相互配合的左转向壳、右转向壳，左转向壳、右转向壳内设置用于连接外管的斜齿套及相互啮合的蜗轮，斜齿套与左摇手壳、右摇手壳前端活动套接配合。

所述的遮阳吊伞摇手装置，其特征在于所述的把手开关通过传动销、前后设置的传动杠杆件及相应的连接绳与弹性定位销连动连接。

所述的遮阳吊伞摇手装置，其特征在于扶手机构内腔配合设置用于套接直杆的直杆滑套，直杆滑套内侧四周设置与直杆滑动配合的凸点。

所述的遮阳吊伞摇手装置，其特征在于所述的把手开关与扶手机构壳体之间连接设置把手开关弹簧。

所述的遮阳吊伞摇手装置，其特征在于所述的弹性定位销通过定位销弹簧与连接设置在扶手机构内腔的固定套弹性滑动配合。

所述的遮阳吊伞摇手装置，其特征在于所述的斜齿套与左摇手壳、右摇手壳之间配合设置深沟球轴承，并在前端配合设置轴用弹性挡圈。

所述的遮阳吊伞摇手装置，其特征在于所述的摇手轴与扶手机构之间配合设置扭簧、垫圈。

所述的遮阳吊伞摇手装置，其特征在于所述的左摇手壳、右摇手壳分别通过铜垫片、轴用弹性挡圈活动连接在摇手轴上，外端分别设置定位用左摇手壳堵头、右摇手壳堵头。

所述的遮阳吊伞摇手装置，其特征在于所述的摇手轴、蜗轮一端分别配合设置与摇手柄连接的连接孔。

上述的遮阳吊伞摇手装置构思新颖、结构合理，通过扶手机构在遮阳吊伞直杆上滑动控制吊伞的左右倾斜度，通过摇手机构控制吊伞的张合，并通过转向机构控制吊伞的前后倾斜度，通过本装置的应用，遮阳吊伞可以调节在前后、左右方向的任何角度，以选择适当的遮阳角度，提高遮阳效果，本装置还具有结构简单、外型简洁美观、操作使用方便等特点。

附图说明

图 1 为本实用新型结构示意图；

图 2 为本实用新型截面结构示意图；

图 3 为图 2 中 A-A 剖视结构示意图；

图 4 为图 2 中 B-B 剖视结构示意图；

图 5 为图 2 中 C-C 剖视结构示意图；

图 6 为本实用新型分解结构示意图。

图中：1—扶手机构、101—左扶手壳、102—右扶手壳、103—连接绳、104—传动杠杆件、105—圆柱销、105a—圆柱销、106—传动销、107—把手开关、108—把手开关弹簧、109—直杆滑套、110—螺钉、111—弹性定位销、112—固定套、113—定位销弹簧、114—凸点、2—摇手机构、201—左摇手壳、202—右摇手壳、203—左摇手壳堵头、204—轴用弹性挡圈、205—铜垫片、206—摇手轴、207—垫圈、208—扭簧、209—绕绳轮、210—右摇手壳堵头、211—伞绳、3—转向机构、301—左转向壳、302—右转向壳、303—蜗轮、304—斜齿套、305—垫圈、306—深沟球轴承、307—轴用弹性挡圈、308—螺钉、4—外管、5—斜拉杆、6—摇手柄、7—直杆、7a—塑料条、7b—定位孔。

具体实施方式

现结合说明书附图，详细说明本实用新型的具体实施方式：

遮阳吊伞摇手装置包括相互配合连接的扶手机构1、摇手机构2和转向机构3，扶手机构1套接在直杆7上，装置外端与外管4连接。套接设置在直杆7上的扶手机构1由左扶手壳101、右扶手壳102通过螺钉110连接配合构成，扶手机构1内腔配合设置用于套接直杆7的直杆滑套109，直杆滑套109采用润滑性好的聚四氟材料制作，一般上下两个连接设置在左扶手壳101、右扶手壳102内侧，直杆7插接在滑套109内，直杆滑套109内侧四周连接设置与直杆7滑动配合的凸点114，凸点114一般设置为6点，左右侧各两点，前后侧各一点，可防止扶手机构1滑动中晃动，扶手机构1通过凸点114与直杆7上相应的凹槽滑动配合实现上下滑动；扶手机构1内安装有与直杆7上设置的定位孔7b插接配合的弹性定位销111，定位孔7b按一定距离排列设置在连接于直杆7一侧的塑料条7a上，弹性定位销111与扶手机构1上设置的把手开关107连动配合，如通过把手开关107上端设置的传动销106、前后设置的传动杠杆件104及相应的连接绳103使把手开关107与弹性定位销111连动连接，传动杠杆件104以连接设置在左扶手壳101内侧的圆柱销105为中心转动，连接绳103采用可钢丝绳；把手开关107以扶手机构1的左扶手壳101内侧上设置的圆柱销105a为中心轴活动连接，并与左扶手壳101壳体之间设置把手开关弹簧108，弹性定位销111通过定位销弹簧113与连接设置在扶手机构1内腔的固定套112弹性滑动配合。按下把手开关107，通过传动销106、前后传动杠杆件104、连接绳103的连动，弹性定位销111被拔出定位孔7b，扶手机构1即可在直杆7上滑动，并通过定位销弹簧113的作用，使弹性定位销111插接在其它定位孔7b内定位。扶手机构1前端内腔配合设置摇手机构2，摇手机构2包括摇手轴206及与其套接配合的绕绳轮209，摇手轴206两端串接在左扶手壳101、右扶手壳102上，与左扶手壳101之间配合设置垫圈207、扭簧208，通过扭簧208控制绕绳轮209不能自由转

动,起防滑作用。绕绳轮209上绕接设置用于控制伞面张合的伞绳211,摇手轴206一端配合设置用于与摇手柄6连接的连接孔,将摇手柄6插接在此连接孔内转动,摇手轴206及与其套接配合的绕绳轮209旋转,收进或发出伞绳211以控制伞面的张合。扶手机构1前端两外侧设置与摇手机构2同轴活动配合的左摇手壳201、右摇手壳202,左摇手壳201、右摇手壳202套接在左扶手壳101、右扶手壳102的外凸圆上,分别通过铜垫片205、轴用弹性挡圈204活动连接在摇手轴206上,外端分别设置左摇手壳堵头203、右摇手壳堵头210定位,通过相互配合的左摇手壳201、右摇手壳202前端连接设置转向机构3,转向机构3包括相互配合的左转向壳301、右转向壳302,左转向壳301、右转向壳302通过螺钉308固定连接在左摇手壳201、右摇手壳202上,左转向壳301、右转向壳302内设置用于连接外管4的斜齿套304及相互啮合的蜗轮303,蜗轮303与左转向壳301、右转向壳302之间设置垫圈305使配合密切,斜齿套304与左摇手壳201、右摇手壳202前端活动套接配合,在斜齿套304两端与相互配合的左摇手壳201、右摇手壳202之间配合设置深沟球轴承306以减少摩擦、增加旋转灵活性,并在斜齿套304前方的相互配合的左摇手壳201、右摇手壳202上配合设置轴用弹性挡圈307以防止斜齿套304松动、脱落;蜗轮303一端配合设置用于与摇手柄6连接的连接孔,摇动摇手柄6使蜗轮303转动,带动与其啮合传动的用于连接外管4的斜齿套304转动,外管4随之转动即可使吊伞在水平180度范围内任意调节,调节吊伞前后的倾斜度。扶手机构1在直杆7上滑动,通过左摇手壳201、右摇手壳202绕摇手轴206和左扶手壳101、右扶手壳102的外凸圆转动、以及斜拉杆5与外管4活动连接以调节吊伞左右倾斜角度,扶手机构1向下滑动时外管4向直杆7竖直合并,伞面向左倾斜。

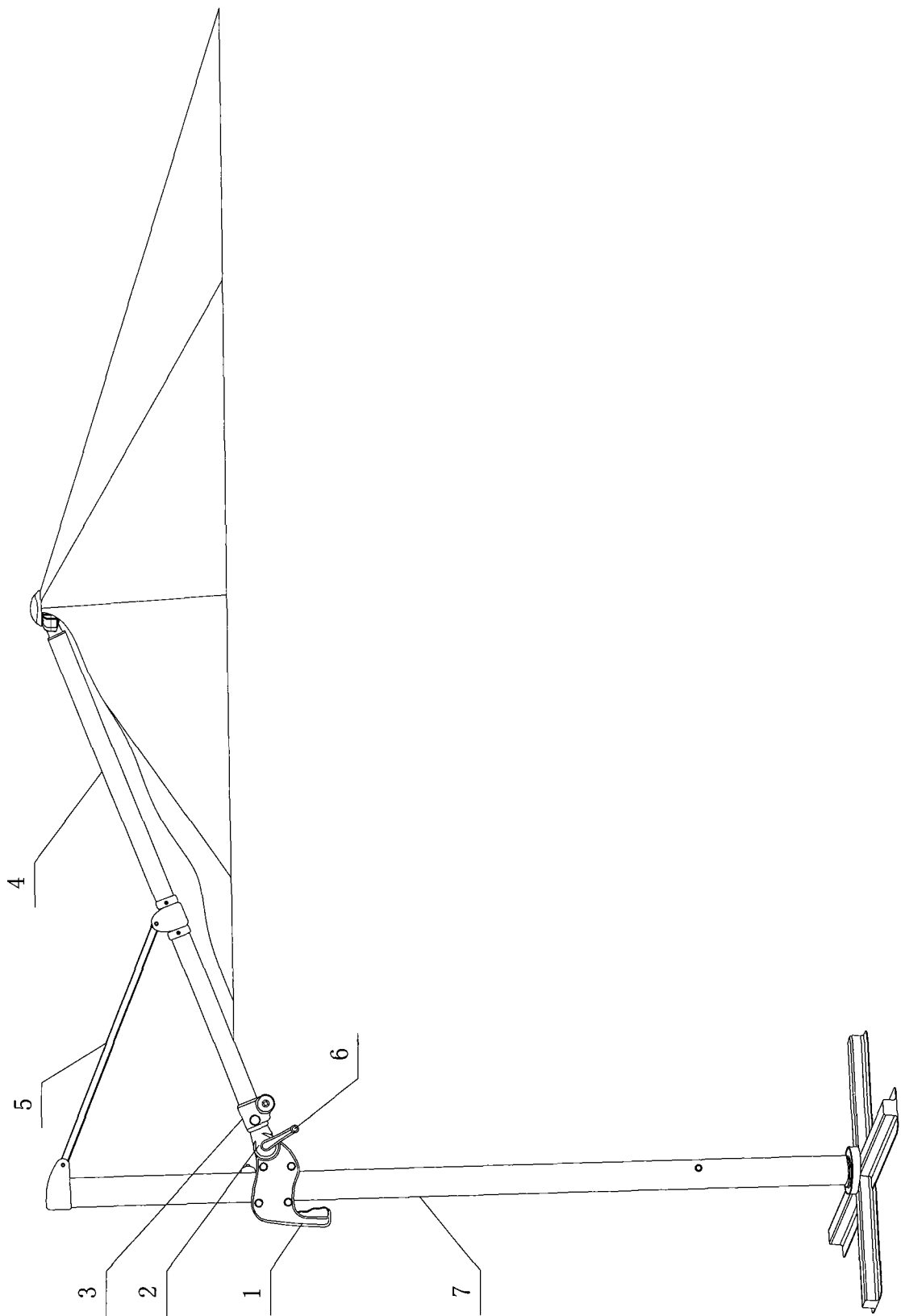
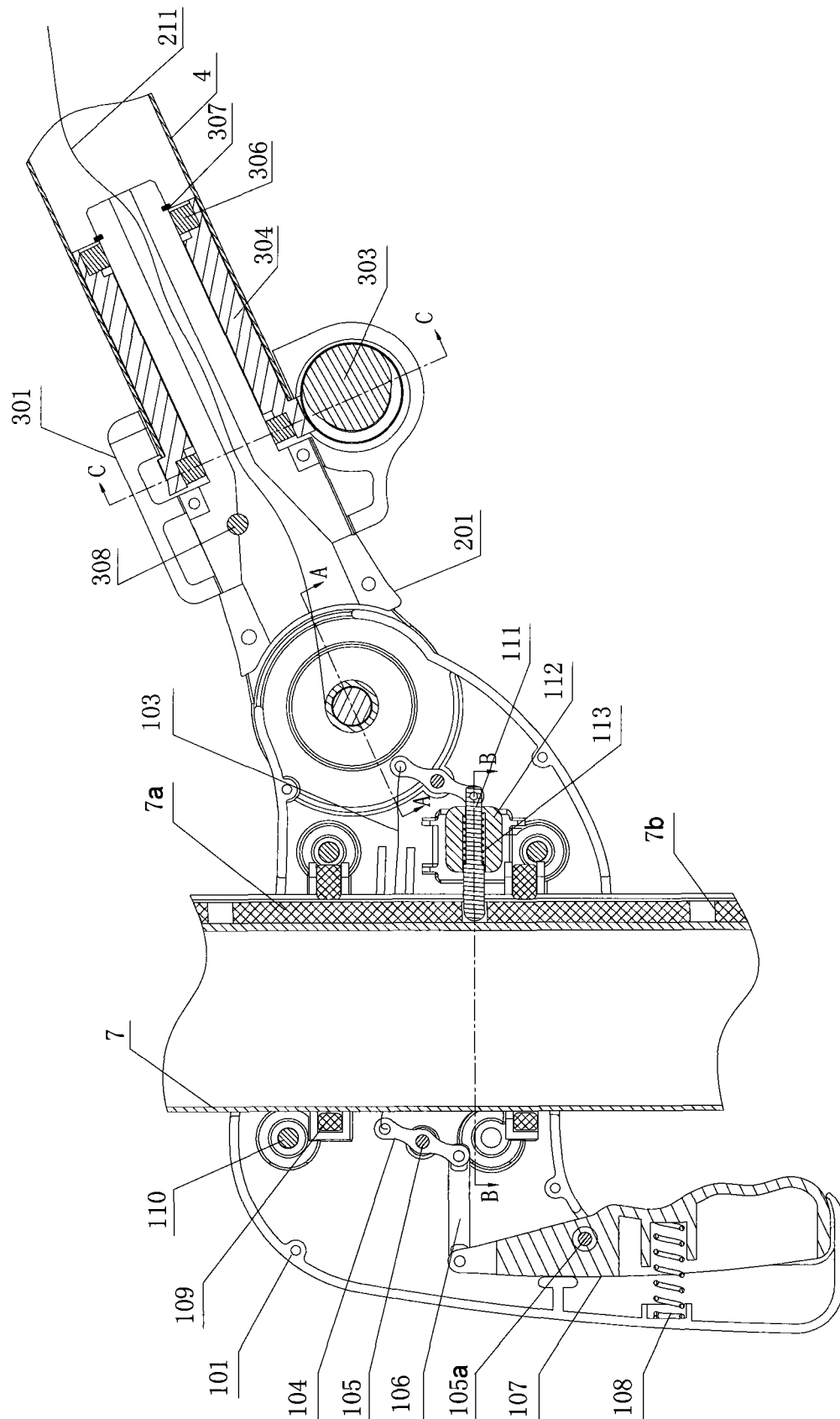


图1

2

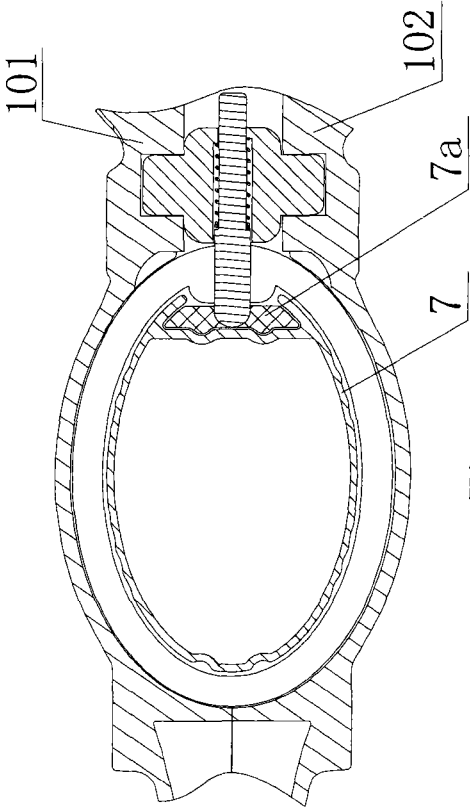


图4

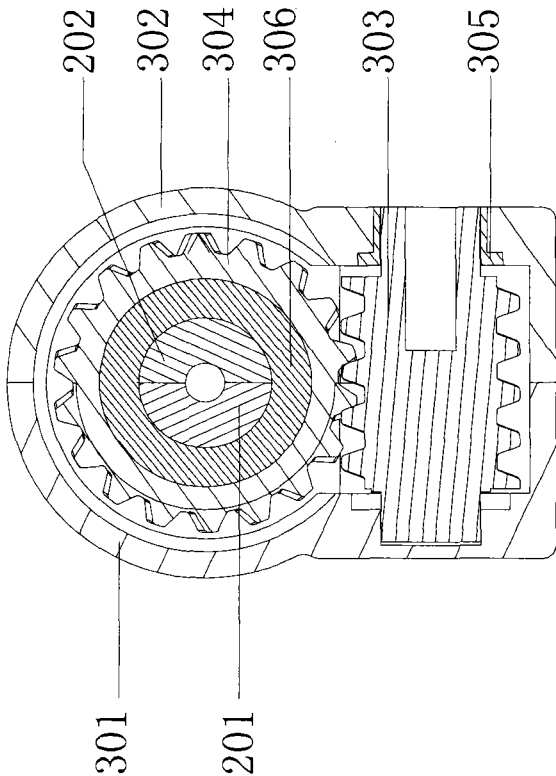


图5

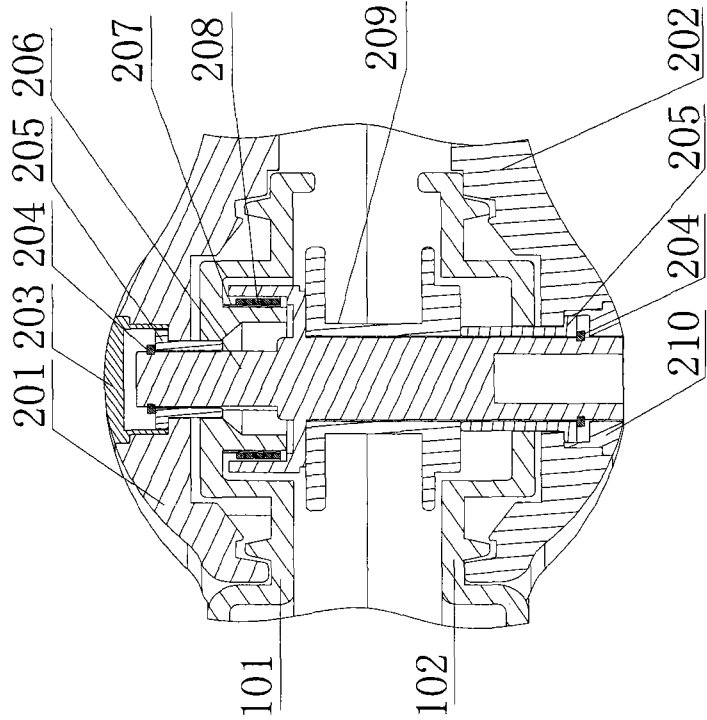


图3

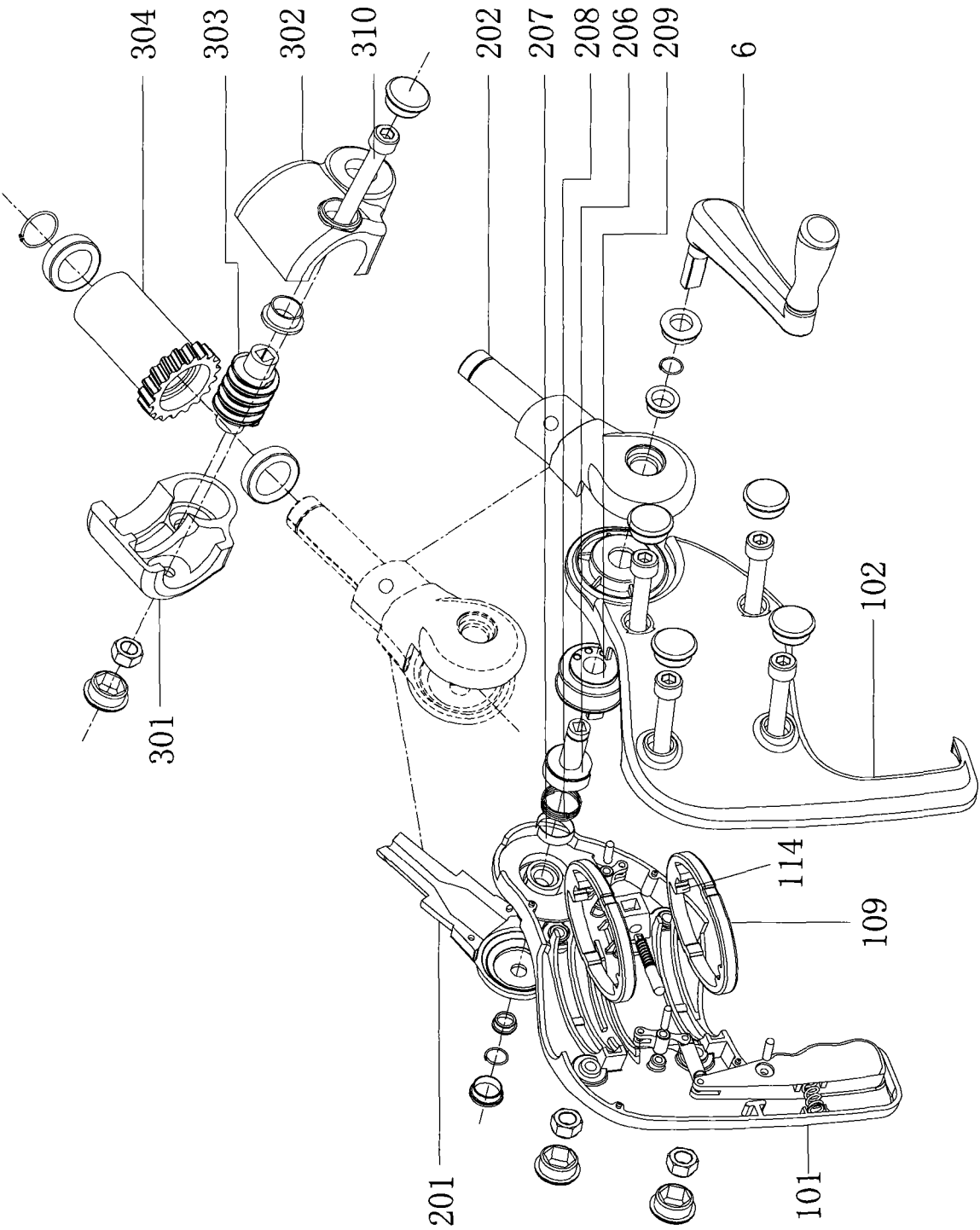


图6

[19] The State Intellectual Property Office (SIPO) of the People's Republic of China

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[12] Description of Utility model Patent

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Agent: WU Bingzhong

Claims 2 pages, Description 5 pages, Drawings 4 pages

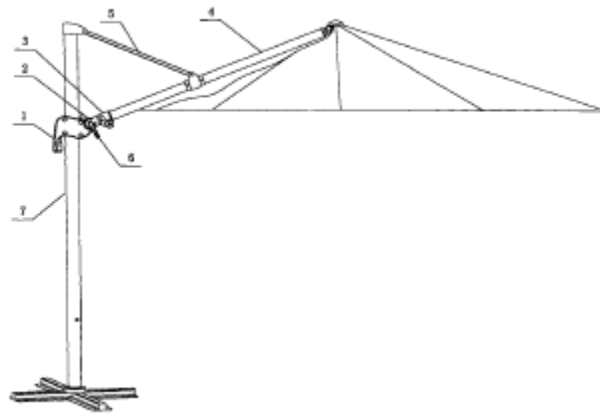
[54] Title of Utility model

Sunshade parasol cranking device

[57] Abstract of Disclosures

A sunshade parasol cranking device is provided, which belongs to the technical field of sunshade parasol mounting bracket, and is characterized in that the sunshade parasol cranking device comprises a handle mechanism, a cranking mechanism, and a turning mechanism that are connected with each other for cooperation, an elastic positioning pin that is connected to a handle switch is installed in the handle mechanism, the cranking mechanism comprising a cranking shaft and a rope winding wheel is arranged at a front end of the handle mechanism, a parasol rope for controlling the opening and closing of the parasol surface is wound around the rope

winding wheel, a turning mechanism is arranged at the front end of the handle mechanism with a left cranking shell and a right cranking shell that are coaxially and movably matched with the cranking shaft, an oblique gear sleeve for connecting an outer tube and a meshing worm gear are arranged in the turning mechanism. The sunshade parasol cranking device controls the left and right tilting angles with the handle mechanism, controls the front and rear tilting angles with the turning mechanism, and controls the opening and closing of the parasol surface with the cranking mechanism, so that the sunshade parasol can be adjusted at any angle in the front and rear, left and right directions. In this way, it can select an appropriate sunshade angle and improve the sunshade effect; in addition, it has the characteristics of simple structure, simple and attractive appearance, and convenient use.



1. A sunshade parasol cranking device, characterized in that the sunshade parasol cranking device comprises a handle mechanism (1), a cranking mechanism (2), and a turning mechanism (3) which are connected to each other for cooperation, the handle mechanism (1) which is sleeved on a pole (7) is composed of a left handle shell (101) and a right handle shell (102), an elastic positioning pin (111) which is inserted into a positioning hole (7b) provided on the pole (7) is installed in the handle mechanism (1), the elastic positioning pin (111) is linked with a handle switch (107) provided on the handle mechanism (1), the cranking mechanism (2) is provided in a front end inner cavity of the handle mechanism (1), the cranking mechanism (2) comprises a cranking shaft (206) and a rope winding wheel (209) which is sleeved therewith, a parasol rope (211) for controlling the opening and closing of the parasol surface is wound around the rope winding wheel (209); a left cranking shell (201) and a right cranking shell (202) coaxially and movably matched with the cranking mechanism (2) are arranged on two outer sides of a front end of the handle mechanism (1), front ends of the mutually matched left cranking shell (201) and the right cranking shell (202) are connected to the turning mechanism (3), the turning mechanism (3) comprises a left turning shell (301) and a right turning shell (302) matched with each other for cooperation, the left turning shell (301) and the right turning shell (302) are provided with an oblique gear sleeve (304) for connecting an outer tube (4) and a meshing worm gear (303), the oblique gear sleeve (304) is movably sleeved and matched with the front ends of the left cranking shell (201) and the right cranking shell (202).

2. The sunshade parasol cranking device according to claim 1, characterized in that the handle switch (107) is linked to the elastic positioning pin (111) via a transmission pin (106), transmission lever members (104) arranged at the front and rear, and a corresponding connection rope (103).

3. The sunshade parasol cranking device according to claim 1, characterized in that the inner cavity of the handle mechanism (1) is provided with a pole sliding sleeve (109) for sleeve-connecting the pole (7), and convex points (114) for slidably matching with the pole (7) are provided around an inner side of the pole sliding sleeve (109).

4. The sunshade parasol cranking device according to claim 1, characterized in that a handle switch spring (108) is connected between the handle switch (107) and the shells of the handle mechanism (1).

5. The sunshade parasol cranking device according to claim 1, characterized in that the elastic positioning pin (111) is elastically slidably matched with a fixing sleeve (112) connected and arranged in the inner cavity of the handle mechanism (1) via a positioning pin spring (113).

6. The sunshade parasol cranking device according to claim 1, characterized in that a deep groove ball bearing (306) is arranged between the oblique gear sleeve (304) and the left cranking shell (201) and the right cranking shell (202), and an elastic retaining ring (307) for the shaft is arranged at a front end.

7. The sunshade parasol cranking device according to claim 1, characterized in that a torsion spring (208) and a washer (207) are arranged between the cranking shaft (206) and the handle mechanism (1).

8. The sunshade parasol cranking device according to claim 1, characterized in that the left cranking shell (201) and the right cranking shell (202) are movably connected to the cranking shaft (206) via a copper gasket (205) and an elastic retaining ring (204) for the shaft, and outer ends thereof are respectively provided with a left cranking shell plug (203) and a right cranking shell plug (210) for positioning.

9. The sunshade parasol cranking device according to claim 1, characterized in that an end of the cranking shaft (206) and an end of the worm gear (303) are respectively provided with connection holes for connecting with a cranking handle (6).

SUNSHADE PARASOL CRANKING DEVICE

Technical Field

The present utility model belongs to the technical field of sunshade parasol mounting brackets, and in particular relates to a sunshade parasol cranking device.

Background Art

The existing structure of the straight pole sunshade parasol usually includes two independent mechanisms for opening and closing the parasol and for adjusting the tilting angles. The mechanism for controlling the opening and closing of the parasol is generally arranged at the lower end of the pole. Some of them can drive the handle shell to slide up and down and open or close the parasol at the same time using a cranking handle; while some of them can open the parasol by a cranking handle arranged at the lower end of the pole and then push the handle shell. For the traditional structure of the straight pole sunshade parasol, consumers must squat or bend down to hold the handle in order to open the parasol. For the mechanism for tilting angle adjustment used in the straight pole sunshade parasol of the same type, some of them can extend a support rod at the end of the tilting rod to adjust the left and right tilting angles of the parasol. When the parasol needs to be tilted to the left or right, a user needs to first pull the support rod to the left or right to a certain angle, and then pull back the support rod back to its original position and fix it to the pole. In view of the cases mentioned above, it can be seen that such products are not only inconvenient for consumers to use, but also have certain defects such as cumbersome structure, complex assembly and high production cost.

Summary of the Utility model

The present utility model aims to provide a technical solution for a sunshade parasol cranking device which integrates parasol opening and closing control, left and right tilting adjustment and front and back tilting adjustment, so as to overcome the problems in the existing technology.

A sunshade parasol cranking device is provided, which is characterized in that the sunshade parasol cranking device comprises a handle mechanism, a cranking mechanism, and a turning mechanism which are connected to each other for cooperation, the handle mechanism

which is sleeved on a pole is composed of a left handle shell and a right handle shell, an elastic positioning pin which is inserted into a positioning hole provided on the pole is installed in the handle mechanism, the elastic positioning pin is linked with a handle switch provided on the handle mechanism, the cranking mechanism is provided in a front end inner cavity of the handle mechanism, the cranking mechanism comprises a cranking shaft and a rope winding wheel which is sleeved therewith, a rope for controlling the opening and closing of the parasol surface is wound around the rope winding wheel; a left cranking shell and a right cranking shell coaxially and movably matched with the cranking mechanism are arranged on two outer sides of a front end of the handle mechanism, front ends of the mutually matched left cranking shell and the right cranking shell are connected to the turning mechanism, the turning mechanism comprises a left turning shell and a right turning shell matched with each other for cooperation, the left turning shell and the right turning shell are provided with an oblique gear sleeve for connecting an outer tube and a meshing worm gear, the oblique gear sleeve is movably sleeved and matched with the front ends of the left cranking shell and the right cranking shell.

The sunshade parasol cranking device is characterized in that the handle switch is linked to the elastic positioning pin via a transmission pin, transmission lever members arranged at the front and rear, and a corresponding connection rope.

The sunshade parasol cranking device is characterized in that the inner cavity of the handle mechanism is provided with a pole sliding sleeve for sleeve-connecting the pole, and convex points for slidably matching with the pole are provided around an inner side of the pole sliding sleeve.

The sunshade parasol cranking device is characterized in that a handle switch spring is connected between the handle switch and the shells of the handle mechanism.

The sunshade parasol cranking device is characterized in that the elastic positioning pin is elastically slidably matched with a fixing sleeve connected and arranged in the inner cavity of the handle mechanism via a positioning pin spring.

The sunshade parasol cranking device is characterized in that a deep groove ball bearing is arranged between the oblique gear sleeve and the left cranking shell and the right cranking shell, and an elastic retaining ring for the shaft is arranged at a front end.

The sunshade parasol cranking device is characterized in that a torsion spring and a washer are arranged between the cranking shaft and the handle mechanism.

The sunshade parasol cranking device is characterized in that the left cranking shell and the right cranking shell are movably connected to the cranking shaft via a copper gasket and an elastic retaining ring for the shaft, and outer ends thereof are respectively provided with a left cranking shell plug and a right cranking shell plug for positioning.

The sunshade parasol cranking device is characterized in that an end of the cranking shaft and an end of the worm gear are respectively provided with connection holes for connecting with a cranking handle.

The above-mentioned sunshade parasol cranking device has a novel design and reasonable structure. The handle mechanism is used to slide on the pole of the sunshade parasol to control the left and right tilting of the parasol; the cranking mechanism is used to control the opening and closing of the parasol; the turning mechanism is used to control the front and rear tilting of the parasol. With the application of this device, the sunshade parasol can be adjusted to any angle in the front and rear, left and right directions, so as to select the appropriate sunshade angle and improve the sunshade effect. This device also has the characteristics of simple structure, simple and attractive appearance, and convenient use.

Brief Description of the Drawings

FIG. 1 is a schematic diagram of the structure of the present utility model.

FIG. 2 is a schematic diagram of the cross-sectional structure of the present utility model.

FIG. 3 is a schematic diagram of the A-A cross-sectional structure shown in FIG. 2.

FIG. 4 is a schematic diagram of the B-B cross-sectional structure shown in FIG. 2.

FIG. 5 is a schematic diagram of the C-C cross-sectional structure shown in FIG. 2.

FIG. 6 is a schematic diagram of the decomposed structure of the present utility model.

In the figures: 1- handle mechanism, 101- left handle shell, 102- right handle shell, 103- connection rope, 104- transmission lever member, 105- cylindrical pin, 105a- cylindrical pin, 106- transmission pin, 107- handle switch, 108- handle switch spring, 109- pole sliding sleeve, 110- screw, 111- elastic positioning pin, 112- fixing sleeve, 113- positioning pin spring, 114- convex point, 2- cranking mechanism, 201- left cranking shell, 202- right cranking shell, 203- left cranking shell plug, 204- elastic retaining ring for shaft, 205- copper gasket, 206- cranking shaft, 207- washer, 208- torsion spring, 209- rope winding wheel, 210- right cranking shell plug, 211- parasol rope, 3- turning mechanism, 301- left turning shell, 302- right turning shell, 303-

worm gear, 304- oblique gear sleeve, 305- washer, 306- deep groove ball bearing, 307- elastic retaining ring for shaft, 308- screw, 4- outer tube, 5- diagonal rod, 6- cranking handle, 7- pole, 7a- plastic strip, 7b- positioning hole.

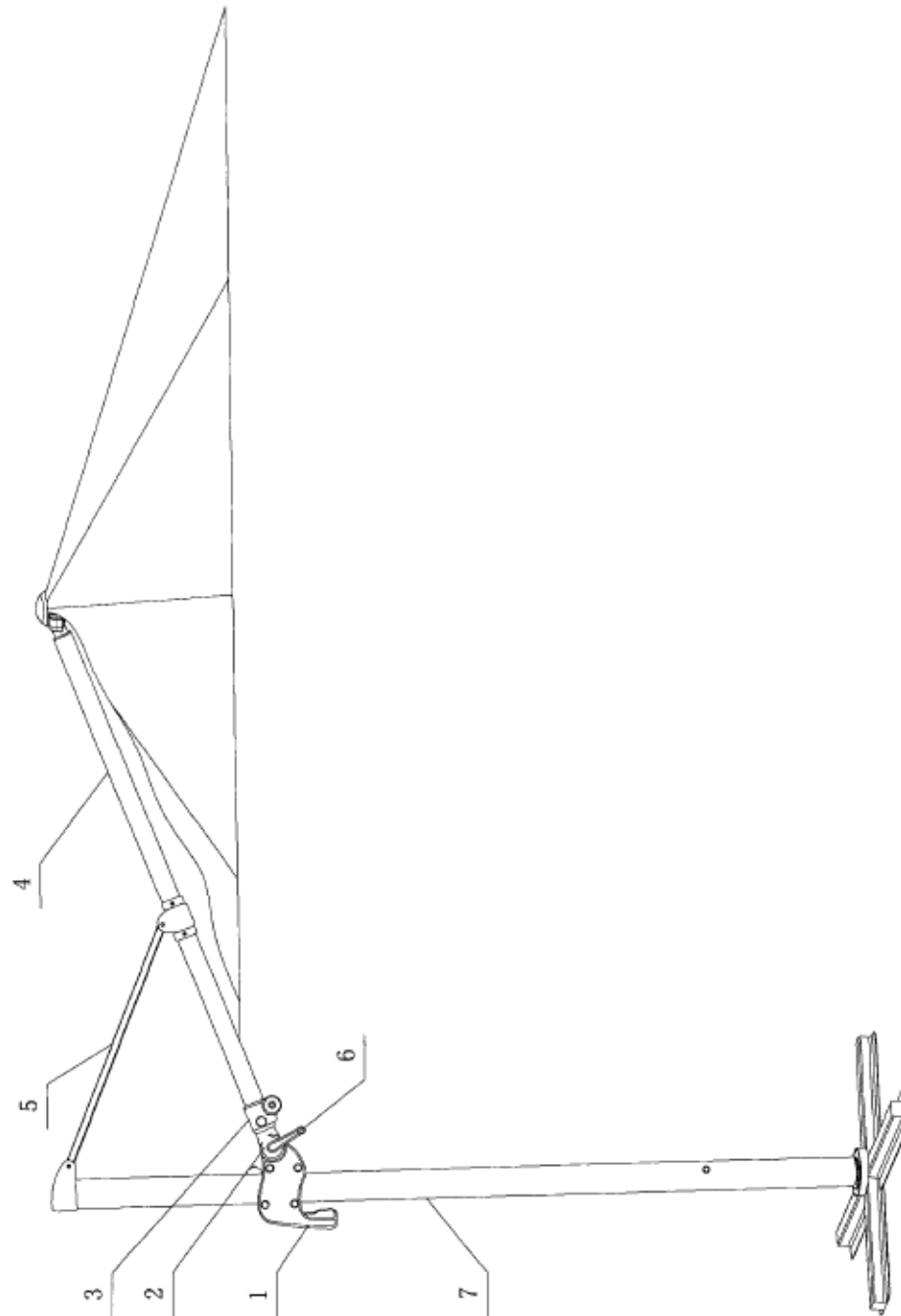
Description of the Embodiments

The specific embodiments of the present utility model will be described in detail in conjunction with the accompanying drawings:

The sunshade parasol cranking device comprises a handle mechanism 1, a cranking mechanism 2, and a turning mechanism 3 which are connected to each other for cooperation, the handle mechanism 1 is sleeved on a pole 7, and an outer end of the device is connected to an outer tube 4. The handle mechanism 1 that is sleeved on the pole 7 is composed of a left handle shell 101 and a right handle shell 102 connected and matched by screws 110. An inner cavity of the handle mechanism 1 is provided with a pole sliding sleeve 109 for being sleeved on the pole 7. The pole sliding sleeve 109 is made of a polytetrafluoroethylene material with good lubricity. In general, the upper and lower connections are arranged on the inner side of the left handle shell 101 and the right handle shell 102. The pole 7 is inserted in the pole sliding sleeve 109. An inner side of the pole sliding sleeve 109 is provided with convex points 114 that are slidably matched with the pole 7. The number of the convex points 114 can be generally set to be 6, with two convex points on the left side, two convex points on the right side, one convex point on the front side, and one convex point on the back side. This can prevent the handle mechanism 1 from shaking during sliding. The handle mechanism 1 can slide up and down via the convex points 114 and the corresponding grooves provided on the pole 7. An elastic positioning pin 111 is installed in the handle mechanism 1 and is inserted into a positioning hole 7b provided on the pole 7. The positioning holes 7b are arranged at a certain distance on a plastic strip 7a connected to one side of the pole 7. The elastic positioning pin 111 is linked with a handle switch 107 provided on the handle mechanism 1. For example, the handle switch 107 is linked with the elastic positioning pin 111 via a transmission pin 106 provide at an upper end of the handle switch 107, a transmission lever member 104 provided at the front and rear side, and a corresponding connection rope 103. The transmission lever member 104 can rotate around a cylindrical pin 105 connected to an inner side of the left handle shell 101. The connection rope 103 can be a steel wire rope. The handle switch 107 is movably connected with a cylindrical pin

105a provided on the inner side of the left handle shell 101 of the handle mechanism 1 as the central axis; in addition, a handle switch spring 108 is provided between the handle switch 107 and the left handle shell 101, the elastic positioning pin 111 is elastically slidably matched with a fixing sleeve 112 provided and connected in the inner cavity of the handle mechanism 1 via a positioning pin spring 113. A user can press the handle switch 107, the elastic positioning pin 111 is then pulled out of the positioning hole 7b by means of the linkage of the transmission pin 106, the front and rear transmission lever members 104 and the connection rope 103, so the handle mechanism 1 can slide on the pole 7, and the elastic positioning pin 111 is inserted into another positioning hole 7b for positioning with the positioning pin spring 113. A front end inner cavity of the handle mechanism 1 is provided with a cranking mechanism 2. The cranking mechanism 2 comprises a cranking shaft 206 and a rope winding wheel 209 sleeved therewith. Both ends of the cranking shaft 206 are connected in series to the left handle shell 101 and the right handle shell 102. A washer 207 and a torsion spring 208 are provided between the cranking shaft 206 and the left handle shell 101. The rope winding wheel 209 is controlled to be unable to rotate freely by means of the torsion spring 208, which can provide an anti-slip effect. The rope winding wheel 209 is provided with a parasol rope 211 for controlling the opening and closing of the parasol surface. One end of the cranking shaft 206 is provided with a connection hole for connecting with the cranking handle 6, and the cranking handle 6 is inserted into the connection hole for rotation. The cranking shaft 206 and the rope winding wheel 209 sleeved therewith can rotate, such that the parasol rope 211 is taken in or sent out to control the opening and closing of the parasol surface. The left cranking shell 201 and the right cranking shell 202 that are coaxially and movably matched with the cranking mechanism 2 are provided on two outer sides of the front end of the handle mechanism 1. The left cranking shell 201 and the right cranking shell 202 are sleeved on the outer convex round surfaces of the left handle shell 101 and the right handle shell 102, and are respectively movably connected to the cranking shaft 206 via a copper gasket 205 and an elastic retaining ring for shaft 204. The outer ends thereof are respectively provided with a left cranking shell plug 203 and a right cranking shell plug 210 for positioning. The turning mechanism 3 is connected to the front ends of the left cranking shell 201 and the right cranking shell 202 that cooperate with each other. The turning mechanism 3 comprises a left turning shell 301 and the right turning shell 302 that cooperate with each other. The left turning shell 301 and the right turning shell 302 are respectively fixedly connected to the left cranking

shell 201 and the right turning shell 202 by screws 308. An oblique gear sleeve 304 for connecting the outer tube 4 and a meshing worm gear 303 are arranged in the left turning shell 301 and the right turning shell 302. A washer 305 is arranged between the worm gear 303 and the left turning shell 301 and the right turning shell 302 to make the fit close. The oblique gear sleeve 304 is movably sleeved with the front ends of the left cranking shell 201 and the right cranking shell 202. Deep groove ball bearings 306 are arranged between the two ends of the oblique gear sleeve 304 and the left cranking shell 201 and the right cranking shell 202 matched with each other, so as to reduce friction and increase rotation flexibility. Moreover, an elastic retaining ring for shaft 307 is arranged on the left cranking shell 201 and the right cranking shell 202 matched with each other in front of the oblique gear sleeve 304, so as to prevent the oblique gear sleeve 304 from loosening or falling off. One end of the worm gear 303 is provided with a connection hole for connecting with the cranking handle 6. The cranking handle 6 is turned to rotate the worm gear 303, which drives the oblique gear sleeve 304 in meshing transmission therewith and in connection with the outer tube 4 to rotate. The outer tube 4 then rotates accordingly to freely adjust the parasol within a range of 180 degrees relative to the horizontal level, adjusting the front and rear tilting angles of the parasol. The handle mechanism 1 slides on the pole 7. By means of the rotation of the left cranking shell 201 and the right cranking shell 202 around the cranking shaft 206 and the round surfaces of the left handle shell 101 and the right handle shell 102 and the movably connection between the diagonal rod 5 and the outer tube 4, the left and right tilting angles of the parasol can be adjusted. When the handle mechanism 1 slides downward, the outer tube 4 merges vertically with the pole 7, such that the parasol surface tilts to the left.



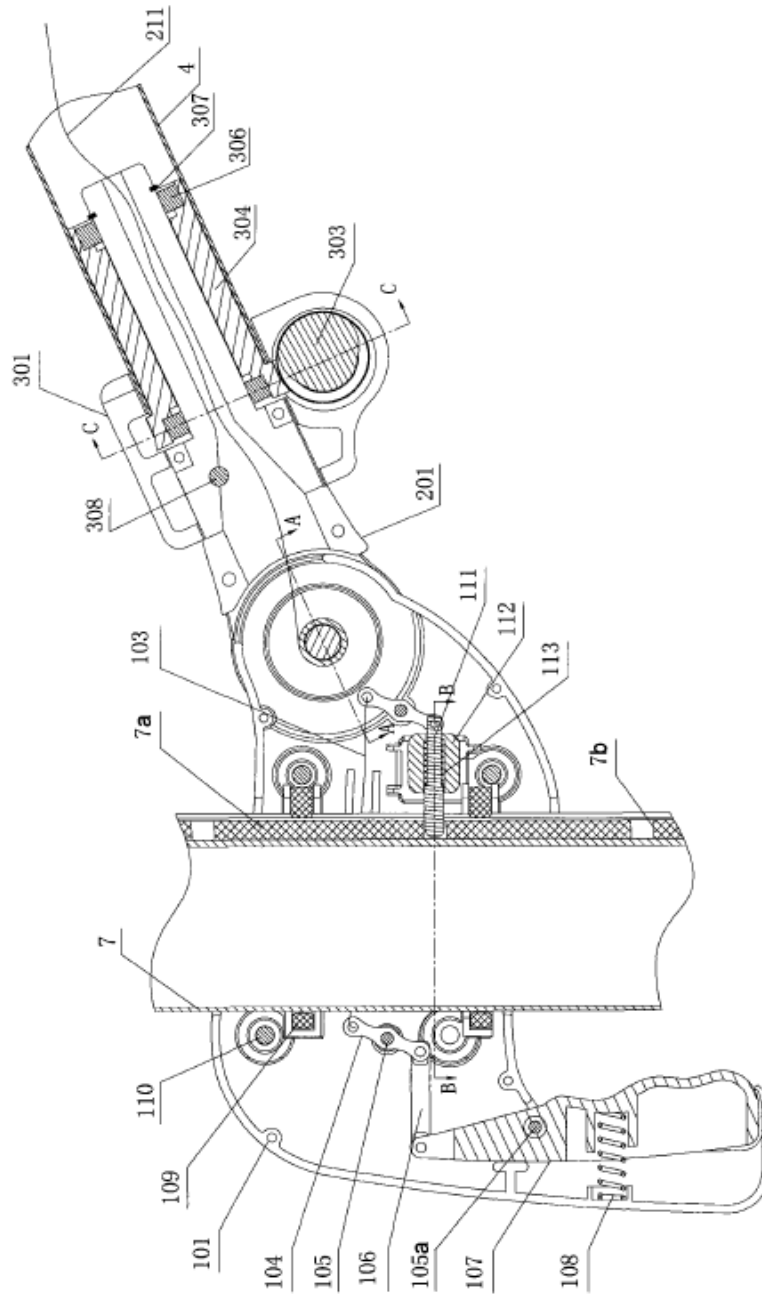


FIG. 2

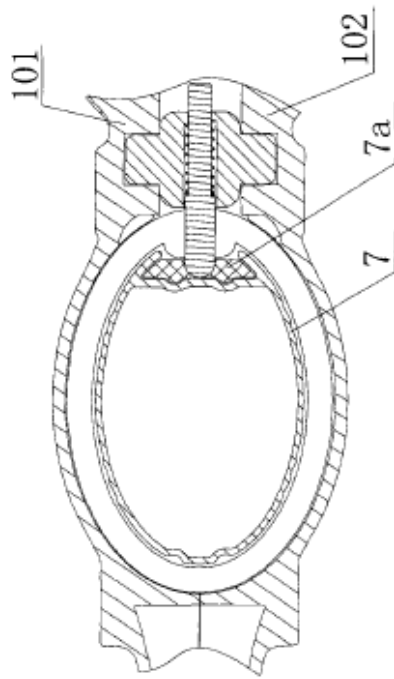


FIG. 4

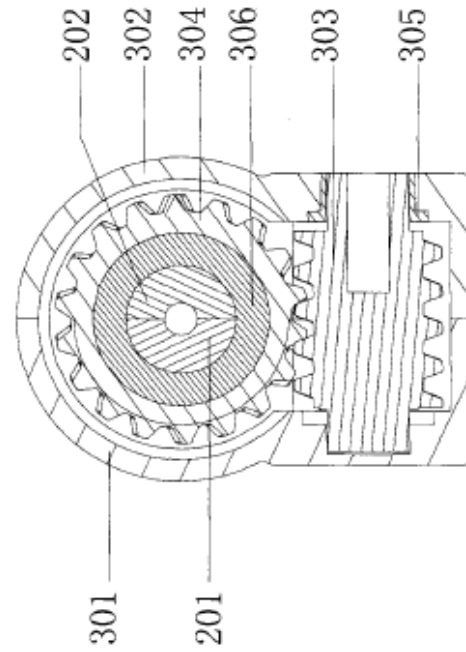


FIG. 5

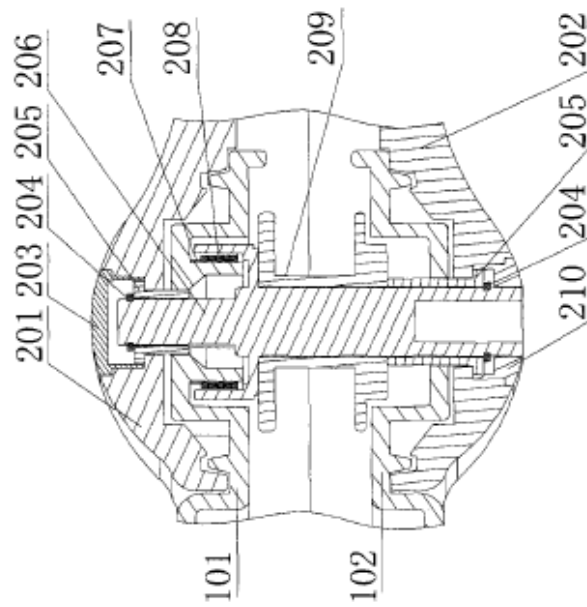


FIG. 3

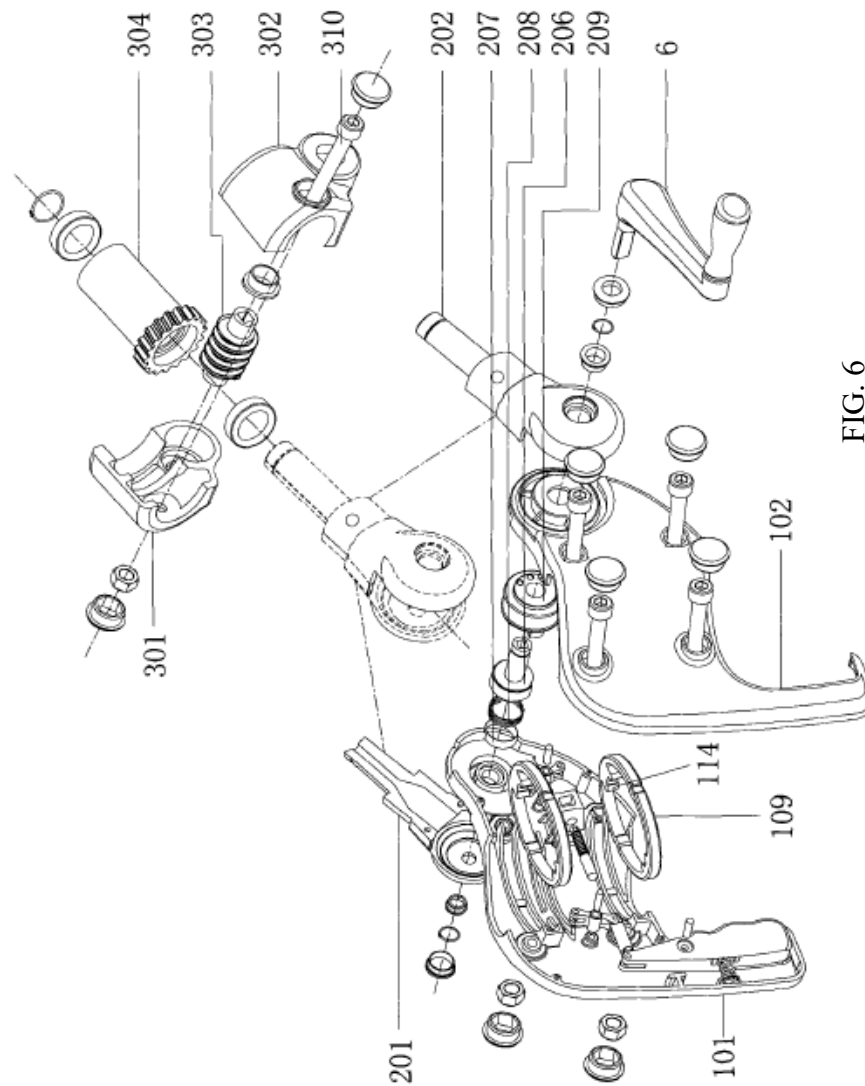


FIG. 6



Certification of Accuracy

I, Qiang Li, hereby attest that I am a translator fluent in Chinese and English, that I have translated the attached documents from Chinese to English, and that to the best of my knowledge, ability and belief this translation is a true, accurate and complete translation of the original Chinese documents that were provided to me.

The documents are designated as:

CN1208009C (Chen)

CN201197439Y (Wang 439)

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Signature of Translator

August 16, 2024

Date