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(54) **CORDLESS ZEBRA CURTAIN WITH AN ADJUSTABLE MAINSPRING**
SCHNURLOSER ZEBRA-VORHANG MIT EINER VERSTELLBAREN HAUPTFEDER
RIDEAU ZÉBRÉ SANS FIL AVEC UN RESSORT PRINCIPAL RÉGLABLE

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Description

Technical Field

[0001] The invention relates to the technical field of window curtains, and in particular to a hand-held zebra curtain with an upper beam adjustable mainspring.

Background

[0002] The existing spring roller blind generally comprises a bracket and a scroll which are arranged on both sides, and a spring bar is arranged in the scroll. A limiting spring is sleeved on the spring bar, and a spring tail plug is installed at the end part of the limiting spring. The resilience force of the limiting spring requires rotation in advance according to the size and weight of the curtain to supply force. Moreover, the resilience circles of the spring bar with this structure are limited. The resilience force is not balanced. If more resilience circles and more balanced resilience force are needed, a longer spring bar is needed, but a window curtain with small width cannot be put. Therefore, this structure is only applicable to a single-layer curtain. A double-layer roller blind needs double cloth, and cannot be completely folded.

[0003] The existing hand-held zebra curtain with an upper beam adjustable mainspring uses the resilience force of a mainspring and a counterweight iron below a lower bar to balance their forces to ensure that the roller blind does not rebound in a stationary state. However, in mass production, due to the deviation of the resilience force of the mainspring, the roller blind sometimes rebounds when the counterweights of the same weight are used. At this moment, the counterweights need to be added so that the operation is tedious and the efficiency is low during production.

[0004] US 2016/0130863 A1 discloses a light input-adjusting window shade including a supporting member having first and second ends respectively coupled to a positioning seat and a level fixing device. The level fixing device includes a housing and a transmission unit includes a rotational shaft extending beyond the housing. A first end of a spool is rotatably mounted to the positioning seat. A second end of the spool is coupled to the rotational shaft of the level fixing device. A first periphery of a shade body is fixed to and coiled around the spool. The shade body is wound around a rod of a weighting unit. A second periphery of the shade body is fixed to a coupling portion of the supporting member.

Summary

[0005] The invention designs a hand-held zebra curtain with an upper beam adjustable mainspring, which solves the technical problem that due to the deviation of the resilience force of the mainspring in production of the existing hand-held zebra curtain with the upper beam adjustable mainspring, the roller blind sometimes re-

bounds when the counterweights of the same weight are used and the counterweights need to be added only so that the operation is tedious and the efficiency is low during production.

[0006] To solve the above technical problem, the invention adopts the following technical solution:

A hand-held zebra curtain with an upper beam adjustable mainspring comprises a left bracket, a right bracket and a rack which connects the left bracket and the right bracket; a scroll arranged between the left bracket and the right bracket; the scroll is provided with a roller blind; the left bracket and/or the right bracket is provided with a mainspring coiling device for rotating the scroll to coil the roller blind; the mainspring coiling device comprises a regulating plunger, a mainspring, a mainspring fixing disk and a mainspring coiling disk; a toothed turntable is nested on the regulating plunger; the mainspring is sleeved on the mainspring fixing disk in a relaxed state; a coiling end of the mainspring is clamped with the mainspring coiling disk; and the left bracket and the right bracket are each provided with a said mainspring coiling device and are each also provided with a resistance regulating device for regulating the resilience force of the mainspring, wherein each resistance regulating device comprises a regulating screw for increasing or decreasing the resilience force of the mainspring.

[0007] Further, the resistance regulating device comprises said regulating screw, a nut matched with the regulating screw, a pressing block and an elastic washer; the left bracket and the right bracket each comprise a shell and an end cover buckled with each other; each shell is provided with a second fixing column for fixing the mainspring coiling disk; the second fixing column is provided with a through hole matched with the resistance regulating device; the regulating screw is inserted into the through hole from outside to inside; the nut is arranged on the regulating screw and can axially move along the regulating screw; the pressing block is sleeved outside the regulating screw; a spring is arranged between the nut and the pressing block; the spring is sleeved on the regulating screw; one side of the pressing block is linked with the nut, and the other side of the pressing block comes into contact with the mainspring coiling disk; the mainspring coiling disk is provided with an external spline inserted with the regulating plunger; the elastic washer is sleeved on the external spline and padded between the end cover and the mainspring coiling disk; the shell comprises a housing and a hood body matched with each other; and the housing is provided with a second hole matched with the end part of the regulating screw.

[0008] Further, the nut is a hexagon nut; and the section of the through hole is a hexagon matched with the nut and the pressing block.

[0009] Further, the elastic washer is a rubber washer; an installing frame is arranged on the rack; the installing frame comprises a first installing frame and a second installing frame matched with each other; the first install-

ing frame and the second installing frame are in L shape; the first installing frame comprises a first clamping block and a lock catch; the second installing frame comprises a second clamping block and a snap fastener; a surface of the first clamping block facing away from the first clamping block is provided with an upper buckle and a lower buckle in sequence from top to bottom; and a handle is connected to the upper buckle.

[0010] Further, the upper buckle buckles the upper edge of the rack, and the lower buckle buckles the lower edge of the rack; The upper part of the second clamping block is provided with a snap fastener relative to the other side of the upper buckle; the snap fastener is an arc-shaped block, and the snap fastener is provided with upper sawteeth; the lock catch is a rectangular block with an opening in the middle; and the opening of the rectangular block is provided with lower sawteeth clamped with the upper sawteeth of the snap fastener.

[0011] Further, the regulating plunger comprises:

a plunger body which is in interference fit with the scroll and provided with a via hole in the center;
a plunger shaft, wherein the front part of the plunger shaft is provided with a clamping part clamped with the via hole, an internal spline is arranged in the center of the tail of the plunger shaft, and the central section of the plunger shaft has a bump.

[0012] Further, the turntable is hollow, and has a small notch assembled with the bump at the hollow part; the front part of the turntable also has a hollow column with a large notch; the hollow column is used for the plunger shaft to penetrate; and the bottom of the turntable is provided with a slot part assembled with the tail of the plunger shaft.

[0013] Further, the mainspring coiling disk is provided with a mainspring clamping end clamped with the mainspring; and the front end of the mainspring coiling disk is also provided with an external spline inserted with the tail of the plunger shaft.

[0014] Further, the bottom of the roller blind is provided with a bottom rod; a counterweight is arranged in the bottom rod; and the middle of the bottom rod is provided with a handle part.

[0015] Further, the left bracket is provided with a rotating plunger, and the front end of the rotating plunger is in interference fit with the scroll.

[0016] The hand-held zebra curtain with upper beam adjustable spring has the following beneficial effects:

The hand-held zebra curtain with an upper beam adjustable mainspring according to the invention adds the resistance regulating device of the mainspring, and increases or decreases the resilience resistance of the mainspring by regulating the regulating screws on the left and the right brackets, so as to correct the problem of the deviation of the resilience force of the mainspring in mass production without adding the counterweight; the operation is simple; the cost is saved; and production

efficiency is increased.

Description of Drawings

5 **[0017]**

Fig. 1 is a structural view of a hand-held zebra curtain with an upper beam adjustable mainspring according to the invention;

10 Fig. 2 is a local exploded view of a hand-held zebra curtain with an upper beam adjustable mainspring according to the invention;

15 Fig. 3 is a structural schematic diagram of a coiling device of a hand-held zebra curtain with an upper beam adjustable mainspring according to the invention;

20 Fig. 4 is a sectional view of a resistance regulating device of a hand-held zebra curtain with an upper beam adjustable mainspring according to the invention;

25 Fig. 5 is a structural schematic diagram of a coiling device in another direction of a hand-held zebra curtain with an upper beam adjustable mainspring according to the invention;

30 Fig. 6 is a structural schematic diagram of an installing frame of a hand-held zebra curtain with an upper beam adjustable mainspring according to the invention;

35 Fig. 7 is a first exploded view of a resistance regulating device of a hand-held zebra curtain with an upper beam adjustable mainspring according to the invention; and

Fig. 8 is a second exploded view of a resistance regulating device of a hand-held zebra curtain with an upper beam adjustable mainspring according to the invention.

Detailed Description

40 **[0018]** An embodiment of the invention is further described below in combination with Fig. 1-Fig. 8.

[0019] As shown in Fig. 1 and Fig. 2, a hand-held zebra curtain with an upper beam adjustable mainspring comprises a left bracket 1, a right bracket 2 and a rack 3 which connects the left bracket 1 and the right bracket 2; a scroll 4 is arranged between the left bracket 1 and the right bracket 2; the scroll 4 is provided with a roller blind; and the right bracket 2 is provided with a mainspring coiling device for rotating the scroll 4 to coil the roller blind.

50 **[0020]** An installing frame 100 is arranged on the rack 3; the installing frame 100 comprises a first installing frame 101 and a second installing frame 102 matched with each other; the first installing frame 101 and the second installing frame 102 are in L shape; the first installing frame 101 comprises a first clamping block 1011 and a lock catch 1012; the second installing frame 102 comprises a second clamping block 1021 and a snap fastener 1025; a surface of the first clamping block 1021 facing

away from the first clamping block 1011 is provided with an upper buckle 1023 and a lower buckle 1022 in sequence from top to bottom; and a handle 1024 is connected to the upper buckle 1023. The distance between the upper buckle 1023 and the lower buckle 1022 can be regulated by moving the handle 1024, so that the upper buckle 1023 can buckle the upper edge of the rack 3 and the lower buckle 1022 can buckle the lower edge of the rack 3. The upper part of the second clamping block 1021 is provided with a snap fastener 1025 relative to the other side of the upper buckle 1023; the snap fastener 1025 is an arc-shaped block, and the snap fastener 1025 is provided with upper sawteeth; the lock catch 1012 is a rectangular block with an opening in the middle; and the opening of the rectangular block is provided with lower sawteeth clamped with the upper sawteeth of the snap fastener 1025. The snap fastener 1025 is pressed to separate the upper sawteeth of the snap fastener 1025 from the lock catch 1012, so that the distance between the first clamping block 1011 and the second clamping block 1021 can be adjusted, so that the hand-held zebra curtain with the upper beam adjustable mainspring can adapt to panels of different thicknesses.

[0021] As shown in Fig. 3 and Fig. 5, the mainspring coiling device comprises a regulating plunger 5, a mainspring 7, a mainspring fixing disk 8 and a mainspring coiling disk 9; a toothed turntable 6 is nested on the regulating plunger 5; the mainspring 7 is sleeved on the mainspring fixing disk 8 in a relaxed state; and a coiling end of the mainspring 7 is clamped with the mainspring coiling disk 9.

[0022] The regulating plunger 5 comprises: a plunger body 10 which is in interference fit with the scroll 4 and provided with a via hole in the center; a plunger shaft 11, wherein the front part of the plunger shaft 11 is provided with a clamping part 12 clamped with the via hole, an internal spline 13 is arranged in the center of the tail of the plunger shaft 11, and the central section of the plunger shaft 11 has a bump 14.

[0023] The turntable 6 is hollow, and has a small notch 15 assembled with the bump 14 at the hollow part; the front part of the turntable 6 also has a hollow column 16 with a large notch; the hollow column 16 is used for the plunger shaft 11 to penetrate; and the bottom of the turntable 6 is provided with a slot part 17 assembled with the tail of the plunger shaft 11. The periphery of the hollow column 16 also has an embracing spring 18 for the purpose that the plunger shaft 11 passes through the embracing spring 18 to embrace the plunger body 10 fixedly.

[0024] The mainspring coiling disk 9 is provided with a mainspring clamping end 19 clamped with the mainspring 7; and the front end of the mainspring coiling disk 9 is also provided with an external spline 20 inserted with the tail of the plunger shaft 11.

[0025] Naturally, a shell 25 and an end cover 26 used for assembling the coiling device and buckled with each other are also arranged; the shell 25 comprises a housing 251 and a hood body 252 matched with each other; and

the housing 251 is provided with a second hole 2511 matched with the end part of the regulating screw 30, so as to slide apart the hood body 252 to rotate the regulating screw 30. After regulation is completed, the hood body 252 slides upwards to cover the end part of the regulating screw 30 to avoid exposing the end part of the regulating screw 30. The end cover 26 has a first hole 27 which penetrates through the external spline 20, and the shell 25 has a first positioning column 28 and a second positioning column 29 for installing the mainspring fixing disk 8 and the mainspring coiling disk 9.

[0026] During assembly, the plunger shaft 11 penetrates through the turntable 6 and is clamped with the plunger body 10; the bump 14 penetrates through the small notch 15; the external spline 20 and the internal spline 13 are engaged; the embracing spring 18 and the plunger body 10 have a certain tightness degree, but not stuck; the function of the embracing spring is to embrace the plunger shaft 11 without rotation, but the turntable 6 is rotated to drive the embracing spring 18 and the plunger shaft 11 to rotate together.

[0027] The bottom of the roller blind is provided with a bottom rod 21; a counterweight 22 is arranged in the bottom rod 21; and the middle of the bottom rod 21 is provided with a handle part 23. The counterweight 22 is determined according to the width and the material weight of the practical curtain, and the number of the counterweights 22 can be properly increased and decreased.

[0028] The left bracket 1 is provided with a rotating plunger 24, and the front end of the rotating plunger 24 is in interference fit with the scroll 4. Of course, it shall be noted that, if the width of the roller blind is large, the single mainspring 7 is used for shrinkage, which certainly causes insufficient torque. At this moment, a structure of the coiling device which is the same as the right bracket 2 can be designed on the left bracket 1, to provide double torques to ensure the use of the roller blind with large width.

[0029] During use, the mainspring 7 accumulates the torque while the roller blind moves down. Under the matching of the counterweight 22, as long as the handle part is pulled down, the zebra curtain can be pulled and stopped at any time. If the torque is not sufficient when the curtain is folded, as long as the turntable is rotated, the turntable drives the mainspring coiling disk to coil the mainspring properly. The torque sufficient for folding the curtain is preset to regulate the contractive torque of the scroll to completely store the curtain.

[0030] As shown in Fig. 5, the right bracket 2 is also provided with a resistance regulating device for regulating the resilience force of the mainspring 7; the resistance regulating device comprises a regulating screw 30, a hexagon nut matched with the regulating screw 30, a pressing block 34, a spring 33 and a rubber washer; the second fixing column 29 is provided with a through hole matched with the hexagon nut and the pressing block 34 and having a hexagonal section; the regulating screw 30 is inserted into the through hole from outside to inside; the

hexagon nut is arranged on the regulating screw 30 and can axially move along the regulating screw 30; the pressing block 34 is sleeved outside the regulating screw 30; the spring 33 is sleeved on the regulating screw 30 and champed between the hexagon nut and the pressing block 34; the mainspring coiling disk 9 is provided with a fixing groove matched with the second fixing column 29; a limiting part matched with the pressing block 34 is arranged in the fixing groove; and the rubber washer is sleeved on the external spline 20 and padded between the end cover 26 and the mainspring coiling disk 9.

[0031] During production, if the resilience force of the mainspring 7 has deviation to rebound, there is no need to add the counterweight; the regulating screw 30 on the right bracket 2 is only required to rotate counterclockwise with a tool, so that the hexagon nut moves towards the pressing block 34, to push the spring 33 and the pressing block 34 to move. The pressing block 34 pushes the mainspring coiling disk 9 to extrude and approach towards the end cover 26, so as to extrude the rubber washer and increase the frictional force between the mainspring coiling disk 9 and the end cover 26, thereby regulating the resilience force of the mainspring 7.

[0032] The invention is exemplarily described above in combination with the drawings. Obviously, the implementation of the invention is not limited by the above modes. Various improvements made by adopting the method ideas and technical solutions of the invention or the ideas and technical solutions of the invention directly applied to other occasions without improvements shall be within the protection scope of the invention, as defined by the appended claims.

Claims

1. A hand-held zebra curtain with an upper beam adjustable mainspring, comprising a left bracket (1), a right bracket (2) and a rack (3) which connects the left bracket (1) and the right bracket (2); a scroll (4) arranged between the left bracket (1) and the right bracket (2); the scroll (4) is provided with a roller blind; the left bracket (1) and/or the right bracket (2) is provided with a mainspring coiling device for rotating the scroll (4) to coil the roller blind; the mainspring coiling device comprises a regulating plunger (5), a mainspring (7), a mainspring fixing disk (8) and a mainspring coiling disk (9); a toothed turntable (6) is nested on the regulating plunger (5); the mainspring (7) is sleeved on the mainspring fixing disk (8) in a relaxed state; a coiling end of the mainspring (7) is clamped with the mainspring coiling disk (9), **characterized in that** the left bracket (1) and the right bracket (2) are each provided with a said mainspring coiling device and are each also provided with a resistance regulating device for regulating the resilience force of the mainspring (7), wherein each resistance regulating device comprises a regulating

screw (30) for increasing or decreasing the resilience force of the mainspring (7).

2. The hand-held zebra curtain with the upper beam adjustable mainspring according to claim 1, **characterized in that** the resistance regulating device comprises said regulating screw (30), a nut (31) matched with the regulating screw (30), a pressing block (34) and an elastic washer (32); the left bracket (1) and the right bracket (2) each comprise a shell (25) and an end cover (26) buckled with each other; each shell (25) is provided with a second fixing column (29) for fixing the mainspring coiling disk (9); the second fixing column (29) is provided with a through hole matched with the resistance regulating device; the regulating screw (30) is inserted into the through hole from outside to inside; the nut (31) is arranged on the regulating screw (30) and can axially move along the regulating screw (30); the pressing block (34) is sleeved outside the regulating screw (30); a spring (33) is arranged between the nut (31) and the pressing block (34); the spring (33) is sleeved on the regulating screw (30); one side of the pressing block (34) is linked with the nut (31), and the other side of the pressing block (34) comes into contact with the mainspring coiling disk (9); the mainspring coiling disk (9) is provided with an external spline (20) inserted with the regulating plunger (5); the elastic washer (32) is sleeved on the external spline (20) and padded between the end cover (26) and the mainspring coiling disk (9); the shell (25) comprises a housing (251) and a hood body (252) matched with each other; and the housing (251) is provided with a second hole (2511) matched with the end part of the regulating screw (30).

3. The hand-held zebra curtain with the upper beam adjustable mainspring according to claim 2, **characterized in that** the nut (31) is a hexagon nut; and the section of the through hole is a hexagon matched with the nut (31) and the pressing block (34).

4. The hand-held zebra curtain with the upper beam adjustable mainspring according to claim 3, **characterized in that** the elastic washer (32) is a rubber washer; an installing frame (100) is arranged on the rack (3); the installing frame (100) comprises a first installing frame (101) and a second installing frame (102) matched with each other; the first installing frame (101) and the second installing frame (102) are in L shape; the first installing frame (101) comprises a first clamping block (1011) and a lock catch (1012); the second installing frame (102) comprises a second clamping block (1021) and a snap fastener (1025); a surface of the first clamping block (1021) facing away from the first clamping block (1011) is provided with an upper buckle (1023) and a lower buckle (1022) in sequence from top to bottom; and

a handle (1024) is connected to the upper buckle (1023).

5. The hand-held zebra curtain with the upper beam adjustable mainspring according to claim 4, **characterized in that** the upper buckle (1023) buckles the upper edge of the rack (3), and the lower buckle (1022) buckles the lower edge of the rack (3); the upper part of the second clamping block (1021) is provided with a snap fastener (1025) relative to the other side of the upper buckle (1023); the snap fastener (1025) is an arc-shaped block, and the snap fastener (1025) is provided with upper sawteeth; the lock catch (1012) is a rectangular block with an opening in the middle; and the opening of the rectangular block is provided with lower sawteeth clamped with the upper sawteeth of the snap fastener (1025).

6. The hand-held zebra curtain with the upper beam adjustable mainspring according to any one of claims 1-5, **characterized in that** the regulating plunger (5) comprises:

a plunger body (10) which is in interference fit with the scroll (4) and provided with a via hole in the center;

a plunger shaft (11), wherein the front part of the plunger shaft (11) is provided with a clamping part (12) clamped with the via hole, an internal spline (13) is arranged in the center of the tail of the plunger shaft (11), and the central section of the plunger shaft (11) has a bump (14).

7. The hand-held zebra curtain with the upper beam adjustable mainspring according to claim 6, **characterized in that** the turntable (6) is hollow, and has a small notch (15) assembled with the bump (14) at the hollow part; the front part of the turntable (6) also has a hollow column (16) with a large notch; the hollow column (16) is used for the plunger shaft (11) to penetrate; and the bottom of the turntable (6) is provided with a slot part (17) assembled with the tail of the plunger shaft (11).

8. The hand-held zebra curtain with the upper beam adjustable mainspring according to claim 7, **characterized in that** the mainspring coiling disk (9) is provided with a mainspring clamping end (19) clamped with the mainspring (7); and the front end of the mainspring coiling disk (9) is also provided with an external spline (20) inserted with the tail of the plunger shaft (11).

9. The hand-held zebra curtain with the upper beam adjustable mainspring according to claim 8, **characterized in that** the bottom of the roller blind is provided with a bottom rod (21); a counterweight (22) is arranged in the bottom rod (21); and the middle of

the bottom rod (21) is provided with a handle part (23).

10. The hand-held zebra curtain with the upper beam adjustable mainspring according to claim 9, **characterized in that** the left bracket (1) is provided with a rotating plunger (24), and the front end of the rotating plunger (24) is in interference fit with the scroll (4).

Patentansprüche

1. Handgeführter Zebraavorhang mit einer einstellbaren Oberträger-Hauptfeder, umfassend einen linken Bügel (1), einen rechten Bügel (2) und eine Schiene (3), welche den linken Bügel (1) und den rechten Bügel (2) verbindet; eine Rolle (4), die zwischen dem linken Bügel (1) und dem rechten Bügel (2) angeordnet ist; wobei die Rolle (4) mit einem Rollo versehen ist; wobei der linke Bügel (1) und/oder der rechte Bügel (2) mit einer Hauptfederwickelvorrichtung zum Drehen der Rolle (4), um das Rollo zu wickeln, versehen ist; wobei die Hauptfederwickelvorrichtung einen Regelkolben (5), eine Hauptfeder (7), eine Hauptfederbefestigungsscheibe (8) und eine Hauptfederwickelscheibe (9) umfasst; wobei ein gezahnter Drehteller (6) auf dem Regelkolben (5) ineinandergeschachtelt ist; wobei die Hauptfeder (7) in einem entspannten Zustand um die Hauptfederbefestigungsscheibe (8) herum angeordnet ist; wobei ein Wickelende der Hauptfeder (7) mit der Hauptfederwickelscheibe (9) eingespannt ist, **dadurch gekennzeichnet, dass** der linke Bügel (1) und der rechte Bügel (2) jeweils mit einer Hauptfederwickelvorrichtung versehen sind und jeweils auch mit einer Widerstandsregelvorrichtung zum Regeln der Rückstellkraft der Hauptfeder (7) versehen sind, wobei jede Widerstandsregelvorrichtung eine Regelschraube (30) zum Erhöhen oder Reduzieren der Rückstellkraft der Hauptfeder (7) umfasst.

2. Handgeführter Zebraavorhang mit der einstellbaren Oberträger-Hauptfeder nach Anspruch 1, **dadurch gekennzeichnet, dass** die Widerstandsregelvorrichtung die Regelschraube (30), eine auf die Regelschraube (30) abgestimmte Mutter (31), einen Pressblock (34) und eine elastische Unterlegscheibe (32) umfasst; der linke Bügel (1) und der rechte Bügel (2) jeweils eine Schale (25) und eine Endabdeckung (26), die aneinander geschnallt sind, umfassen; jede Schale (25) mit einer zweiten Befestigungssäule (29) zum Befestigen der Hauptfederwickelscheibe (9) versehen ist; die zweite Befestigungssäule (29) mit einem auf die Widerstandsregelvorrichtung abgestimmten Durchgangsloch versehen ist; die Regelschraube (30) von außen nach innen in das Durchgangsloch eingesetzt ist; die Mutter (31) auf der Regelschraube (30) angeordnet ist

- und sich die Regelschraube (30) axial entlangbewegen kann; der Pressblock (34) außen um die Regelschraube (30) herum angeordnet ist; eine Feder (33) zwischen der Mutter (31) und dem Pressblock (34) angeordnet ist; die Feder (33) um die Regelschraube (30) herum angeordnet ist; eine Seite des Pressblocks (34) mit der Mutter (31) verbunden ist und die andere Seite des Pressblocks (34) mit der Hauptfederwickelscheibe (9) in Kontakt kommt; die Hauptfederwickelscheibe (9) mit einer Außenverzahnung (20) versehen ist, die mit dem Regelkolben (5) eingesetzt wird; die elastische Unterlegscheibe (32) um die Außenverzahnung (20) herum angeordnet ist und für Polsterung zwischen der Endabdeckung (26) und der Hauptfederwickelscheibe (9) sorgt; die Schale (25) ein Gehäuse (251) und einen Haubenkörper (252), die aufeinander abgestimmt sind, umfasst; und das Gehäuse (251) mit einem zweiten Loch (2511), das auf den Endabschnitt der Regelschraube (30) abgestimmt ist, versehen ist.
3. Handgeführter Zebravorhang mit der einstellbaren Oberträger-Hauptfeder nach Anspruch 2, **dadurch gekennzeichnet, dass** die Mutter (31) eine Sechskantmutter ist; und der Querschnitt des Durchgangslochs ein auf die Mutter (31) und den Pressblock (34) abgestimmter Sechskant ist.
4. Handgeführter Zebravorhang mit der einstellbaren Oberträger-Hauptfeder nach Anspruch 3, **dadurch gekennzeichnet, dass** die elastische Unterlegscheibe (32) eine Gummiunterlegscheibe ist; ein Montagerahmen (100) auf der Schiene (3) angeordnet ist; der Montagerahmen (100) einen ersten Montagerahmen (101) und einen zweiten Montagerahmen (102), die aufeinander abgestimmt sind, umfasst; der erste Montagerahmen (101) und der zweite Montagerahmen (102) L-förmig sind; der erste Montagerahmen (101) einen ersten Klemmblock (1011) und eine Verriegelungsraste (1012) umfasst; der zweite Montagerahmen (102) einen zweiten Klemmblock (1021) und ein Schnappbefestigungselement (1025) umfasst; eine Oberfläche des ersten Klemmblocks (1011), die dem ersten Klemmblock (1011) abgewandt ist, von oben nach unten aufeinanderfolgend mit einer oberen Schnalle (1023) und einer unteren Schnalle (1022) versehen ist; und ein Griff (1024) mit der oberen Schnalle (1023) verbunden ist.
5. Handgeführter Zebravorhang mit der einstellbaren Oberträger-Hauptfeder nach Anspruch 4, **dadurch gekennzeichnet, dass** die obere Schnalle (1023), die obere Kante der Schiene (3) festschnallt und die untere Schnalle (1022) die untere Kante der Schiene (3) festschnallt; der obere Teil des zweiten Klemmblocks (1021) mit einem Schnappbefestigungselement (1025) relativ zu der anderen Seite der oberen
- Schnalle (1023) versehen ist; das Schnappbefestigungselement (1025) ein bogenförmiger Block ist und das Schnappbefestigungselement (1025) mit oberen Sägezähnen versehen ist; die Verriegelungsraste (1012) ein rechteckiger Block mit einer Öffnung in der Mitte ist; und die Öffnung des rechteckigen Blocks mit unteren Sägezähnen versehen ist, die mit den oberen Sägezähnen des Schnappbefestigungselements (1025) verklemt sind.
6. Handgeführter Zebravorhang mit der einstellbaren Oberträger-Hauptfeder nach einem beliebigen der Ansprüche 1-5, **dadurch gekennzeichnet, dass** der Regelkolben (5) umfasst:
- einen Kolbenkörper (10), der sich mit der Rolle (4) in Presspassung befindet und in der Mitte mit einem Durchgangsloch versehen ist; ein Kolbenschaft (11), wobei der vordere Teil des Kolbenschafts (11) mit einem Klemmabschnitt (12) versehen ist, der mit dem Durchgangsloch verklemt ist, eine Innenverzahnung (13) in der Mitte des hinteren Teils des Kolbenschafts (11) angeordnet ist und der mittlere Abschnitt des Kolbenschafts (11) einen Höcker (14) aufweist.
7. Handgeführter Zebravorhang mit der einstellbaren Oberträger-Hauptfeder nach Anspruch 6, **dadurch gekennzeichnet, dass** der Drehteller (6) hohl ist und eine kleine Kerbe (15), die mit dem Höcker (14) an dem hohlen Teil zusammengebaut ist, aufweist; der vordere Teil des Drehtellers (6) auch eine hohle Säule (16) mit einer großen Kerbe aufweist; die hohle Säule (16) dazu verwendet wird, dass der Kolbenschaft (11) eindringt; und der untere Teil des Drehtellers (6) mit einem Schlitzteil (17) versehen ist, der mit dem hinteren Abschnitt des Kolbenschafts (11) zusammengebaut ist.
8. Handgeführter Zebravorhang mit der einstellbaren Oberträger-Hauptfeder nach Anspruch 7, **dadurch gekennzeichnet, dass** die Hauptfederwickelscheibe (9) mit einem Hauptfederklemmende (19) versehen ist, das mit der Hauptfeder (7) verklemt ist; und das Vorderende der Hauptfederwickelscheibe (9) auch mit einer Außenverzahnung (20) versehen ist, die bei dem hinteren Abschnitt des Kolbenschafts (11) eingesetzt ist.
9. Handgeführter Zebravorhang mit der einstellbaren Oberträger-Hauptfeder nach Anspruch 8, **dadurch gekennzeichnet, dass** das untere Ende des Rollos mit einer unteren Stange (21) versehen ist; ein Gegengewicht (22) in der unteren Stange (21) angeordnet ist; und die Mitte der unteren Stange (21) mit einem Griffteil (23) versehen ist.

10. Handgeführter Zebra-Vorhang mit der einstellbaren Oberträger-Hauptfeder nach Anspruch 9, **dadurch gekennzeichnet, dass** der linke Bügel (1) mit einem Drehkolben (24) versehen ist und sich das Vorde-
5 rende des Drehkolbens (24) mit der Rolle (4) in Press-
spannung befindet.

Revendications

1. Store portatif doté d'un ressort principal réglable de
longeron supérieur, comprenant une équerre gau-
che (1), une équerre droite (2) et un support (3) re-
liant l'équerre gauche (1) et l'équerre droite (2) ; un
rouleau (4) disposé entre l'équerre gauche (1) et
l'équerre droite (2) ; le rouleau (4) est doté d'un volet
roulant ; l'équerre gauche (1) et/ou l'équerre droite
(2) est/sont dotée(s) d'un dispositif d'enroulement
de ressort principal permettant la rotation du rouleau
(4) pour enrouler le volet roulant ; le dispositif d'en-
roulement de ressort principal comprend un piston
de régulation (5), un ressort principal (7), un disque
de fixation de ressort principal (8) et un disque d'en-
roulement de ressort principal (9) ; une plaque tour-
nante dentée (6) est nichée sur le piston de régula-
tion (5) ; le ressort principal (7) est emmanché sur
le disque de fixation de ressort principal (8) dans un
état relâché ; une extrémité d'enroulement du res-
sort principal (7) est serrée avec le disque d'enrou-
lement de ressort principal (9), **caractérisé en ce
que** l'équerre gauche (1) et l'équerre droite (2) sont
respectivement dotées d'un dit dispositif d'enroule-
ment de ressort principal et sont également respec-
tivement dotées d'un dispositif de régulation de ré-
sistance destiné à réguler la force élastique du res-
sort principal (7), dans lequel chaque dispositif de
régulation de résistance comprend une vis de régu-
lation (30) destiné à augmenter ou à réduire la force
élastique du ressort principal (7).
2. Store portatif doté d'un ressort principal réglable de
longeron supérieur selon la revendication 1, **carac-
térisé en ce que** le dispositif de régulation de résis-
tance comprend ladite vis de régulation (30), un
écrou (31) adapté à la vis de régulation (30), un bloc
de pression (34) et une rondelle élastique (32) ;
l'équerre gauche (1) et l'équerre droite (2) compren-
nent respectivement une coque (25) et un cache
d'extrémité (26) attachés l'un à l'autre ; chaque co-
que (25) est dotée d'une deuxième colonne de fixa-
tion (29) pour la fixation du disque d'enroulement de
ressort principal (9) ; la deuxième colonne de fixation
(29) est dotée d'un trou de passage adapté au dis-
positif de régulation de résistance ; la vis de régula-
tion (30) est insérée dans le trou de passage de l'ex-
térieur vers l'intérieur ; l'écrou (31) est disposé sur
la vis de régulation (30) et peut se déplacer axiale-
ment le long de la vis de régulation (30) ; le bloc de

pression (34) est emmanché à l'extérieur de la vis
de régulation (30) ; un ressort (33) est disposé entre
l'écrou (31) et le bloc de pression (34) ; le ressort
(33) est emmanché sur la vis de régulation (30) ; un
côté du bloc de pression (34) est relié à l'écrou (31),
et l'autre côté du bloc de pression (34) entre en con-
tact avec le disque d'enroulement de ressort princi-
pal (9) ; le disque d'enroulement de ressort principal
(9) est doté d'une cannelure extérieure (20) insérée
avec le piston de régulation (5) ; la rondelle élastique
(32) est emmanchée sur la cannelure extérieure (20)
et rembourrée entre le cache d'extrémité (26) et le
disque d'enroulement de ressort principal (9) ; la co-
que (25) comprend un boîtier (251) et un corps de
capot (252) adaptés l'un à l'autre ; et le boîtier (251)
est doté d'un deuxième trou (2511) adapté à la partie
d'extrémité de la vis de régulation (30).

3. Store portatif doté d'un ressort principal réglable de
longeron supérieur selon la revendication 2, **carac-
térisé en ce que** l'écrou (31) est un écrou
hexagonal ; et la section du trou de passage est un
hexagone adapté à l'écrou (31) et au bloc de pres-
sion (34) .

4. Store portatif doté d'un ressort principal réglable de
longeron supérieur selon la revendication 3, **carac-
térisé en ce que** la rondelle élastique (32) est une
rondelle en caoutchouc ; un cadre d'installation
(100) est disposé sur le support (3) ; le cadre d'ins-
tallation (100) comprend un premier cadre d'instal-
lation (101) et un deuxième cadre d'installation (102)
adaptés l'un à l'autre ; le premier cadre d'installation
(101) et le deuxième cadre d'installation (102) pré-
sentent une forme en L ; le premier cadre d'installa-
tion (101) comprend un premier bloc de serrage
(1011) et un cliquet de verrouillage (1012) ; le
deuxième cadre d'installation (102) comprend un
deuxième bloc de serrage (1021) et une fixation à
encliquetage (1025) ; une surface du premier bloc
de serrage (1021) opposée au premier bloc de ser-
rage (1011) est dotée d'une boucle supérieure
(1023) et d'une boucle inférieure (1022) en séquen-
ce de haut en bas ; et une poignée (1024) est reliée
à la boucle supérieure (1023).

5. Store portatif doté d'un ressort principal réglable de
longeron supérieur selon la revendication 4, **carac-
térisé en ce que** la boucle supérieure (1023) boucle
le bord supérieur du support (3), et la boucle infé-
rieure (1022) boucle le bord inférieur du support (3) ;
la partie supérieure du deuxième bloc de serrage
(1021) est dotée d'une fixation à encliquetage (1025)
par rapport à l'autre côté de la boucle supérieure
(1023) ; la fixation à encliquetage (1025) est un bloc
en forme d'arc, et la fixation à encliquetage (1025)
est dotée de dents de scie supérieures ; le cliquet
de verrouillage (1012) est un bloc rectangulaire avec

une ouverture centrale ; et l'ouverture du bloc rectangulaire est dotée de dents de scie inférieures serrées avec les dents de scie supérieures de la fixation à encliquetage (1025).

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6. Store portatif doté d'un ressort principal réglable de longeron supérieur selon l'une quelconque des revendications 1 à 5, **caractérisé en ce que** le piston de régulation (5) comprend :

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un corps de piston (10) ajusté en interférence avec le rouleau (4) et doté d'un trou traversant au centre ;

une tige de piston (11), dans lequel la partie avant de la tige de piston (11) est dotée d'une partie de serrage (12) serrée avec le trou traversant, une cannelure intérieure (13) est disposée au centre de la queue de la tige de piston (11), et la section centrale de la tige de piston (11) comporte une bosse (14).

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7. Store portatif doté d'un ressort principal réglable de longeron supérieur selon la revendication 6, **caractérisé en ce que** la plaque tournante (6) est creuse et comporte une petite encoche (15) assemblée avec la bosse (14) au niveau de la partie creuse ; la partie avant de la plaque tournante (6) comporte également une colonne creuse (16) avec une grande encoche ; la colonne creuse (16) est utilisée pour la pénétration de la tige de piston (11) ; et le bas de la plaque tournante (6) est dotée d'une partie de fente (17) assemblée avec la queue de la tige de piston (11).

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8. Store portatif doté d'un ressort principal réglable de longeron supérieur selon la revendication 7, **caractérisé en ce que** le disque d'enroulement de ressort principal (9) est doté d'une extrémité de serrage de ressort principal (19) serrée avec le ressort principal (7) ; et l'extrémité avant du disque d'enroulement de ressort principal (9) est également dotée d'une cannelure extérieure (20) insérée avec la queue de la tige de piston (11).

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9. Store portatif doté d'un ressort principal réglable de longeron supérieur selon la revendication 8, **caractérisé en ce que** le bas du volet roulant est doté d'une barre inférieure (21) ; un contrepoids (22) est disposé dans la barre inférieure (21) ; et le milieu de la barre inférieure (21) est doté d'une partie de poignée (23).

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10. Store portatif doté d'un ressort principal réglable de longeron supérieur selon la revendication 9, **caractérisé en ce que** l'équerre gauche (1) est dotée d'un piston rotatif (24), et l'extrémité avant du piston rotatif (24) est ajusté en interférence avec le rouleau (4) .

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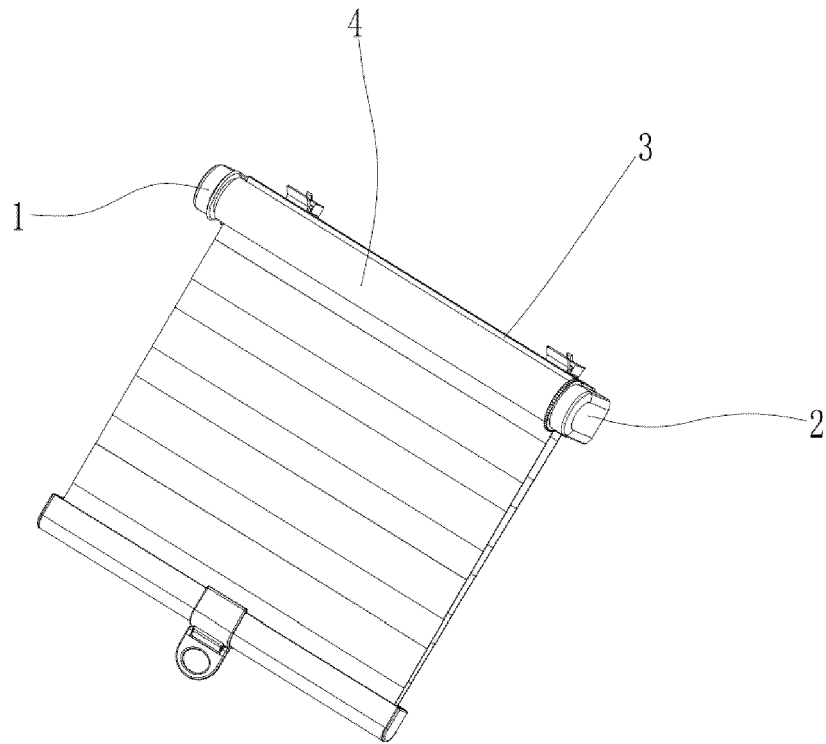


Fig. 1

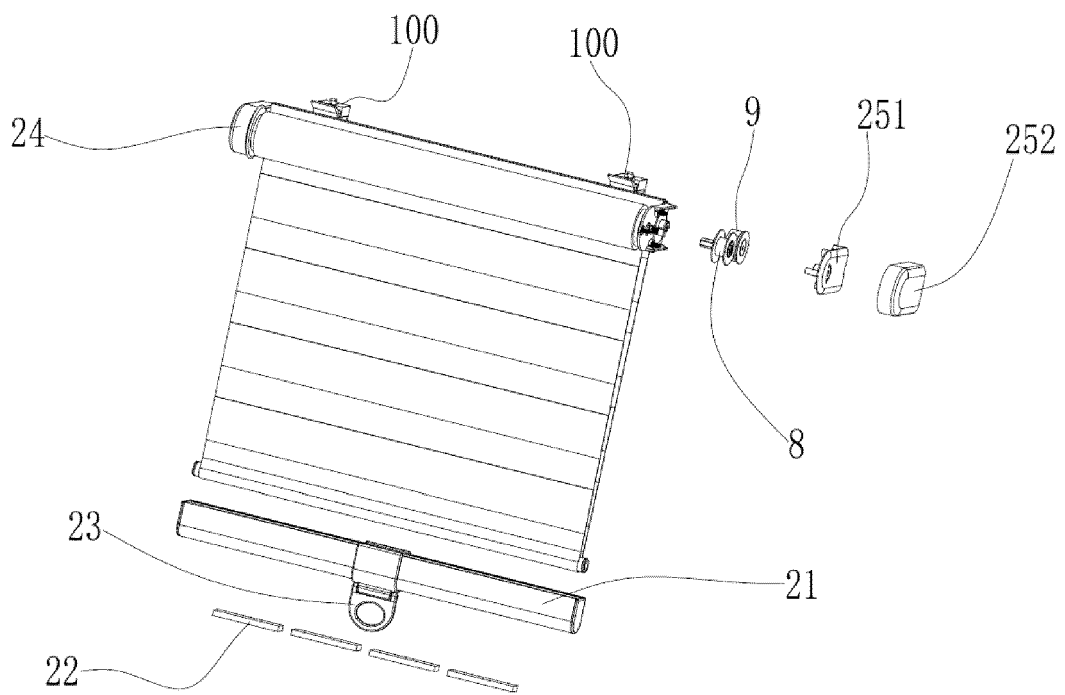


Fig. 2

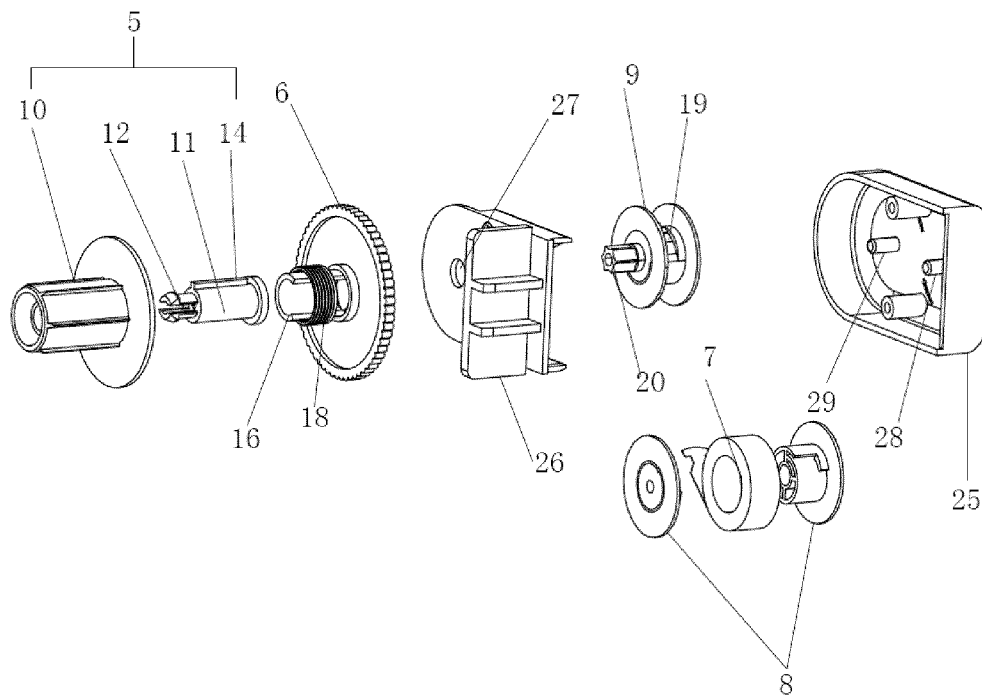


Fig. 3

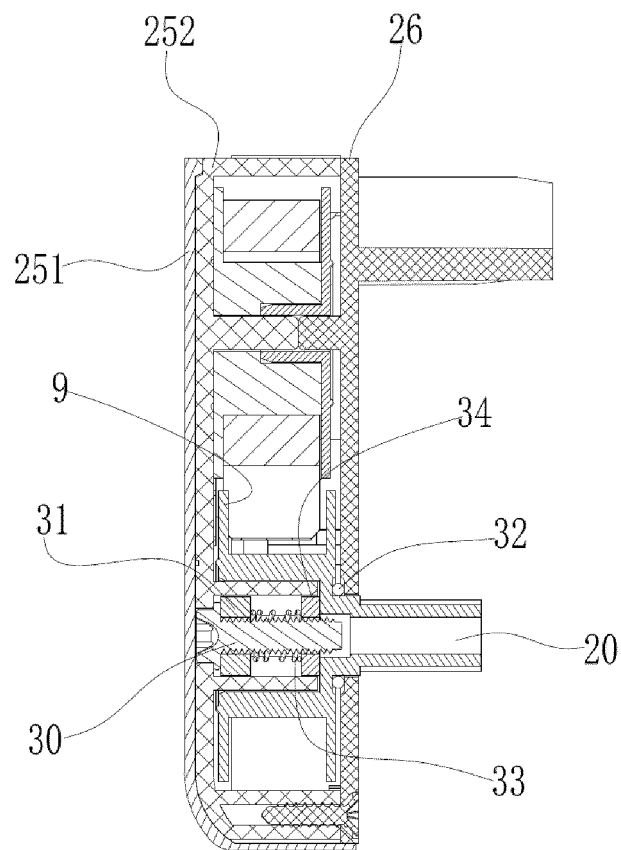


Fig. 4

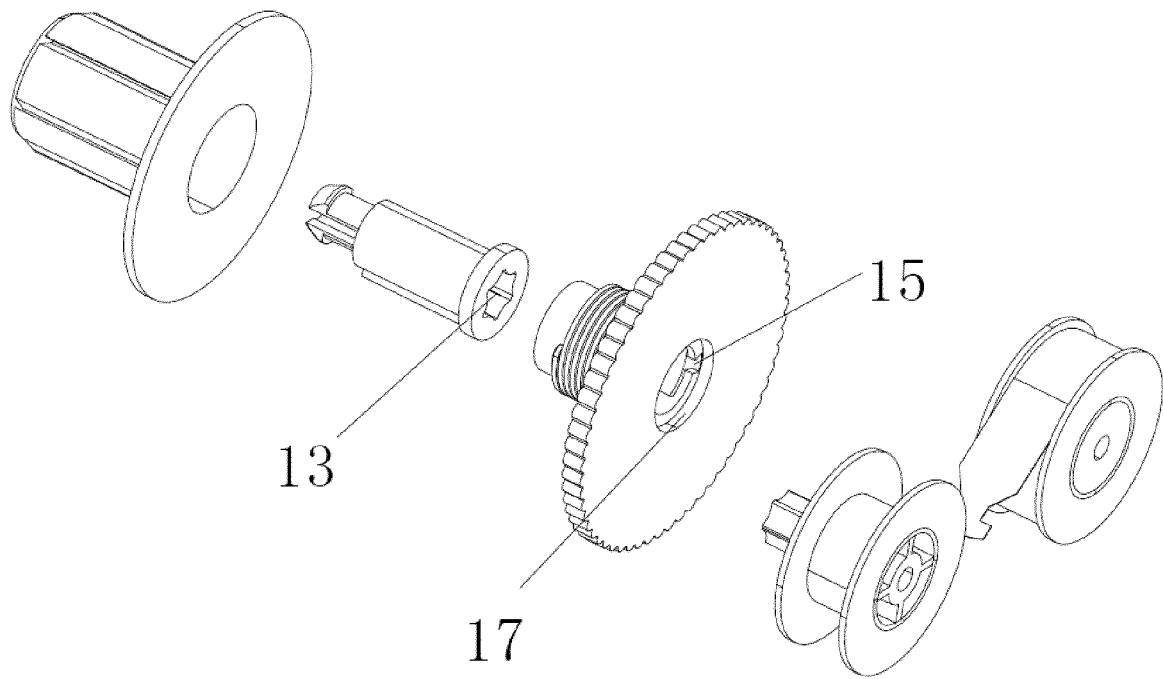


Fig. 5

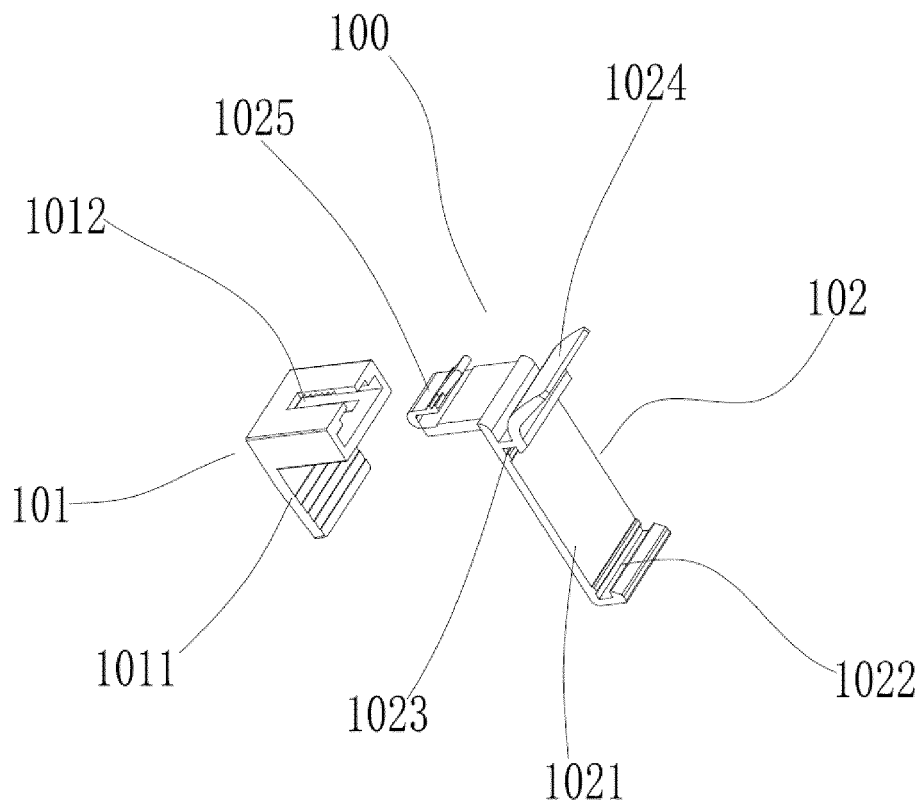


Fig. 6

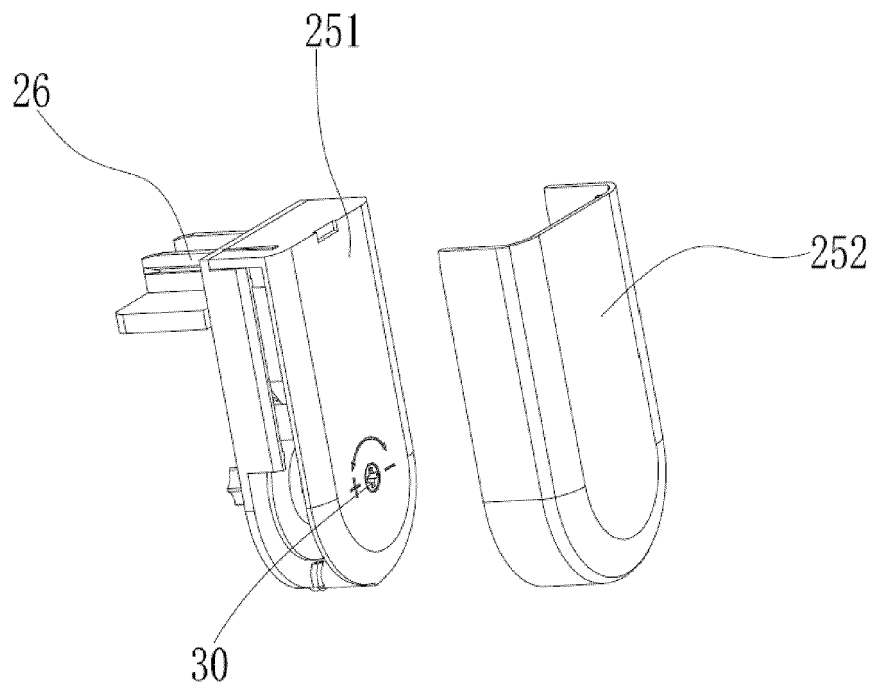


Fig. 7

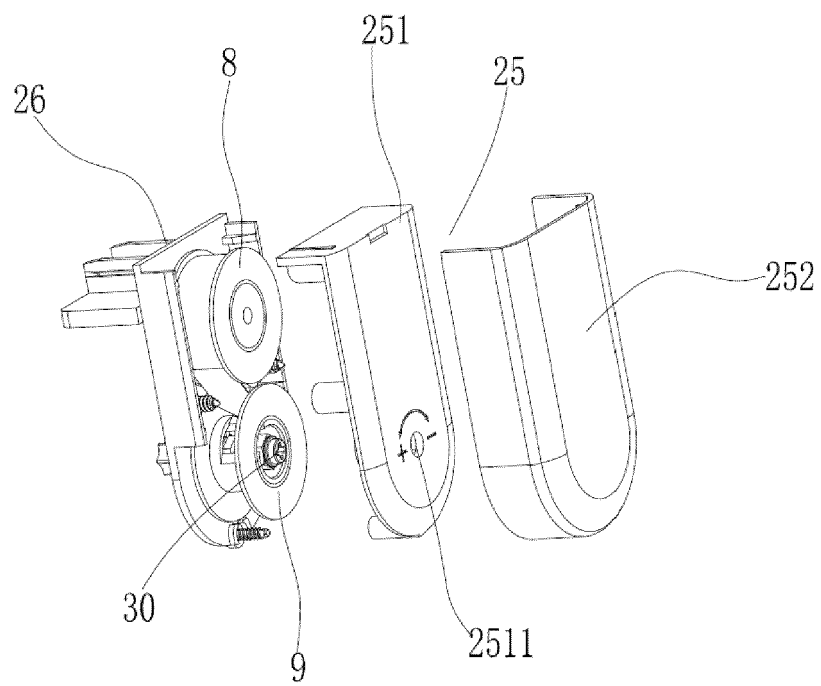


Fig. 8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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