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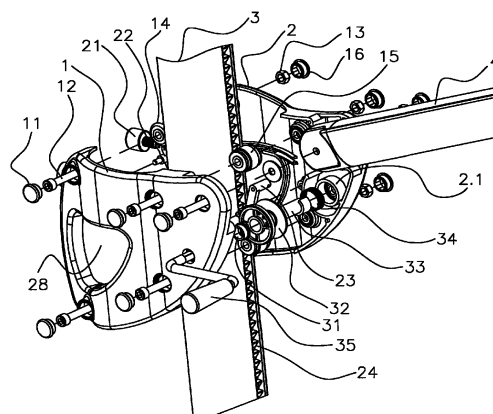
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[54] 实用新型名称

一种直杆折叠吊伞

[57] 摘要

本实用新型属于太阳伞，特别涉及一种直杆折叠吊伞。本实用新型的方案是：立杆底端安装于底座，斜杆外端与伞架铰连，内端与立杆中部铰连，斜拉杆内端与立杆顶端轴连，外端与斜杆中部轴连，斜杆内端轴连定位机构，定位机构套于立杆，立杆轴向制有凹槽，排齿固装于凹槽内，定位机构内装有与排齿卡合的弹性卡块，卡块的一端通过钢丝与活动按钮连接。上述采用特殊的定位机构，并将卷绳器安装于定位机构，不但吊伞的结构简化，组装简便，生产成本降低，外形更加美观，而且操作方便，可靠性增加。



1、一种直杆折叠吊伞，立杆（3）底端安装于底座（7），斜杆（4）外端与伞架（6）铰连，内端与立杆（3）中部铰连，斜拉杆（5）内端与立杆（3）顶端轴连，外端与斜杆（4）中部轴连，其特征在于斜杆（4）内端轴连定位机构，定位机构套于立杆（3），立杆（3）轴向制有凹槽，排齿（24）固装于凹槽内，定位机构内装有与排齿（24）卡合的弹性卡块（23），卡块（23）的一端通过钢丝（26）与活动按钮（21）连接。

2、根据权利要求1所述的一种直杆折叠吊伞，其特征在于定位机构由两壳体（1、2）封装，卡块（23）呈杠杆构造，其支轴装于壳体（1、2）之间，支轴中部套有扭簧（27），卡块（23）的一端可与排齿（24）卡合，另一端通过钢丝（26）与摇臂（25）底端连接，摇臂（25）的顶端与套有弹簧（22）的按钮（21）铰连。

3、根据权利要求2所述的一种直杆折叠吊伞，其特征在于定位机构内装有多与立杆（3）外壁触碰的滚轮（14、15），固装两壳体（1、2）的螺钉（12）和螺母（13）外侧分别塞有堵头（11）和堵头（16），壳体（1、2）设有扶手孔（28），按钮（21）位于扶手孔（28）上方。

4、根据权利要求2所述的一种直杆折叠吊伞，其特征在于控制伞架（6）张合的卷绳器安装于两壳体（1、2）内。

5、根据权利要求3所述的一种直杆折叠吊伞，其特征在于卷绳器的绕绳轮（32）固结有伞绳（36），扭簧（34）套于摇手轴（33），扭簧（34）两端头均与绕绳轮（32）、摇手轴（33）抵触，壳体（2）制有容置扭簧（34）的管壁（2.1），绕绳轮（32）带动扭簧（34）扭动时直径变大与管壁（2.1）涨挤而使绕绳轮（32）止动，摇手轴（33）带动扭簧（34）扭动时直径变小相对管壁（2.1）转动而驱动绕绳轮（32）。

6、根据权利要求5所述的一种直杆折叠吊伞，其特征在于伞绳（36）另一端穿入斜杆（4），并通过斜杆（4）内的滑轮（37）与伞架（6）连接。

一种直杆折叠吊伞

技术领域：

本实用新型属于太阳伞，特别涉及一种直杆折叠吊伞。

背景技术：

传统直杆折叠吊伞的立杆底部固定于底座，斜杆内端活套于立杆，外端与伞架连接，斜拉杆内端与立杆顶部轴连，外端与斜杆中部轴连。立杆管壁开有数个插孔，斜杆通过插销结构定位于立杆；上述结构操作麻烦，定位点有限，使用很不方便。另外，控制伞架张合的卷绳器独立安装于立杆下部，伞绳需要穿入立杆内部，随着斜杆活动伞绳穿出立杆处需要上下移动，一般在立杆外壁开有供伞绳移动的长孔，而且伞绳经常卡死或断裂，可靠性差；上述吊伞的结构复杂，生产成本低，使用不方便。

实用新型内容：

本实用新型的目的是提供定位效果好、使用方便的一种直杆折叠吊伞。

本实用新型的另一目的是提供结构简单、生产成本低、可靠性好的一种直杆折叠吊伞。

本实用新型的方案：立杆底端安装于底座，斜杆外端与伞架铰连，内端与立杆中部铰连，斜拉杆内端与立杆顶端轴连，外端与斜杆中部轴连，斜杆内端轴连定位机构，定位机构套于立杆，立杆轴向制有凹槽，排齿固装于凹槽内，定位机构内装有与排齿卡合的弹性卡块，卡块的一端通过钢丝与活动按钮连接。

定位机构由两壳体封装，卡块呈杠杆构造，其支轴装于壳体之间，

支轴中部套有扭簧，卡块的一端可与排齿卡合，另一端通过钢丝与摇臂底端连接，摇臂的顶端与套有弹簧的按钮铰连。定位机构内装有多个与立杆外壁触碰的滚轮，固装两壳体的螺钉和螺母外侧分别塞有堵头和堵头，壳体设有扶手孔，按钮位于扶手孔上方。

控制伞架张合的卷绳器安装于两壳体内。卷绳器的绕绳轮固结有伞绳，扭簧套于摇手轴，扭簧两端头均与绕绳轮、摇手轴抵触，壳体制有容置扭簧的管壁，绕绳轮带动扭簧扭动时直径变大与管壁涨挤而使绕绳轮止动，摇手轴带动扭簧扭动时直径变小相对管壁转动而驱动绕绳轮。伞绳另一端穿入斜杆，并通过斜杆内的滑轮与伞架连接。

本实用新型的优点是：手握定位机构并按动按钮即可随意调节伞面的倾斜角，松手就能定位，达到最佳的遮阳效果，另一只手转动摇手柄，控制伞架的张合。上述采用特殊的定位机构，并将卷绳器安装于定位机构，不但吊伞的结构简化，组装简便，生产成本降低，外形更加美观，而且操作方便，可靠性增加。

附图说明：

图 1 为本实用新型结构示意图。

图 2 为图 1 中的 A 处装配图。

图 3 为图 2 的轴向剖视图。

图 4 为图 3 中的 B-B 方向剖视图。

具体实施方式：

参照图 1，直杆折叠吊伞的立杆 3 底部固装于底座 7，斜杆 4 的外端与伞架 6 铰连，内端轴连定位机构，该定位机构套于立杆 3 中间，斜拉杆 5 外端与斜杆 4 中部轴连，内端与立杆 3 顶端轴连。图中 A 处为定位机构及卷绳器位置。

参照图 2 至图 4，立杆 3 为异形管材，截面类似鸡蛋壳切面，小径一端制有轴向凹槽，排齿 24 固定于凹槽内，排齿 24 的齿头向上设置。定

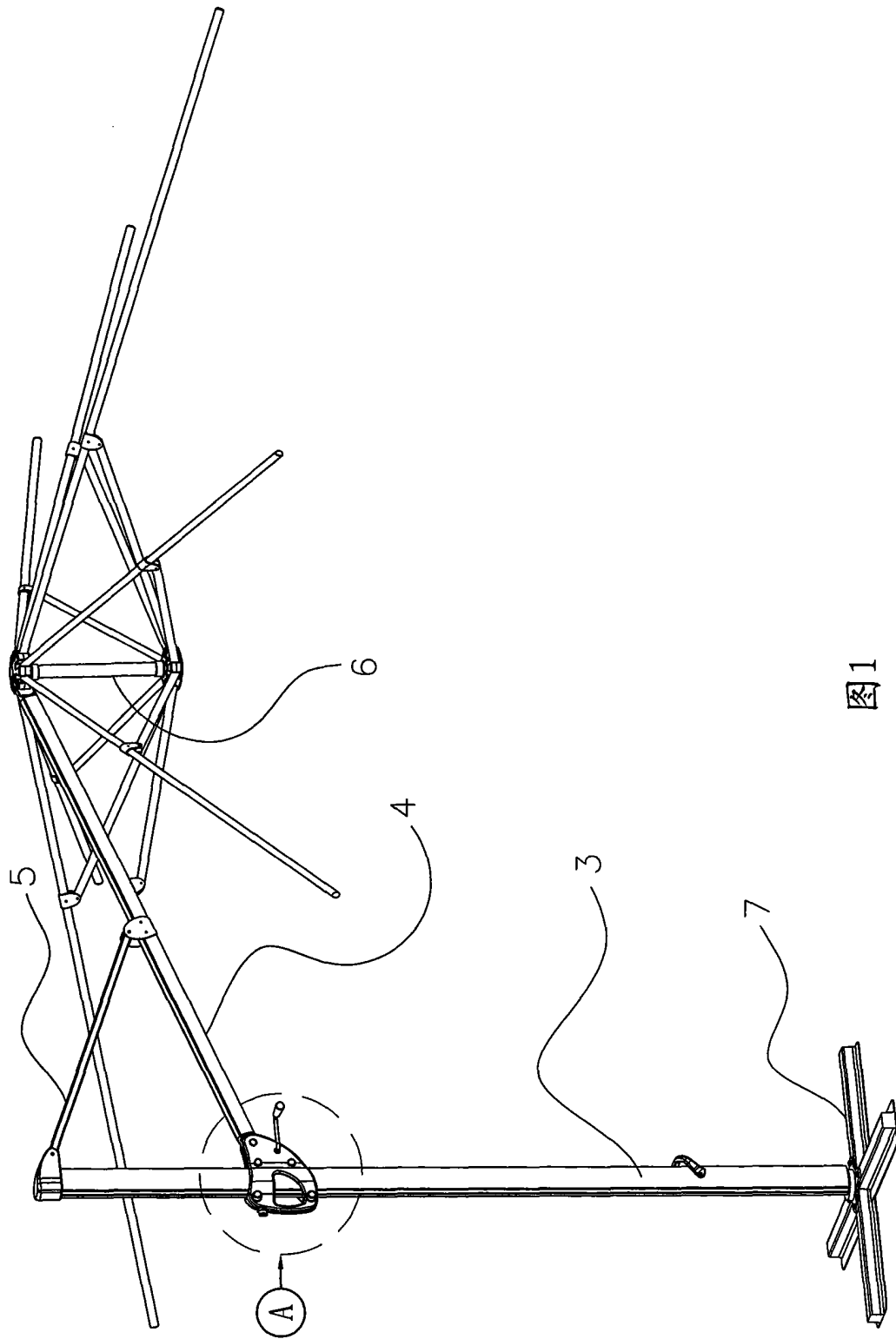
位机构由两壳体 1、2 通过螺钉 12、螺母 13 固连，并将立杆 3 活动抱合。壳体 1 内的卡块 23 呈杠杆构造，其支轴套有扭簧 27 并安装于两壳体 1、2 之间，扭簧 27 弹力作用使卡块 23 的底端与排齿 24 卡合，防止定位机构下移。卡块 23 的上端系有钢丝 26，钢丝 26 的另一端与摇臂 25 的底端连接，摇臂 25 的上端与套有弹簧 22 的按钮 21 铰连。壳体 1 内的左侧设有两个滚轮 14，右侧也设有两个滚轮 15，上述两侧滚轮 14、15 均与立杆 3 外壁触碰，提高定位机构沿立杆 3 滑动的灵活性。壳体的螺钉孔较大，螺钉 12 的钉头和螺母 13 均穿入螺钉孔，分别由堵头 11 和堵头 16 封口，定位机构外表更加美观，螺钉 12、螺母 13 不易浸水生锈。壳体 1 左侧制有扶手孔 28，扶手孔 28 的上方为按钮 21，手握扶手孔 28，伸手大拇指就可按动按钮 21，此时在扶手孔 28 上下用力即可移动斜杆 4，单手就可以操作，符合人体工程学。

定位机构的壳体 1、2 内还装有卷绳器，卷绳器的摇手轴 33 安装于两壳体 1、2 之间，摇手轴 33 的一端制有圆弧凸台，扭簧 34 套于该凸台，凸台卡于扭簧 34 两端头弧面。绕绳轮 32 活套于摇手轴 33，绕绳轮 32 设有凸起，该凸起卡于扭簧 34 两端头的另一弧面。壳体 2 制有筒壁 2.1，套有扭簧 34 的摇手轴 33 插入筒壁 2.1，使扭簧 34 容置于筒壁 2.1 内。摇手轴 33 另一端套有铜套 31 并贯穿壳体 1，铜套 31 直接与摇手轴 33 接触，避免壳体 1 磨损，摇手柄 35 插入摇手轴 33 就可卷动伞绳 36。绕绳轮 32 与伞绳 36 的一端固结，伞绳 36 的另一端穿入斜杆 4，通过斜杆 4 内的滑轮 37 与伞架 6 连接。

工作原理：手握扶手孔 28 向上推动定位机构，卡块 23 相对排条 24 顺齿上行，斜杆 4 内端上移伞架 6 下俯；停止上推，在伞架 6 重力使用下斜杆 4 带动定位机构向下移，由于卡块 23 相对排条 24 逆齿向下卡合，斜杆 4 定位。手按按钮 21，通过摇臂 25 转动卡块 23，卡块 23 与排齿 24 脱离卡合，此时，就能控制斜杆 4 下移使伞架 6 上仰；松开按钮 21，卡

块 23 与排齿 24 重新卡合，斜杆 4 再次定位。上述结构定位位置随意、使用方便。

当顺时针或逆时针转动摇手柄 35，摇手轴 33 带动扭簧 34 扭动，扭簧 34 直径变小，可在管壁 2.1 内自由转动，驱动卷绳轮 32 转动，卷绳轮 32 带动伞绳 36 拉紧或松弛，伞架 6 打开或收拢。松开摇手柄 35，伞架 6 在重力的作用下收拢，并将伞绳 36 拉紧，此时卷绳轮 32 在伞绳 36 的作用下有转动的趋势，卷绳轮 32 带动扭簧 34 扭动并使扭簧 34 直径变大，扭簧 34 与管壁 2.1 涨挤而使绕绳轮 32 止动，伞架 6 状态保持不变。卷绳器安装于定位机构内，伞绳 36 无需穿过立杆 3，伞绳 36 不易折断，可靠性增加，而且结构简化，生产成本降低，外观更加美观，操作方便。



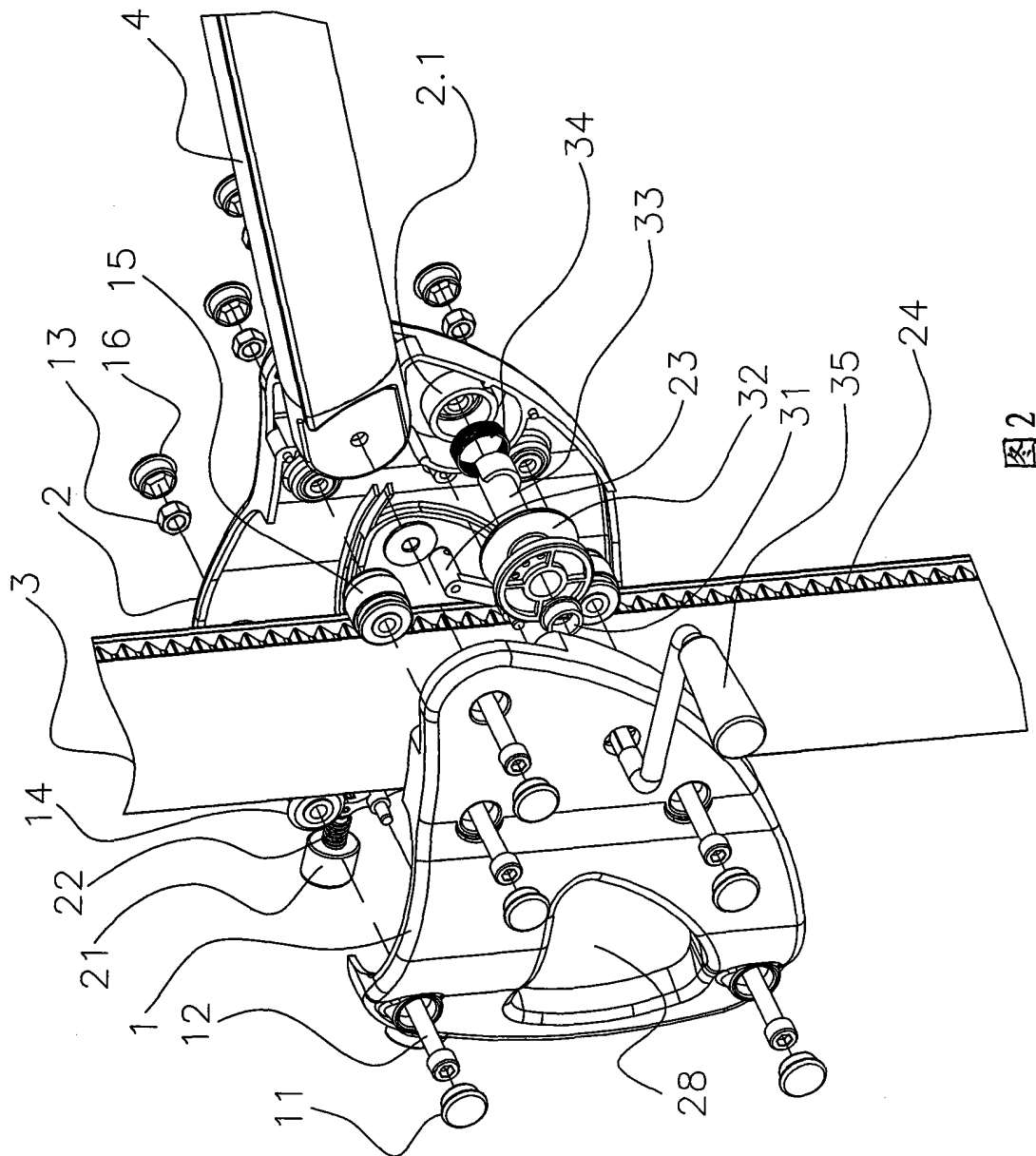
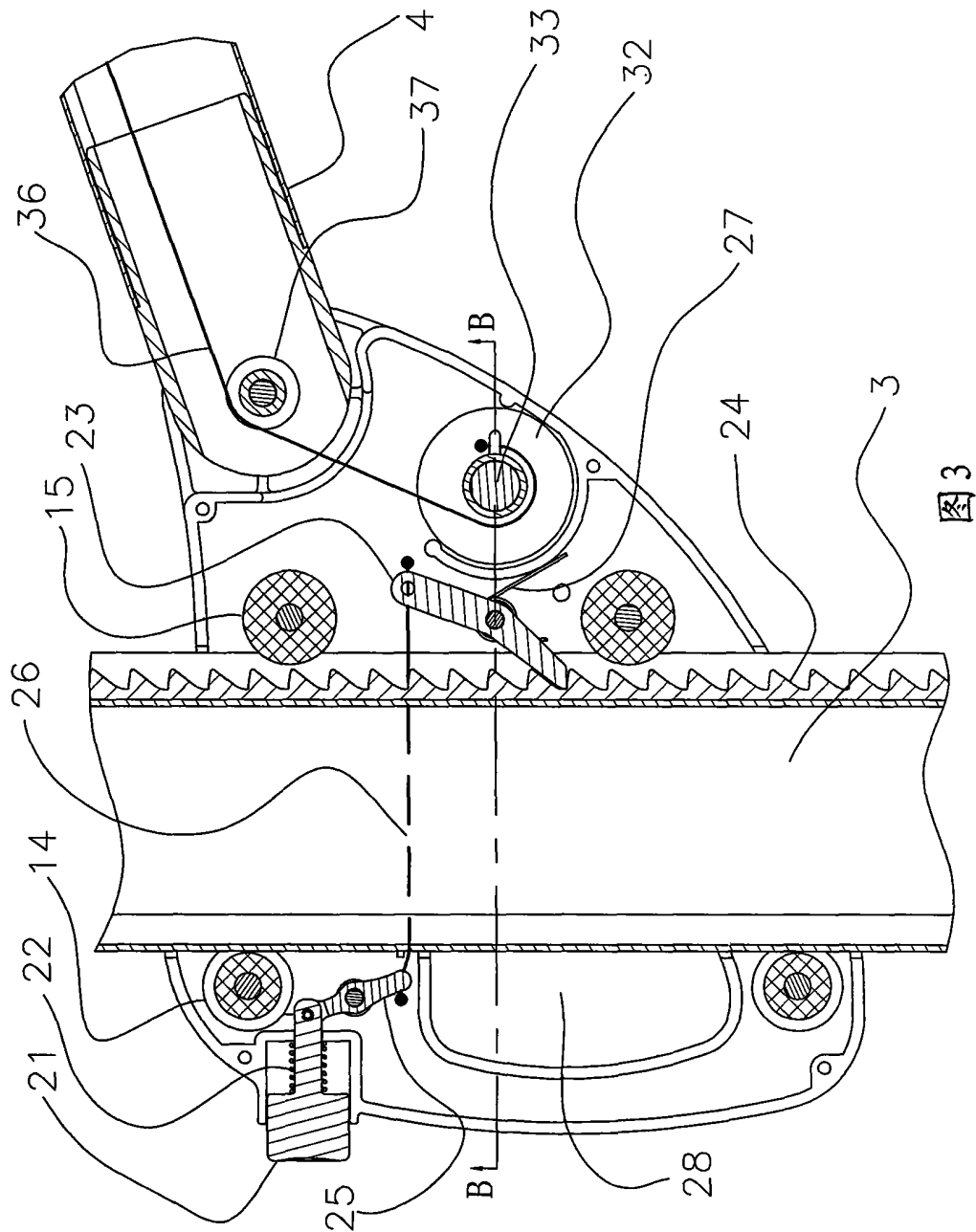


图2



3
圖

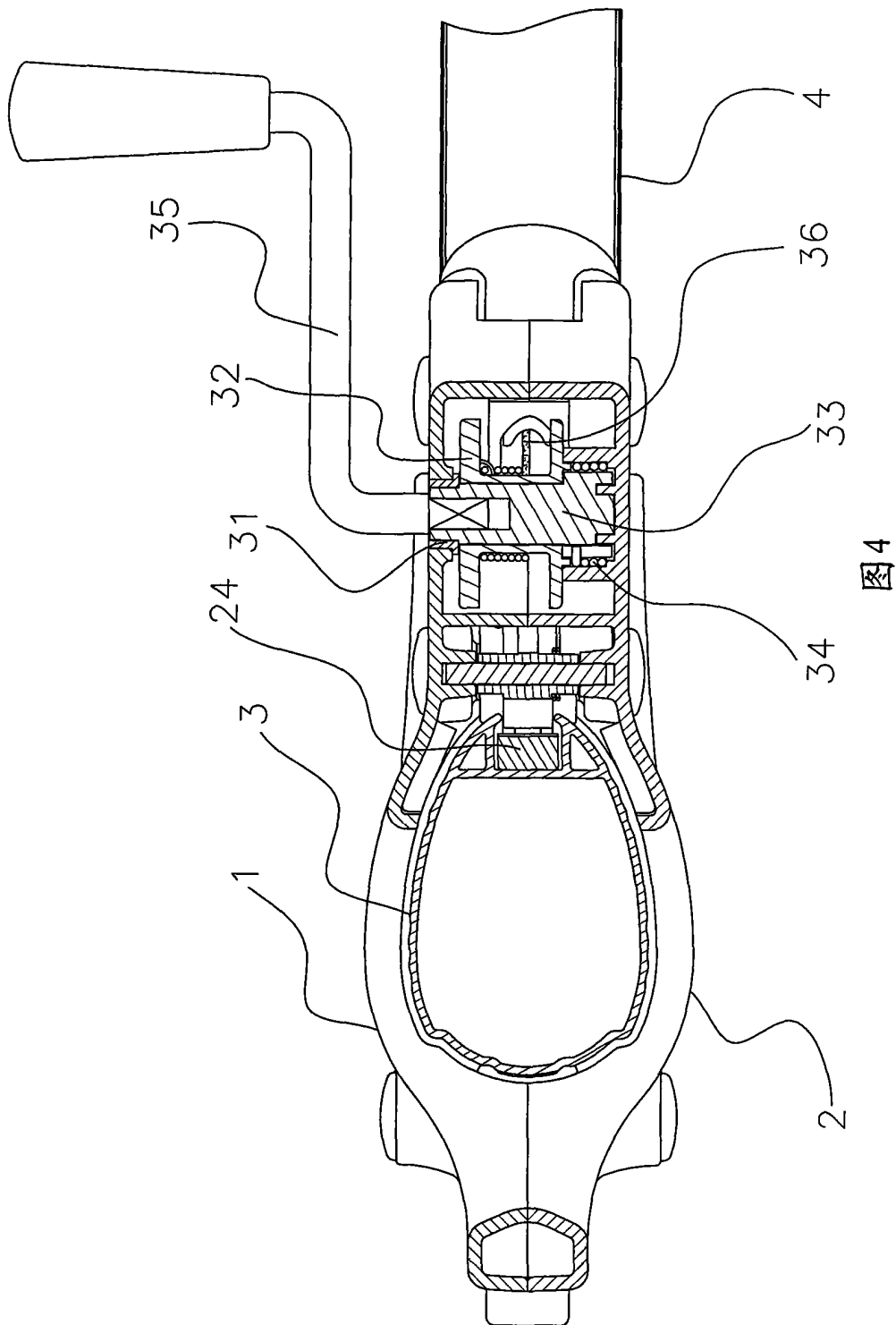


图4



Certification of Accuracy

I, Qiang Li, hereby attest that I am a translator fluent in Chinese and English, that I have translated the attached document 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 document that was provided to me.

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Date

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[12] Description of Utility Model Patent

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Claims 1 page, Description 4 pages, Drawings 4 pages

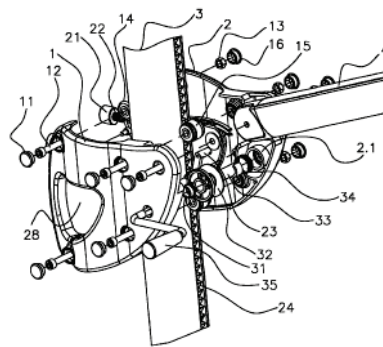
[54] Title of Utility Model

Straight pole foldable hanging parasol

[57] Abstract of Disclosures

The present utility model relates to a parasol, in particular to a straight pole foldable hanging parasol. The technical solution of the present utility model is as follows: a bottom end of a vertical pole is installed on a base, an outer end of a diagonal rod is hinged to a parasol frame, and an inner end thereof is hinged to a middle part of the vertical pole, an inner end of a diagonal pulling rod is axially connected to a top end of the vertical pole, and an outer end thereof is axially connected to a middle part of the diagonal rod, the inner end of the diagonal rod is axially

connected to a positioning mechanism, the positioning mechanism is sleeved on the vertical pole, the vertical pole is axially provided with a recess, a row of teeth is fixedly installed in the recess, an elastic locking block engaged with the row of teeth is provided in the positioning mechanism, one end of the locking block is connected to a push button via a steel wire. The above-mentioned special positioning mechanism is adopted, and a rope reel is installed to the positioning mechanism, which not only simplifies the structure of the hanging parasol, simplifies assembly, reduces production costs, and makes the appearance more appealing, but also facilitates operation and increases reliability.



1. A straight pole foldable hanging parasol, wherein a bottom end of a vertical pole (3) is installed on a base (7), an outer end of a diagonal rod (4) is hinged to a parasol frame (6), and an inner end thereof is hinged to a middle part of the vertical pole (3), an inner end of the diagonal pulling rod (5) is axially connected to a top end of the vertical pole (3), and an outer end thereof is axially connected to a middle part of the diagonal rod (4), characterized in that an inner end of the diagonal rod (4) is axially connected to a positioning mechanism, the positioning mechanism is sleeved on the vertical pole (3), the vertical pole (3) is axially formed with a recess, a row of teeth (24) is fixedly provided in the recess, an elastic locking block (23) engaged with the row of teeth (24) is installed in the positioning mechanism, and one end of the locking block (23) is connected to a push button (21) via a steel wire (26).

2. The straight pole foldable hanging parasol according to claim 1, characterized in that the positioning mechanism is enclosed by two shells (1, 2), the locking block (23) is a lever structure, and a support shaft thereof is installed between the shells (1, 2), a torsion spring (27) is sleeved over a middle part of the support shaft, one end of the locking block (23) can be engaged with the row of teeth (24), and the other end thereof is connected to a bottom end of a crank arm (25) via the steel wire (26), and a top end of the crank arm (25) is hinged to the button (21) sleeved with a spring (22).

3. The straight pole foldable hanging parasol according to claim 2, characterized in that the positioning mechanism is provided with a plurality of rollers (14, 15) in contact with an outer wall of the vertical pole (3), a screw (12) and a nut (13) for fixing the two shells (1, 2) are respectively plugged with a plug (11) and another plug (16), the shells (1, 2) are provided with a handle hole (28); and the button (21) is located above the handle hole (28).

4. The straight pole foldable hanging parasol according to claim 2, characterized in that a rope reel for controlling the opening and closing of the parasol frame (6) is installed within the two shells (1, 2).

5. The straight pole foldable hanging parasol according to claim 3, characterized in that a rope reel wheel (32) of the rope reel is fixed with a parasol rope (36), a torsion spring (34) is

sleeved on a crank shaft (33), two ends of the torsion spring (34) abut against the rope reel wheel (32) and the crank shaft (33), the shell (2) is provided with a tube wall (2.1) for accommodating the torsion spring (34), when the rope reel wheel (32) drives the torsion spring (34) to twist, the diameter of the torsion spring increases and thus presses the tube wall (2.1) to stop the rope reel wheel (32), and when the crank shaft (33) drives the torsion spring (34) to twist, the diameter of the torsion spring decreases and thus rotates relative to the tube wall (2.1) to drive the rope reel wheel (32) to rotate.

6. The straight pole foldable hanging parasol according to claim 5, characterized in that the other end of the parasol rope (36) penetrates into the diagonal rod (4) and is connected to the parasol frame (6) via a pulley (37) in the diagonal rod (4).

Straight pole foldable hanging parasol

Technical Field:

The present utility model relates to a parasol, in particular to a straight pole foldable hanging parasol.

Background Art

The bottom part of the vertical pole of a traditional straight pole foldable hanging parasol is fixed to the base, the inner end of the diagonal pole is sleeved on the vertical pole, and the outer end thereof is connected to the parasol frame, the inner end of the diagonal rod is axially connected to the top part of the vertical pole, and the outer end thereof is axially connected to a middle part of the diagonal rod. There can be a plurality of holes provided on the wall of the vertical pole tube, and the diagonal rod can be positioned on the vertical pole with a latch structure; the above structure is cumbersome to operate, the positioning positions are limited, and it is very inconvenient to use. In addition, the rope reel that controls the opening and closing of the parasol frame is independently installed at a lower part of the vertical pole, the parasol rope needs to be inserted into the vertical pole, and as the diagonal rod moves, the parasol rope needs to move up and down when it passes through the vertical pole. Generally, a long hole for the parasol rope to move is opened on the outer wall of the vertical pole, and the parasol rope is often stuck or broken, hence the reliability is poor. In addition, the above hanging parasol has a complex structure, high production cost, and inconvenient use.

Summary of the Utility Model

One object of the present utility model is to provide a straight pole foldable hanging parasol which has good positioning effect and is convenient to use.

Another object of the present utility model is to provide a straight pole foldable hanging parasol with simple structure, low production cost and good reliability.

The solution of the present utility model is as follows: a bottom end of a vertical pole is installed on a base, an outer end of a diagonal rod is hinged to a parasol frame, and an inner end thereof is hinged to a middle part of the vertical pole, an inner end of the diagonal pulling rod is axially connected to a top end of the vertical pole, and an outer end thereof is axially connected

to a middle part of the diagonal rod, an inner end of the diagonal rod is axially connected to a positioning mechanism, the positioning mechanism is sleeved on the vertical pole, the vertical pole is axially formed with a recess, a row of teeth is fixedly provided in the recess, an elastic locking block engaged with the row of teeth is installed in the positioning mechanism, and one end of the locking block is connected to a push button via a steel wire.

The positioning mechanism is enclosed by two shells, the locking block is a lever structure, and a support shaft thereof is installed between the shells, a torsion spring is sleeved over a middle part of the support shaft, one end of the locking block can be engaged with the row of teeth, and the other end thereof is connected to a bottom end of a crank arm via the steel wire, and a top end of the crank arm is hinged to the button sleeved with a spring. The positioning mechanism is provided with a plurality of rollers in contact with an outer wall of the vertical pole, a screw and a nut for fixing the two shells are respectively plugged with a plug and another plug, the shells are provided with a handle hole; and the button is located above the handle hole.

A rope reel for controlling the opening and closing of the parasol frame is installed within the two shells. A rope reel wheel of the rope reel is fixed with a parasol rope, a torsion spring is sleeved on a crank shaft, two ends of the torsion spring abut against the rope reel wheel and the crank shaft, the shell is provided with a tube wall for accommodating the torsion spring, when the rope reel wheel drives the torsion spring to twist, the diameter of the torsion spring increases and thus presses the tube wall to stop the rope reel wheel, and when the crank shaft drives the torsion spring to twist, the diameter of the torsion spring decreases and thus rotates relative to the tube wall to drive the rope reel wheel to rotate. The other end of the parasol rope penetrates into the diagonal rod and is connected to the parasol frame via a pulley in the diagonal rod.

The advantages of the present utility model are as follows: the tilt angle of the parasol surface can be adjusted at will by holding the positioning mechanism and pressing the button; the parasol can be positioned by releasing the hand so as to achieve the best sunshade effect; the other hand can turn the crank handle to control the opening and closing of the parasol frame. The above-mentioned special positioning mechanism is adopted, and a rope reel is installed to the positioning mechanism, which not only simplifies the structure of the hanging parasol, simplifies assembly, reduces production costs, and makes the appearance more appealing, but also facilitates operation and increases reliability.

Brief Description of the Drawings

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

Fig. 2 is an assembly diagram at position A shown in Fig. 1.

Fig. 3 is an axial cross-sectional diagram of Fig. 2.

Fig. 4 is a cross-sectional diagram along the B-B direction in Fig. 3.

Description of the Embodiments

With reference to Fig. 1, the bottom part of the vertical pole 3 of the straight pole foldable hanging parasol is fixed to the base 7, the outer end of the diagonal rod 4 is hinged to the parasol frame 6, and the inner end thereof is connected to the positioning mechanism. The positioning mechanism is sleeved on a middle part of the vertical pole 3. The outer end of the diagonal pulling rod 5 is connected to a middle part of the diagonal rod 4, and the inner end thereof is connected to the top end of the vertical pole 3. A in the figure shows the position of the positioning mechanism and the rope reel.

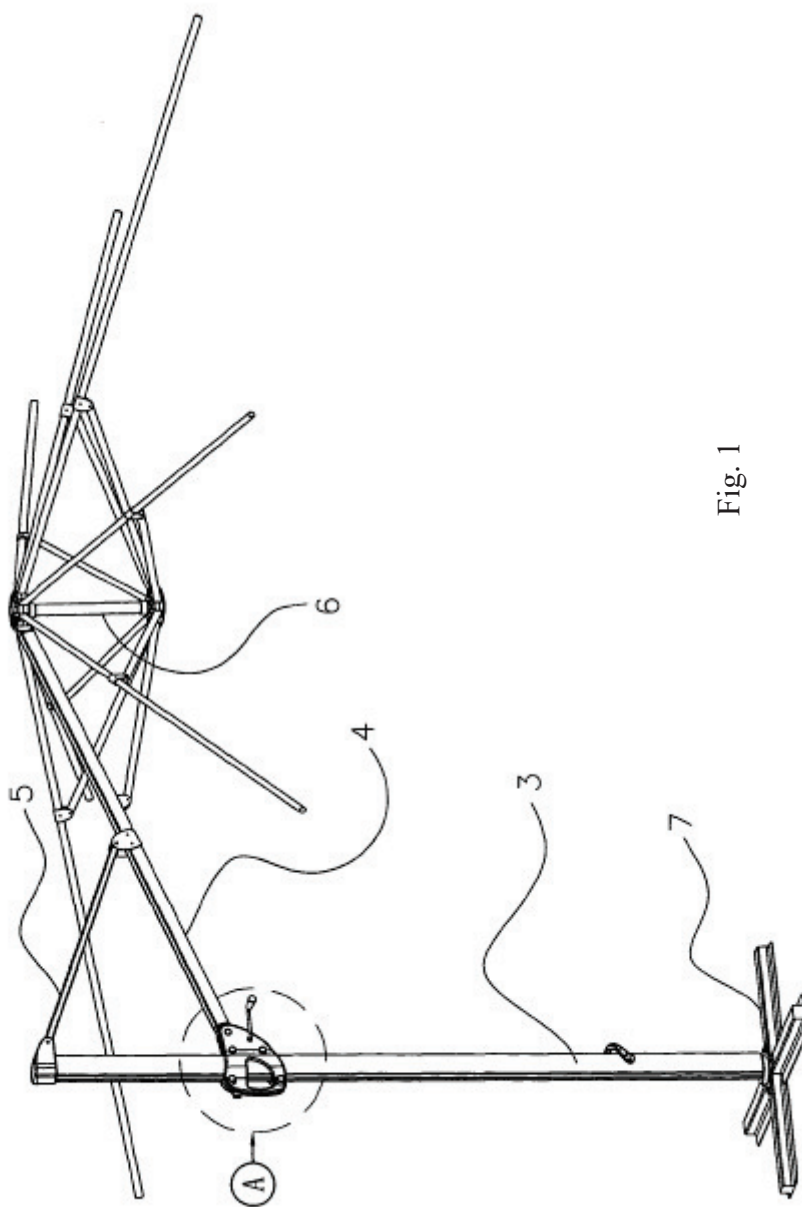
With reference to Fig. 2 to Fig. 4, the vertical pole 3 is a special-shaped tube with a cross section similar to the cross section of an eggshell. An axial recess is formed at the end of the small diameter, and the row of teeth 24 is fixedly provided in the recess. The tooth heads of the row of teeth 24 are arranged upward. The positioning mechanism is fixed by the two shells 1 and 2 with the screw 12 and the nut 13, and the vertical pole 3 is movably engaged by it. The locking block 23 in the shells is a lever structure, and its support shaft is sleeved with a torsion spring 27 and installed between the two shells 1 and 2. The elastic force of the torsion spring 27 causes the bottom end of the locking block 23 to engage with the row of teeth 24 to prevent the positioning mechanism from moving downward. The upper end of the locking block 23 is tied with the steel wire 26, the other end of the steel wire 26 is connected to the bottom end of the crank arm 25, and the upper end of the crank arm 25 is hinged to the button 21 sleeved with a spring 22. Two rollers 14 are provided on the left side of the shell, and two rollers 15 are also provided on the right side thereof. The rollers 14 and 15 on both sides can touch the outer wall of the vertical pole 3, which improves the flexibility of the positioning mechanism sliding along the vertical pole 3. The screw holes on the shells are relatively large, and the head of the screw 12 and the nut 13 are both inserted into the screw holes, the screw holes are sealed by the plug 11 and the plug 16 respectively, such that the positioning mechanism has a more appealing appearance, and

the screw 12 and the nut 13 are not easy to be soaked in water and rusted. A handle hole 28 is formed on the left side of the shell, and a button 21 is above the handle hole 28. While holding the handle hole 28, a user can press the button 21 with the thumb. At this time, the user can move the diagonal rod 4 by applying force up and down on the handle hole 28, which can be operated with one hand and is thus ergonomic.

The shells 1 and 2 of the positioning mechanism are also equipped with a rope reel. The crank shaft 33 of the rope reel is installed between the two shells 1 and 2. One end of the crank shaft 33 is provided with a circular arc boss, the torsion spring 34 is sleeved on the boss, and the boss is clamped with the arc surfaces at two ends of the torsion spring 34. The rope reel wheel 32 is movably sleeved on the crank shaft 33, the rope reel wheel 32 is provided with a protrusion, and the protrusion is clamped on the other arc surface of the two ends of the torsion spring 34. The shell 2 is provided with a tube wall 2.1, and the crank shaft 33 with the torsion spring 34 is inserted into the tube wall 2.1, so that the torsion spring 34 is accommodated within the tube wall 2.1. The other end of the crank shaft 33 is sleeved with a copper sleeve 31 which further passes through the shell 1. The copper sleeve 31 is in direct contact with the crank shaft 33 to avoid wear of the shell 1. The crank handle 35 is inserted into the crank shaft 33 to reel the parasol rope 36. The rope reel wheel 32 is fixed with one end of the parasol rope 36, and the other end of the parasol rope 36 is inserted into the diagonal rod 4 and connected to the parasol frame 6 via the pulley 37 inside the diagonal rod 4.

Working mechanism: hold the handle hole 28 and push the positioning mechanism upward, the locking block 23 moves upward along the teeth of the row of teeth 24, and the inner end of the diagonal rod 4 moves upward to make the parasol frame 6 tilt downward; stop pushing upward, under the gravity of the parasol frame 6, the diagonal rod 4 drive the positioning mechanism to move downward; since the locking block 23 is engaged downward against the teeth of the row of teeth 24, the diagonal rod 4 is positioned. Press the button 21 by the hand, so the locking block 23 is turned by the crank arm 25, and thus the locking block 23 and the row of teeth 24 are disengaged. At this time, the diagonal rod 4 can be controlled to move downward to make the parasol frame 6 tilt upward; then release the button 21, the locking block 23 and the row of teeth 24 are reengaged, and the diagonal rod 4 is positioned again. The positioning position of the above structure can be decided at will, which is easy to use.

When the crank handle 35 is turned clockwise or counterclockwise, the crank shaft 33 drives the torsion spring 34 to twist, the diameter of the torsion spring 34 becomes smaller and thus can rotate freely in the tube wall 2.1, thereby driving the rope reel wheel 32 to rotate, the rope reel wheel 32 drives the parasol rope 36 to tighten or relax, and the parasol frame 6 opens or closes. Next release the crank handle 35, the parasol frame 6 is closed under the gravity, and the parasol rope 36 is tightened. At this time, the rope reel wheel 32 has a tendency to rotate under the action of the parasol rope 36, the rope reel wheel 32 drives the torsion spring 34 to twist and increase the diameter of the torsion spring 34, so the torsion spring 34 presses and the tube wall 2.1 to stop the rope reel wheel 32, and the parasol frame 6 remains unchanged. The rope reel is installed in the positioning mechanism, and the parasol rope 36 does not need to pass through the vertical pole 3, such that the parasol rope 36 is not easy to break. The reliability is improved, the structure is simplified, the production cost is reduced, the appearance is more appealing, and the operation is convenient.



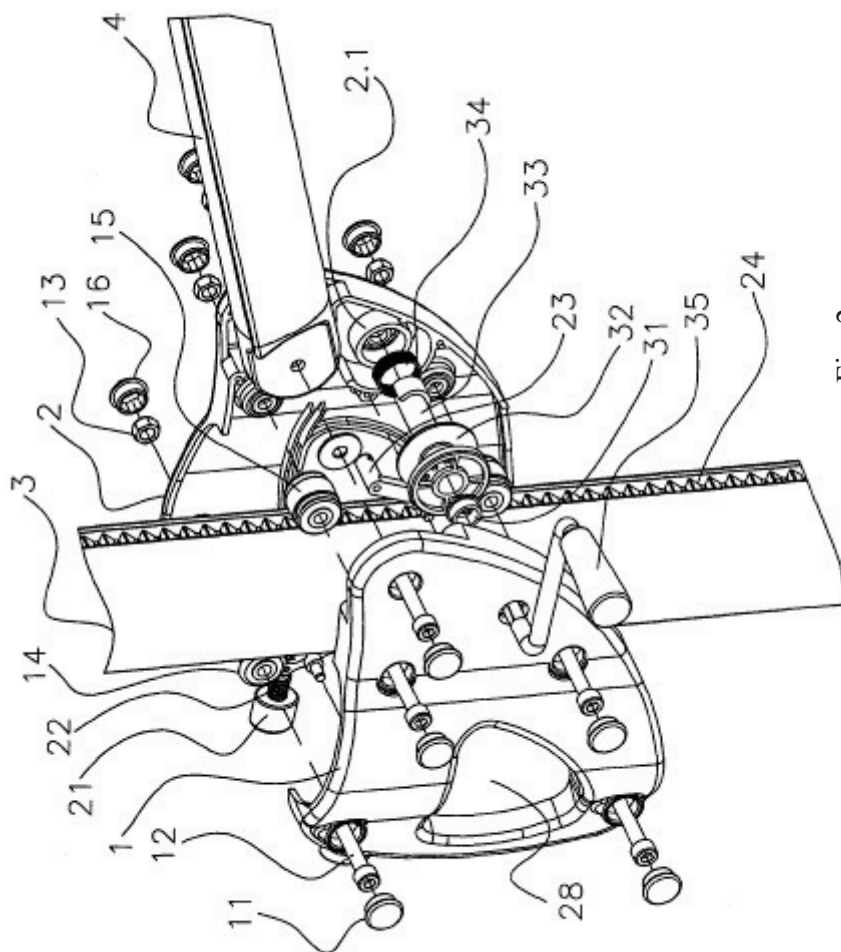
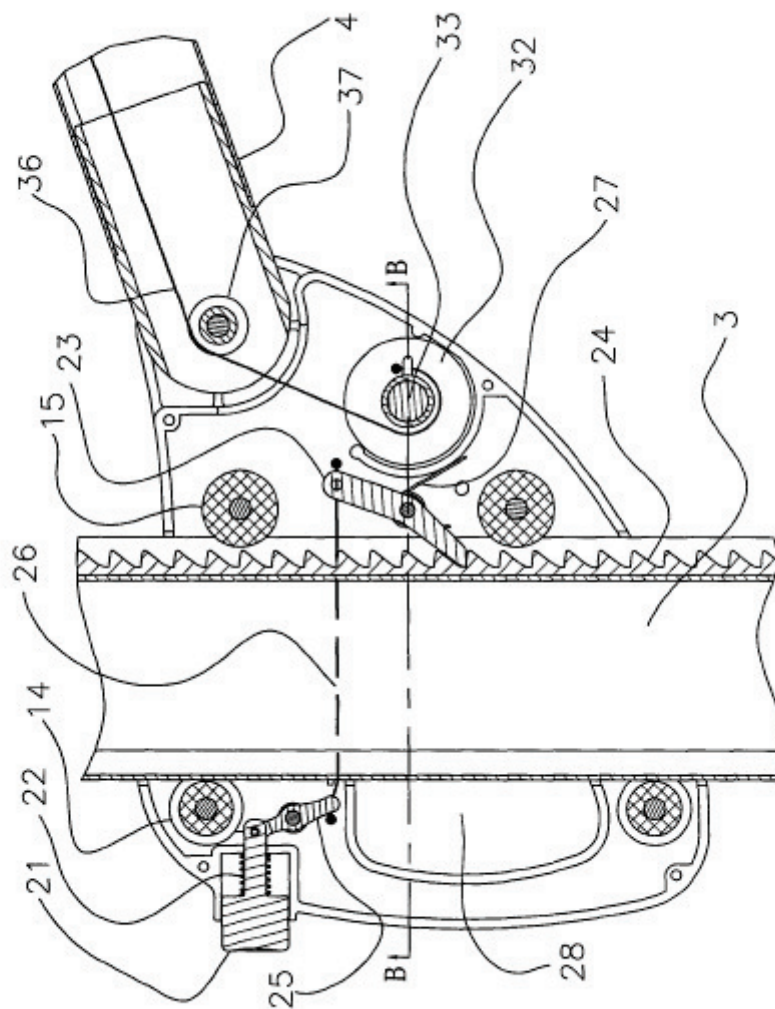


Fig. 2



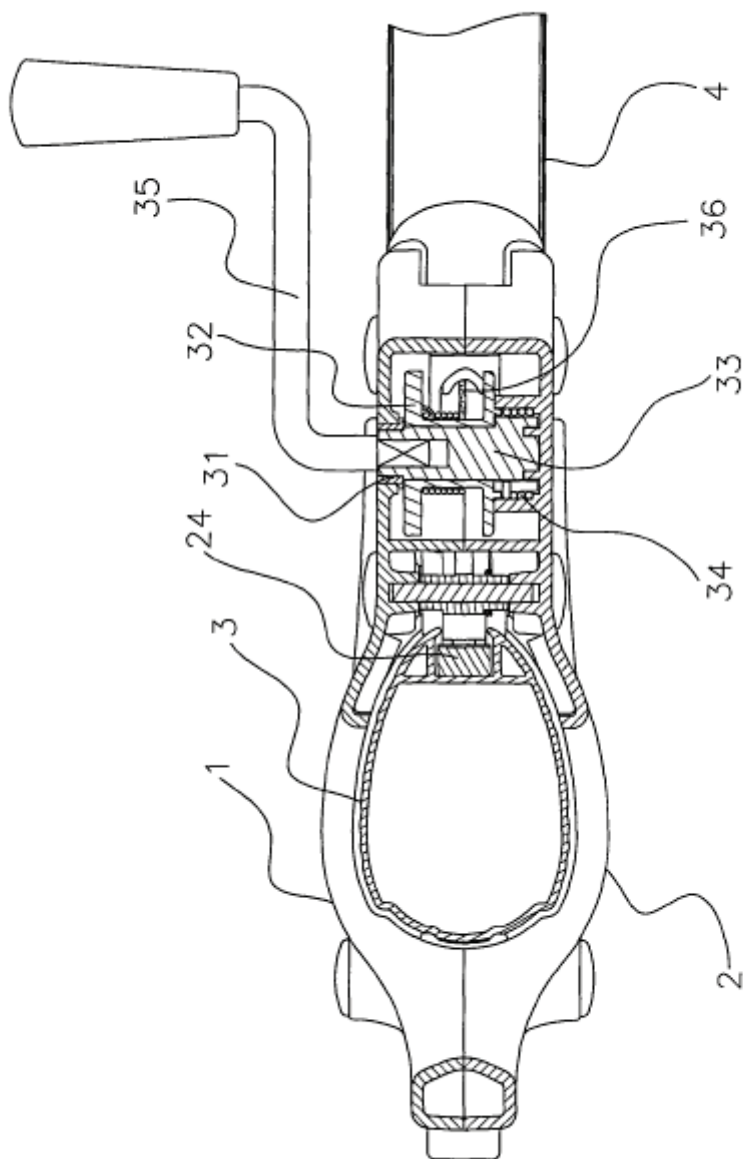


Fig. 4