



(11)

EP 4 563 739 A1

(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 153(4) EPC

(43) Date of publication:
04.06.2025 Bulletin 2025/23

(51) International Patent Classification (IPC):
D06F 39/12 ^(2006.01) **F16M 11/04** ^(2006.01)

(21) Application number: **23845078.7**

(52) Cooperative Patent Classification (CPC):
D06F 39/12; F16M 11/04

(22) Date of filing: **05.06.2023**

(86) International application number:
PCT/CN2023/098208

(87) International publication number:
WO 2024/021865 (01.02.2024 Gazette 2024/05)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

(30) Priority: **29.07.2022 CN 202210910878**
29.07.2022 CN 202210908302
29.07.2022 CN 202210910773
29.07.2022 CN 202210912081

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(54) **LAUNDRY TREATMENT APPARATUS**

(57) The present invention relates to the technical field of laundry treatment, and particularly provides a laundry treatment apparatus, for solving the problems in the prior art that a connecting structure of a drawer and a box body cannot effectively bear force in the horizontal direction and effectively bear force in the vertical direction. For this purpose, the laundry treatment apparatus of the present invention comprises a first moving component, a second moving component, and a drawable working component (3); a groove (23) is formed on the second moving component. A supporting component (31) is arranged on the working component (3), and the first moving component is arranged on the working component (3). According to the laundry treatment apparatus, in the drawing process of the working component (3), the first moving component drives the working component (3) to move on the second moving component, and the first moving component is moved to the groove (23) after the working component (3) reaches the working position, so that the first moving component does not support or support part of force, and the supporting component

(31) supports the remaining force. The supporting force and the horizontal force of the first moving component are shared, so that the strength of the connecting structure is improved.

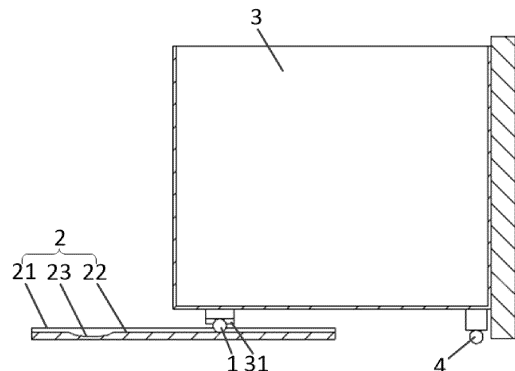


FIG.6

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Description**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] The present application claims priority from Chinese patent applications No. 202210910878.3, No. 202210908302.3, No. 202210910773.8 and No. 202210912081.7 filed on July 29, 2022 and entitled "LAUNDRY TREATMENT APPARATUS", the entire disclosures of which are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present disclosure relates to the technical field of clothing treatment, and specifically provides a clothing treatment apparatus.

BACKGROUND OF THE INVENTION

[0003] In the prior art, there is a type of clothing treatment apparatus which is opened by pulling out. This type of clothing treatment apparatus uses a pull-out machine to put in laundry or other clothing and shoes for washing, drying or deodorizing, or take them out; it mainly includes an assembly of drawer and cabinet. The washing or other treatment of laundry is mainly completed inside the drawer, and the cabinet mainly plays a role of load-bearing and fixing. Therefore, the connection method between the drawer and the cabinet is particularly important.

[0004] In the prior art, the connection is mostly achieved through a sliding rail. However, for drawer washing devices similar to the pulsator type, since a washing tub is provided inside the drawer, there will be horizontal vibrations during the washing and spinning processes. The sliding rail is mainly designed to bear a vertical force, and has poor reliability in the horizontal direction. After a long time, the sliding rail will be damaged, making the drawer unable to be pulled out smoothly and ultimately completely damaged.

[0005] Accordingly, there is a need for a new clothing treatment apparatus in the art to solve the problem that the connection structure between the drawer and the cabinet in the prior art cannot effectively bear both horizontal and vertical forces.

SUMMARY OF THE INVENTION

[0006] The present disclosure aims to solve the above technical problem, that is, to solve the problem that the connection structure between the drawer and the cabinet in the prior art cannot effectively bear both horizontal and vertical forces.

[0007] In a first aspect, the present disclosure provides a clothing treatment apparatus, which includes a first movement component, a second movement component, and a pull-out working component;

the second movement component is provided with a groove;

the working component is provided with a support component, and the first movement component is provided on the working component;

the clothing treatment apparatus is arranged such that during the pulling-out process of the working component, the first movement component can drive the working component to move on the second movement component, and after the working component reaches a working position, the first movement component can move to the groove, so that the first movement component does not support the gravity of the working component or supports part of the gravity of the working component, and the support component supports the remaining part of the gravity of the working component.

[0008] In a preferred technical solution of the clothing treatment apparatus described above, the second movement component is a sliding rail with protruding guide blocks arranged on both sides and a slideway arranged in the middle; the groove is arranged on the middle slideway, and the support component is arranged to be capable of abutting against the protruding guide blocks when the first movement component moves to the groove.

[0009] In a preferred technical solution of the clothing treatment apparatus described above, an operating side of the clothing treatment apparatus is a front side, and there is a height difference between front and rear sides of the second movement component.

[0010] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a rear roller, and correspondingly, the groove is arranged on a rear side of the slideway.

[0011] In a preferred technical solution of the clothing treatment apparatus described above, the clothing treatment apparatus further includes a front roller, which is arranged on a front side of the working component and is arranged to be capable of abutting against the ground.

[0012] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a sliding device, which is arranged to be capable of sliding into or out of the groove.

[0013] In a preferred technical solution of the clothing treatment apparatus described above, the sliding device is a slider with rounded corners on the side edges.

[0014] In a preferred technical solution of the clothing treatment apparatus described above, a damping device is also provided on a rear side of the second movement component.

[0015] In a preferred technical solution of the clothing treatment apparatus described above, the damping device is a spring.

[0016] In a preferred technical solution of the clothing treatment apparatus described above, the second move-

ment component is a sliding rail with a protruding guide block arranged on an outer side and a slideway arranged on an inner side; the groove is arranged on the slideway on the inner side, and the support component is arranged to be capable of abutting against the protruding guide block when the first movement component moves to the groove.

[0017] In a preferred technical solution of the clothing treatment apparatus described above, the second movement component is a sliding rail with a protruding guide block arranged on an inner side and a slideway arranged on an outer side; the groove is arranged on the slideway on the outer side, and the support component is arranged to be capable of abutting against the protruding guide block when the first movement component moves to the groove.

[0018] In a preferred technical solution of the clothing treatment apparatus described above, a sensor capable of detecting whether the first movement component has stopped in place is also provided on an inner side of the groove.

[0019] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a structure that can be extended and retracted up and down, so that the sensor can be triggered when the first movement component moves to the groove.

[0020] In a preferred technical solution of the clothing treatment apparatus described above, an insertable buckle is also provided on the working component, and the clothing treatment apparatus also includes a cabinet on which a slot matching with the buckle is provided; the buckle is arranged such that it can move toward the slot during the process of the working component entering the working position, and can be inserted into the slot after the working component enters the working position.

[0021] In a preferred technical solution of the clothing treatment apparatus described above, the support component is a support block.

[0022] In a preferred technical solution of the clothing treatment apparatus described above, a height of the rear side of the second movement component is higher than a height of the front side of the second movement component.

[0023] In a case where the above technical solutions are adopted, after the first movement component moves to the groove in the present disclosure, the support component can support part or all of the gravity of the working component, so that the support force of the first movement component is reduced or cancelled. In this way, the horizontal and vertical forces received by the first movement component during the operation of the clothing treatment apparatus can be reduced or cancelled, thereby avoiding the problem of unsmooth pulling of the clothing treatment apparatus caused by damage to the first movement component due to the forces.

[0024] In a second aspect, the present disclosure provides a clothing treatment apparatus, which includes first

movement components, a second movement component, and a pull-out working component;

an operating side of the clothing treatment apparatus is a front side, and the second movement component is provided with at least two grooves arranged in the front and rear;

the working component is provided with support components, the number of the first movement components is at least two, and the at least two first movement components are provided on the working component in the front and rear respectively;

the clothing treatment apparatus is arranged such that during the pulling-out process of the working component, the first movement components can drive the working component to move on the second movement component, and after the working component reaches a working position, the at least two first movement components in the front and rear can both correspondingly move to the at least two grooves in the front and rear, so that the first movement components do not support the gravity of the working component or support part of the gravity of the working component, and the support components support the remaining part of the gravity of the working component.

[0025] In a preferred technical solution of the clothing treatment apparatus described above, the second movement component is a sliding rail with protruding guide blocks arranged on both sides and a slideway arranged in the middle; the grooves are arranged on the middle slideway, and at least two grooves are provided in the front and rear; and the support components are arranged to be capable of abutting against the protruding guide blocks when the at least two first movement components move to the corresponding at least two grooves.

[0026] In a preferred technical solution of the clothing treatment apparatus described above, there is a height difference between front and rear sides of the second movement component.

[0027] In a preferred technical solution of the clothing treatment apparatus described above, the at least two first movement components are a front roller and a rear roller, and correspondingly, the at least two grooves are arranged on front and rear sides of the slideway.

[0028] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a sliding device, which is arranged to be capable of sliding into or out of the groove.

[0029] In a preferred technical solution of the clothing treatment apparatus described above, the sliding device is a slider with rounded corners on the side edges.

[0030] In a preferred technical solution of the clothing treatment apparatus described above, a damping device is also provided on a rear side of the second movement

component.

[0031] In a preferred technical solution of the clothing treatment apparatus described above, the damping device is a spring.

[0032] In a preferred technical solution of the clothing treatment apparatus described above, the second movement component is a sliding rail with a protruding guide block arranged on an outer side and a slideway arranged on an inner side; the grooves are arranged on the slideway on the inner side, and at least two grooves are provided in the front and rear; and the support components are arranged to be capable of abutting against the protruding guide block when the at least two first movement components move to the corresponding at least two grooves.

[0033] In a preferred technical solution of the clothing treatment apparatus described above, the second movement component is a sliding rail with a protruding guide block arranged on an inner side and a slideway arranged on an outer side; the grooves are arranged on the slideway on the outer side, and at least two grooves are provided in the front and rear; and the support components are arranged to be capable of abutting against the protruding guide block when the at least two first movement components move to the corresponding at least two grooves.

[0034] In a preferred technical solution of the clothing treatment apparatus described above, a sensor capable of detecting whether the first movement component has stopped in place is also provided on an inner side of the groove.

[0035] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a structure that can be extended and retracted up and down, so that the sensor can be triggered when the first movement component moves to the groove.

[0036] In a preferred technical solution of the clothing treatment apparatus described above, an insertable buckle is also provided on the working component, and the clothing treatment apparatus also includes a cabinet on which a slot matching with the buckle is provided; the buckle is arranged such that it can move toward the slot during the process of the working component entering the working position, and can be inserted into the slot after the working component enters the working position.

[0037] In a preferred technical solution of the clothing treatment apparatus described above, the support components are support blocks.

[0038] In a preferred technical solution of the clothing treatment apparatus described above, a height of the rear side of the second movement component is higher than a height of the front side of the second movement component.

[0039] In a case where the above technical solutions are adopted, after the at least two first movement components arranged in the front and rear move to the corresponding at least two grooves arranged in the front

and rear in the present disclosure, the support components can support part or all of the gravity of the working component, so that the support force of the first movement component is reduced or cancelled. In this way, the horizontal and vertical forces received by the first movement component during the operation of the clothing treatment apparatus can be reduced or cancelled, thereby avoiding the problem of unsmooth pulling of the clothing treatment apparatus caused by damage to the first movement component due to the forces.

[0040] In a third aspect, the present disclosure provides a clothing treatment apparatus, which includes a first movement component, a second movement component, and a pull-out working component;

the second movement component is a protruding sliding rail, a sliding surface of which is a slideway, and a groove is provided on the slideway;

the working component is provided with a support component, and the first movement component is provided on the working component; and

the clothing treatment apparatus is arranged such that during the pulling-out process of the working component, the first movement component can drive the working component to move on the second movement component, and after the working component reaches a working position, the first movement component can move to the groove, so that the first movement component does not support the gravity of the working component or supports part of the gravity of the working component, and the support component supports the remaining part of the gravity of the working component.

[0041] In a preferred technical solution of the clothing treatment apparatus described above, the support component is arranged to be capable of abutting against the protruding sliding rail when the first movement component moves to the groove.

[0042] In a preferred technical solution of the clothing treatment apparatus described above, an operating side of the clothing treatment apparatus is a front side, and there is a height difference between front and rear sides of the second movement component.

[0043] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a rear roller, and anti-deviation blocks for clamping the protruding sliding rail are also provided on left and right sides of the rear roller; correspondingly, the groove is arranged on a rear side of the slideway.

[0044] In a preferred technical solution of the clothing treatment apparatus described above, the clothing treatment apparatus further includes a front roller, which is arranged on a front side of the working component and is arranged to be capable of abutting against the ground.

[0045] In a preferred technical solution of the clothing

treatment apparatus described above, the first movement component is a sliding device, which is arranged to be capable of sliding into or out of the groove.

[0046] In a preferred technical solution of the clothing treatment apparatus described above, the sliding device is a slider with rounded corners on the side edges.

[0047] In a preferred technical solution of the clothing treatment apparatus described above, a damping device is also provided on a rear side of the second movement component.

[0048] In a preferred technical solution of the clothing treatment apparatus described above, the damping device is a spring.

[0049] In a preferred technical solution of the clothing treatment apparatus described above, the support component is arranged to be capable of abutting against the ground when the first movement component moves to the groove.

[0050] In a preferred technical solution of the clothing treatment apparatus described above, the support component is arranged to be capable of abutting against a bottom surface of the clothing treatment apparatus when the first movement component moves to the groove.

[0051] In a preferred technical solution of the clothing treatment apparatus described above, a sensor capable of detecting whether the first movement component has stopped in place is also provided on an inner side of the groove.

[0052] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a structure that can be extended and retracted up and down, so that the sensor can be triggered when the first movement component moves to the groove.

[0053] In a preferred technical solution of the clothing treatment apparatus described above, an insertable buckle is also provided on the working component, and the clothing treatment apparatus also includes a cabinet on which a slot matching with the buckle is provided; the buckle is arranged such that it can move toward the slot during the process of the working component entering the working position, and can be inserted into the slot after the working component enters the working position.

[0054] In a preferred technical solution of the clothing treatment apparatus described above, the support component is a support block.

[0055] In a preferred technical solution of the clothing treatment apparatus described above, a height of the rear side of the second movement component is higher than a height of the front side of the second movement component.

[0056] In a case where the above technical solutions are adopted, after the first movement component moves to the groove in the present disclosure, the support component can support part or all of the gravity of the working component, so that the support force of the first movement component is reduced or cancelled. In this way, the horizontal and vertical forces received by the first

movement component during the operation of the clothing treatment apparatus can be reduced or cancelled, thereby avoiding the problem of unsmooth pulling of the clothing treatment apparatus caused by damage to the first movement component due to the forces.

[0057] In a fourth aspect, the present disclosure provides a clothing treatment apparatus, which includes a first movement component, a second movement component, a pull-out working component, and an anti-deviation guide component;

the second movement component is provided with a groove;

the working component is provided with a support component, and the first movement component is provided on the working component; and

the clothing treatment apparatus is arranged such that during the pulling-out process of the working component, the first movement component can drive the working component to move on the second movement component, and after the working component reaches a working position, the first movement component can move to the groove, so that the first movement component does not support the gravity of the working component or supports part of the gravity of the working component, and the support component supports the remaining part of the gravity of the working component; and the anti-deviation guide component is arranged to ensure that the first movement component does not deviate during the movement on the second movement component.

[0058] In a preferred technical solution of the clothing treatment apparatus described above, the second movement component is a sliding rail with protruding guide blocks arranged on both sides and a slideway arranged in the middle; the groove is arranged on the middle slideway, and the support component is arranged to be capable of abutting against the protruding guide blocks when the first movement component moves to the groove.

[0059] In a preferred technical solution of the clothing treatment apparatus described above, an operating side of the clothing treatment apparatus is a front side, and there is a height difference between front and rear sides of the second movement component.

[0060] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a rear roller, and correspondingly, the groove is arranged on a rear side of the slideway.

[0061] In a preferred technical solution of the clothing treatment apparatus described above, the clothing treatment apparatus further includes a front roller, which is arranged on a front side of the working component and is arranged to be capable of abutting against the ground.

[0062] In a preferred technical solution of the clothing

treatment apparatus described above, the anti-deviation guide component is a long strip plate, which is slidably arranged inside the slideway, and one end of the long strip plate is connected to a mounting seat of the front roller and/or the rear roller.

[0063] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a sliding device, which is arranged to be capable of sliding into or out of the groove.

[0064] In a preferred technical solution of the clothing treatment apparatus described above, the sliding device is a slider with rounded corners on the side edges.

[0065] In a preferred technical solution of the clothing treatment apparatus described above, a damping device is also provided on a rear side of the second movement component.

[0066] In a preferred technical solution of the clothing treatment apparatus described above, the damping device is a spring.

[0067] In a preferred technical solution of the clothing treatment apparatus described above, the second movement component is a sliding rail with a protruding guide block arranged on an outer side and a slideway arranged on an inner side; the groove is arranged on the slideway on the inner side, and the support component is arranged to be capable of abutting against the protruding guide block when the first movement component moves to the groove.

[0068] In a preferred technical solution of the clothing treatment apparatus described above, the second movement component is a sliding rail with a protruding guide block arranged on an inner side and a slideway arranged on an outer side; the groove is arranged on the slideway on the outer side, and the support component is arranged to be capable of abutting against the protruding guide block when the first movement component moves to the groove.

[0069] In a preferred technical solution of the clothing treatment apparatus described above, a sensor capable of detecting whether the first movement component has stopped in place is also provided on an inner side of the groove.

[0070] In a preferred technical solution of the clothing treatment apparatus described above, the first movement component is a structure that can be extended and retracted up and down, so that the sensor can be triggered when the first movement component moves to the groove.

[0071] In a preferred technical solution of the clothing treatment apparatus described above, an insertable buckle is also provided on the working component, and the clothing treatment apparatus also includes a cabinet on which a slot matching with the buckle is provided; the buckle is arranged such that it can move toward the slot during the process of the working component entering the working position, and can be inserted into the slot after the working component enters the working position.

[0072] In a preferred technical solution of the clothing

treatment apparatus described above, the support component is a support block.

[0073] In a preferred technical solution of the clothing treatment apparatus described above, the anti-deviation guide component is a guide roller, which is arranged on the working component and abuts against the slideway.

[0074] In a preferred technical solution of the clothing treatment apparatus described above, the anti-deviation guide component is a guide slider, which is arranged on the working component and is slidably arranged on the slideway.

[0075] In a preferred technical solution of the clothing treatment apparatus described above, a height of the rear side of the second movement component is higher than a height of the front side of the second movement component.

[0076] In a case where the above technical solutions are adopted, after the first movement component moves to the groove in the present disclosure, the support component can support part or all of the gravity of the working component, so that the support force of the first movement component is reduced or cancelled. In this way, the horizontal and vertical forces received by the first movement component during the operation of the clothing treatment apparatus can be reduced or cancelled, thereby avoiding the problem of unsmooth pulling of the clothing treatment apparatus caused by damage to the first movement component due to the forces. Further, by providing the anti-deviation guide component, the first movement component is less likely to deviate during movement to cause the working component to sway.

BRIEF DESCRIPTION OF THE DRAWINGS

[0077] Preferred embodiment of the present disclosure will be described below with reference to the accompanying drawings and in connection with a washing machine. In the drawings:

FIG. 1 is a first schematic view of an overall structure of the present disclosure, showing a state in which the working component is partially pulled out of the cabinet;

FIG. 2 is a second schematic view of the overall structure of the present disclosure, showing the overall structure of the pulling of the working component after the cabinet is hidden;

FIG. 3 is a front view of the overall structure in FIG. 1;

FIG. 4 is a top view of the overall structure in FIG. 1;

FIG. 5 is a schematic view of the structure of FIG. 4 after the cabinet is removed;

FIG. 6 shows the solution of a first embodiment of the cross-sectional view taken along line A-A in FIG. 5;

FIG. 7 shows the solution of an installation structure of the rear roller and the support block in FIG. 6;

FIG. 8 shows the solution in which the rear roller in FIG. 6 does not reach the groove during the pulling process, illustrating a gap between the support block and the protruding guide block before the groove is reached;

FIG. 9 shows the solution in which the rear roller in FIG. 6 reaches the groove during the pulling process, illustrating the solution of the support block abutting against the protruding guide block when the groove is reached;

FIG. 10 shows the solution of a second embodiment of the cross-sectional view taken along line A-A in FIG. 5, illustrating the solution in which there is a height difference between front and rear sides of the sliding rail;

FIG. 11 shows the solution of the sliding rail with protruding guide blocks arranged on both sides and a slideway arranged in the middle in FIG. 5;

FIG. 12 shows the solution of the sliding rail with protruding guide blocks arranged on the outer side and a slideway arranged on the inner side;

FIG. 13 shows the solution of the sliding rail with protruding guide blocks arranged on the inner side and a slideway arranged on the outer side;

FIG. 14 shows the solution of setting the position of the sensor and the solution of a retractable rear roller;

FIG. 15 shows the solution of inserting the slot and the buckle parallel to the sliding rail of the present disclosure;

FIG. 16 is a cross-sectional view of the solution of a third embodiment of taken along line A-A in FIG. 5, illustrating the solution in which grooves are provided on both the front and rear sides, and the front roller also belongs to the first movement component;

FIG. 17 is a cross-sectional view of the solution of a fourth embodiment of taken along line A-A in FIG. 5, illustrating the solution of a protruding sliding rail without a protruding guide block;

FIG. 18 is a schematic view showing the mating between the rear roller and the protruding sliding rail in the fourth embodiment of FIG. 17;

FIG. 19 shows the solution of a fifth embodiment, in which an anti-deviation guide component in the form

of a guide roller is added;

FIG. 20 shows the solution of the fifth embodiment, in which an anti-deviation guide component in the form of a guide roller is added; and

FIG. 21 shows the solution of the fifth embodiment, in which an anti-deviation guide component in the form of a long strip plate is added.

List of reference signs:

[0078]

1: rear roller;

2: sliding rail; 21: protruding guide block; 22: slideway; 23: groove;

3: working component; 31: support component; 32: buckle;

4: front roller;

5: damping device;

6: sensor;

7: cabinet; 71: slot;

8: anti-deviation guide component.

DETAILED DESCRIPTION OF THE EMBODIMENT(S) OF THE INVENTION

[0079] Preferred embodiments of the present disclosure will be described below with reference to the accompanying drawings. It should be understood by those skilled in the art that these embodiments are only used to explain the technical principle of the present disclosure, and are not intended to limit the scope of protection of the present disclosure. These embodiments can be adjusted by those skilled in the art as needed to adapt to specific application scenes. For example, although the description is given in the specification by taking the first movement component as the rear roller, the present disclosure can obviously adopt other forms of movement components, such as a sliding component which can be implemented through a slider, as long as the movement device enables the working component to slide in and out, and after the movement device moves to the groove, the support component can support part or all of the gravity of the working component.

[0080] It should be noted that in the description of the present disclosure, terms indicating directional or positional relationships, such as "upper", "lower", "vertical", "horizontal" and the like, are based on the directional or positional relationships shown in the accompanying

drawings. They are only used for ease of description, and do not indicate or imply that the device or element must have a specific orientation, or must be constructed or operated in a specific orientation; therefore, they should not be considered as limitations to the present disclosure. In addition, terms "first" and "second" are only used for descriptive purpose, and should not be understood as indicating or implying relative importance.

[0081] In addition, it should also be noted that in the description of the present disclosure, unless otherwise clearly specified and defined, terms "install", "connect" and "connection" should be understood in a broad sense; for example, the connection may be a fixed connection, or a detachable connection, or an integral connection; it may be a mechanical connection, or an electrical connection; it may be a direct connection, or an indirect connection implemented through an intermediate medium. For those skilled in the art, the specific meaning of the above terms in the present disclosure can be interpreted according to specific situations.

First embodiment

[0082] Firstly, with reference to FIGS. 1-15, a specific preferred embodiment of the present disclosure will be described.

[0083] Referring to FIGS. 1-15, the present disclosure proposes a clothing treatment apparatus, which includes a first movement component, a second movement component, and a pull-out working component 3. The second movement component is provided with a groove 23. Specifically, in the first embodiment of the present disclosure, the first movement component may be a rear roller 1, and the second movement component may be a sliding rail 2. In a possible embodiment, the solution of the sliding rail 2 may be the sliding rail 2 with protruding guide blocks 21 arranged on both sides and a slideway 22 arranged in the middle, as shown in FIGS. 2, 5 and 11. Correspondingly, the groove 23 is arranged on a rear side of the slideway 22 to match with the first movement component.

[0084] The working component 3 can be a pull-out type pulsator washing machine, which can be directly slidably arranged on the sliding rail 2; alternatively, as shown in FIG. 2, the pulsator washing machine can be placed in a box (FIG. 2 only shows the box, and the body of the pulsator washing machine is not shown), and then slidably arranged on the sliding rail.

[0085] Next, reference is made to FIGS. 6, 7, and 8, a support component 31 is provided below the working component 3, and the rear roller 1 of the first movement component is also provided on the working component 3. In a preferred solution, the rear roller 1 is indirectly arranged on the working component 3 by placing it on the support component 31, as shown in FIG. 7.

[0086] Through the above structure, in the clothing treatment apparatus of the present disclosure, the rear roller 1 can drive the working component 3 to move on the

sliding rail 2 during the pulling process of the working component 3; after the working component 3 reaches a working position, the rear roller 1 moves to the groove 23, as shown in FIG. 9 or FIG. 10, so that the rear roller 1 does not support the gravity of the working component 3 or supports part of the gravity of the working component 3, and the support component 31 supports the remaining part of the gravity of the working component 3. There are two situations for this. If the rear roller 1 directly falls into the groove 23 completely and is suspended, at this time, the support component 31 will fully bear the gravity of the working component 3. If the rear roller 1 is provided with an elastic structure such as an elastic member like a spring arranged above the rear roller 1, as shown in FIG. 16, then the rear roller 1 can still provide certain support after abutting a bottom surface of the groove 23; at this time, the support component 31 plays a role in supporting the remaining part of the gravity of the working component 3.

[0087] In a preferred solution of the first embodiment, as shown in FIGS. 2, 6-8 and 11, support positions of the support component 31 in the above solution can be located on the protruding guide blocks 21 on both sides of the sliding rail 2, in which the support component 31 abuts against the protruding guide blocks 21 to transmit the force to the sliding rail 2. Of course, the support component 31 and the sliding rail 2 can also be staggered so that the force is directly transmitted to a bottom surface of a cabinet 7 (this solution is not shown in the drawings), or if the clothing treatment apparatus does not have the cabinet 7, the force can also be directly transmitted to the ground or an installation platform (this solution is not shown in the drawings).

[0088] Through the above structural design, the present disclosure enables the rear roller 1 to fall into the groove 23 after the working component 3 is pulled out to put the clothing in and pushed back to the working position, so that the support component 31 supports the majority of the force, and the rear roller 1 no longer bears the eccentric force of the washing machine during the washing and vibrating process, that is, the rear roller 1 no longer bears the horizontal force, which is in turn borne by the support component 31. In this way, the service life of the rear roller 1 can be greatly extended. Moreover, due to the presence of the support component 31, the washing machine can also be supported more stably and firmly during the washing process, thus reducing the vibration frequency of the washing machine and reducing the overall vibration noise of the clothing treatment apparatus. Preferably, the support component 31 is a support block shown in FIG. 7; a bottom surface of the support block can be configured as a surface with a higher coefficient of friction, or the support block is overall made of a material with higher coefficient of friction, such as rubber, further preventing the support component 31 from slipping or vibrating and displacing.

[0089] Preferably, in the first embodiment, as shown in FIG. 6, the clothing treatment apparatus of the present

disclosure is further provided with a front roller 4, which is arranged on a front side of the working component 3 and which is arranged to be capable of contacting with the ground to achieve support at a front end during the pulling process. Therefore, the overall structure does not rely entirely on the sliding rail to complete, and part of the force can be distributed to the front roller 4.

[0090] In the first embodiment, as shown in FIGS. 8 and 14, a damping device 5 is also provided on a rear side of the rear roller 1. The damping device 5 is preferably a spring; of course, it can also adopt other damping structures, such as a damping rod or an elastic block, so as to avoid excessive force after pushing in, which may cause the rear roller 1 to detach from the groove and continue to move backward and collide with the cabinet 7.

[0091] In the first embodiment, as shown in FIG. 14, a sensor 6 capable of detecting whether the rear roller 1 has stopped in place is also provided on an inner side of the groove 23. Preferably, the structure that can be extended and retracted up and down of the rear roller 1 can not only provide part of support force as described above, but also can prevent the rear roller 1 from being suspended, so that the rear roller 1 at least partially abuts against the sensor 6, avoiding failure of detection of the sensor 6 and improving the detection accuracy of the sensor 6. The steps of clothing treatment are started after the clothing treatment apparatus detects that the working component 3 is installed in place, so as to avoid accidental situations.

[0092] In the first embodiment, as shown in FIG. 15, the working component 3 is also provided with an insertable buckle 32, and the clothing treatment apparatus further includes a cabinet 7 on which a slot 71 that matches with the buckle 32 is provided. The buckle 32 is arranged such that it can move toward the slot 71 during the process of the working component 3 entering the working position, and can be inserted into the slot 71 after the working component 3 enters the working position. This insertion snap-fit connection solution is highly suitable for the solution of the present disclosure, so that once the working component 3 is pushed into the working position in the present disclosure, it can be locked; the function of unlocking first is achieved during the process of pulling out the handle, and the pushing and pulling action is also coordinated with the opening and closing of the lock. Users only need one action to achieve the opening and pulling-out actions, as well as closing and pushing-in actions.

[0093] In the first embodiment, as shown in FIG. 9, the sliding rail 2 can be parallel to the horizontal plane. At this time, after the working component 3 is pushed in, a certain inclination may be formed since the rear roller 1 has entered the groove 23; but this is also within the allowable range of the working state of the working component 3 of the present disclosure, and it can still work normally.

Second embodiment

[0094] The solution of the second embodiment is overall the same as the first embodiment with the following difference therebetween: at the same time of achieving stable support for the working component 3 as in the first embodiment, horizontal placement of the working component 3 is also achieved; as shown in FIG. 10, in a more preferred embodiment, an operating side of the clothing treatment apparatus is a front side, and there is a height difference between front and rear sides of the second movement component (the sliding rail 2). Preferably, a height of the rear side is higher than that of the front side. Through the design of the height difference, the working component 3 can have an appropriate climbing action during the pushing-in process; then after the rear roller 1 falls into the groove 23, the overall flatness of the working component 3 can be achieved, making the working state of the working component 3 more stable. The service life is longer, and it is less likely to splash washing water during the operation.

Third embodiment

[0095] Referring to FIG. 16, the difference between the solution of the third embodiment and the solution of the first embodiment is overall as follows: in order to achieve more stable support for the working component 3, the front roller 4 is also included in the scope of the first movement component, and correspondingly, at least two grooves are arranged on the second movement component (the sliding rail 2) in the front and rear, so that the front roller 4 and the rear roller 1 are respectively arranged in one of the grooves. Similarly, the support components 31 can be used for both the front roller 4 and the rear roller 1, so that the support forces during the working process are provided by the support components 31 both in the front and rear.

Fourth embodiment

[0096] Referring to FIGS. 17 and 18, the present disclosure also provides another different solution of the sliding rail, i.e., a protruding sliding rail 24, which differs from the sliding rail 2 in the first embodiment in that the protruding sliding rail 24 in the fourth embodiment is not provided with protruding guide blocks 21 on both sides. Therefore, the support component 31 of this solution does not abut against the protruding guide blocks 21 in the left and right direction, but directly abuts against the protruding sliding rail 24 in the front and rear direction as shown in FIGS. 16 and 17, similar to the design of train tracks. Anti-deviation blocks 25 are also provided on both sides of the rear roller 4 for clamping the protruding sliding rail 24. Finally, the fourth embodiment provides another different form of the protruding sliding rail 24, which is overall less prone to damage, has better stability, and lower cost since the protruding sliding rail 24 itself

does not have other complex concave and convex shapes. Of course, the support component 3 can not only directly abut against the protruding sliding rail 24, but also can abut against the bottom surface of the cabinet 7 or directly abut against the ground.

Fifth embodiment

[0097] Next, reference is made to FIGS. 19, 20, and 21. On the basis of the first embodiment, an anti-deviation guide component 8 is further added in the fifth embodiment to ensure that the first movement component does not deviate during the movement on the second movement component. Specifically, three different implementations are covered. Referring to FIG. 19, the anti-deviation guide component 8 in the first implementation is a guide roller, which is arranged on the working component 3 (which is omitted for the sake of illustrating the structure, the same below), and the guide roller abuts against the slideway. The guidance during the pushing and pulling process is achieved through the dual wheel design of the rear roller 4 and the guide roller. Referring to FIG. 20, the anti-deviation guide component 8 in the second implementation is a guide slider, which is arranged on the working component and is slidably arranged on the slideway. Referring to FIG. 21, the anti-deviation guide component 8 in the third implementation is a long strip plate, which is slidably arranged inside the sliding rail 2. One end of the long strip plate is connected to a mounting seat of the front roller 4; of course, it can also be connected to a mounting seat of the rear roller 1. The connection with the mounting seat of the front roller 4 also enables synchronous positioning of the movement direction of the front roller 4, which is more accurate compared to other solutions of guiding. Preferably, the connection can be integrally form the mounting seat of the front roller 4 and the long strip plate as one piece, as shown in FIG. 18.

[0098] In summary, through the design of the support component 31 in combination with the groove 23, the present disclosure enables the rear roller 1 to enter the groove 23 when the working component moves to the working position, and then the support component 31 plays the main supporting role. The supporting method of the rolling friction between the rear roller 1 and the slideway 22 is directly changed to the supporting method of the up-and-down stacking between the support component 31 and the protruding guide blocks 21. When the clothing is taken out after use, the working component 3 can be pulled out with a slight force, and the rear roller 1 can climb out of the groove 23 so that the rolling friction is restored, making it still very effortless for the user to push and pull. This seamless switching not only protects the rear roller 1 and reduces the noise generated by the working component 3 during operation, but also takes care of users, making it still very effortless for the user to push and pull. By making simple structural modifications to simply add the structures of the support component 31

and the groove 23, a fundamental switch and change in the movement mode is made on the basis of the original solution, which greatly improves the stability of the product on the basis of not increasing the cost of the clothing treatment apparatus of the present disclosure, that is, the service life of the rear roller 1 is extended, and user satisfaction is also improved, meaning lower vibration noise during use. In addition, the present disclosure also proposes a design of height difference between the front and rear sides of the sliding rail 2, which further improves the stability of product during use and also reduces the probability of water leakage and the like caused by the tilting of the working component 3. The design of the sensor 6 also ensures that washing, drying and other operations can be performed only after the working component 3 reaches the working position, ensuring the safety of the product. The design of front and rear dual support makes the overall support more stable, and also optimizes the force on the front roller 4.

[0099] It should be noted that the above embodiments are only used to illustrate the principle of the present disclosure and are not intended to limit the scope of protection of the present disclosure. Without departing from the principle of the present disclosure, those skilled in the art can adjust the above structures so that the present disclosure can be applied to more specific application scenes.

[0100] For example, although only one way of movement is provided for the first movement component, it is obviously not limited to the form of the rear roller 1. For example, in an alternative embodiment, the first movement component can also be a sliding device, which is arranged to be capable of sliding into or out of the groove 23. Preferably, the sliding device can be a slider with rounded corners on the side edges. For example, a cylindrical surface of a semi cylinder-shaped slider abuts against the slideway 22, and a flat surface of the semi cylinder-shaped slider is fixed to the bottom surface of the working component 3 to achieve the sliding connection between the first movement component and the slideway 22. These extensions based on the main inventive concept of the present disclosure do not deviate from the principle of the present disclosure and therefore will all fall within the scope of protection of the present disclosure.

[0101] For example, in another alternative embodiment, the sliding rail 2 is obviously not limited to the sliding rail 2 with the protruding guide blocks 21 arranged on both sides and the slideway 22 arranged in the middle as shown in FIG. 11, and it can also be a sliding rail 2 with a protruding guide block 21 arranged on an outer side and a slideway 22 arranged on an inner side as shown in FIG. 12. The groove 23 is arranged on the slideway 22 on the inner side, and the support component 31 is arranged to be capable of abutting against the protruding guide block 21 when the first movement component moves to the groove 23. The above solution can also adapt to the structure of the support component 31 and the groove 23 proposed by the present disclosure without deviating

from the principle of the present disclosure, and therefore will fall within the scope of protection of the present disclosure.

[0102] For example, in another alternative embodiment, the sliding rail 2 is obviously not limited to the sliding rail 2 with the protruding guide blocks 21 arranged on both sides and the slideway 22 arranged in the middle as shown in FIG. 11, and it can also be a sliding rail 2 with a protruding guide block 21 arranged on an inner side and a slideway 22 arranged on an outer side as shown in FIG. 13. The groove 23 is arranged on the slideway 22 on the outer side, and the support component 31 is arranged to be capable of abutting against the protruding guide block 21 when the first movement component moves to the groove 23. The above solution can also adapt to the structure of the support component 31 and the groove 23 proposed by the present disclosure without deviating from the principle of the present disclosure, and therefore will fall within the scope of protection of the present disclosure.

[0103] Finally, it should be noted that although the present disclosure is described using a pull-out washing machine as an example, the solutions of the present disclosure can obviously also be applied to other clothing treatment apparatuses. For example, they can also be applied to shoe washing machines, dryers, etc.

[0104] Hitherto, the technical solutions of the present disclosure have been described in connection with the preferred embodiments shown in the accompanying drawings, but it is easily understood by those skilled in the art that the scope of protection of the present disclosure is obviously not limited to these specific embodiments. Without deviating from the principle of the present disclosure, those skilled in the art can make equivalent changes or replacements to relevant technical features, and all the technical solutions after these changes or replacements will fall within the scope of protection of the present disclosure.

Claims

1. A clothing treatment apparatus, wherein the clothing treatment apparatus comprises a first movement component, a second movement component, and a pull-out working component;

the second movement component is provided with a groove;

the working component is provided with a support component, and the first movement component is provided on the working component; the clothing treatment apparatus is arranged such that during the pulling-out process of the working component, the first movement component can drive the working component to move on the second movement component, and after the working component reaches a working posi-

tion, the first movement component can move to the groove, so that the first movement component does not support the gravity of the working component or supports part of the gravity of the working component, and the support component supports the remaining part of the gravity of the working component.

2. The clothing treatment apparatus according to claim 1, wherein the second movement component is a sliding rail with protruding guide blocks arranged on both sides and a slideway arranged in the middle; the groove is arranged on the middle slideway, and the support component is arranged to be capable of abutting against the protruding guide blocks when the first movement component moves to the groove.
3. The clothing treatment apparatus according to claim 2, wherein an operating side of the clothing treatment apparatus is a front side, and there is a height difference between front and rear sides of the second movement component.
4. The clothing treatment apparatus according to claim 2, wherein the first movement component is a rear roller, and correspondingly, the groove is arranged on a rear side of the slideway.
5. The clothing treatment apparatus according to claim 4, wherein the clothing treatment apparatus further comprises a front roller, which is arranged on a front side of the working component and is arranged to be capable of abutting against the ground.
6. The clothing treatment apparatus according to claim 2, wherein the first movement component is a sliding device, which is arranged to be capable of sliding into or out of the groove.
7. The clothing treatment apparatus according to claim 6, wherein the sliding device is a slider with rounded corners on the side edges.
8. The clothing treatment apparatus according to claim 1, wherein a damping device is also provided on a rear side of the second movement component.
9. The clothing treatment apparatus according to claim 8, wherein the damping device is a spring.
10. The clothing treatment apparatus according to claim 1, wherein the second movement component is a sliding rail with a protruding guide block arranged on an outer side and a slideway arranged on an inner side; the groove is arranged on the slideway on the inner side, and the support component is arranged to be capable of abutting against the protruding guide block when the first movement component moves to

the groove.

11. The clothing treatment apparatus according to claim 1, wherein the second movement component is a sliding rail with a protruding guide block arranged on an inner side and a slideway arranged on an outer side; the groove is arranged on the slideway on the outer side, and the support component is arranged to be capable of abutting against the protruding guide block when the first movement component moves to the groove. 5 10
12. The clothing treatment apparatus according to claim 1, wherein a sensor capable of detecting whether the first movement component has stopped in place is also provided on an inner side of the groove. 15
13. The clothing treatment apparatus according to claim 12, wherein the first movement component is a structure that can be extended and retracted up and down, so that the sensor can be triggered when the first movement component moves to the groove. 20
14. The clothing treatment apparatus according to claim 1, wherein an insertable buckle is also provided on the working component, and the clothing treatment apparatus also comprises a cabinet on which a slot matching with the buckle is provided; the buckle is arranged such that it can move toward the slot during the process of the working component entering the working position, and can be inserted into the slot after the working component enters the working position. 25 30
15. The clothing treatment apparatus according to claim 1, wherein the support component is a support block. 35
16. The clothing treatment apparatus according to claim 3, wherein a height of the rear side of the second movement component is higher than a height of the front side of the second movement component. 40
17. A clothing treatment apparatus, wherein the clothing treatment apparatus comprises first movement components, a second movement component, and a pull-out working component; 45
an operating side of the clothing treatment apparatus is a front side, and the second movement component is provided with at least two grooves arranged in the front and rear; the working component is provided with support components, the number of the first movement components is at least two, and the at least two first movement components are provided on the working component in the front and rear respectively; 50
the clothing treatment apparatus is arranged

such that during the pulling-out process of the working component, the first movement components can drive the working component to move on the second movement component, and after the working component reaches a working position, the at least two first movement components in the front and rear can both correspondingly move to the at least two grooves in the front and rear, so that the first movement components do not support the gravity of the working component or support part of the gravity of the working component, and the support components support the remaining part of the gravity of the working component.

18. The clothing treatment apparatus according to claim 17, wherein the second movement component is a sliding rail with protruding guide blocks arranged on both sides and a slideway arranged in the middle; the grooves are arranged on the middle slideway, and at least two grooves are provided in the front and rear; and the support components are arranged to be capable of abutting against the protruding guide blocks when the at least two first movement components move to the corresponding at least two grooves.
19. The clothing treatment apparatus according to claim 18, wherein there is a height difference between front and rear sides of the second movement component.
20. The clothing treatment apparatus according to claim 18, wherein the at least two first movement components are a front roller and a rear roller, and correspondingly, the at least two grooves are arranged on front and rear sides of the slideway.
21. The clothing treatment apparatus according to claim 18, wherein the first movement component is a sliding device, which is arranged to be capable of sliding into or out of the groove.
22. The clothing treatment apparatus according to claim 21, wherein the sliding device is a slider with rounded corners on the side edges.
23. The clothing treatment apparatus according to claim 17, wherein a damping device is also provided on a rear side of the second movement component.
24. The clothing treatment apparatus according to claim 23, wherein the damping device is a spring.
25. The clothing treatment apparatus according to claim 17, wherein the second movement component is a sliding rail with a protruding guide block arranged on an outer side and a slideway arranged on an inner side; the grooves are arranged on the slideway on

the inner side, and at least two grooves are provided in the front and rear; and the support components are arranged to be capable of abutting against the protruding guide block when the at least two first movement components move to the corresponding at least two grooves.

26. The clothing treatment apparatus according to claim 17, wherein the second movement component is a sliding rail with a protruding guide block arranged on an inner side and a slideway arranged on an outer side; the grooves are arranged on the slideway on the outer side, and at least two grooves are provided in the front and rear; and the support components are arranged to be capable of abutting against the protruding guide block when the at least two first movement components move to the corresponding at least two grooves.

27. The clothing treatment apparatus according to claim 17, wherein a sensor capable of detecting whether the first movement component has stopped in place is also provided on an inner side of the groove.

28. The clothing treatment apparatus according to claim 27, wherein the first movement component is a structure that can be extended and retracted up and down, so that the sensor can be triggered when the first movement component moves to the groove.

29. The clothing treatment apparatus according to claim 17, wherein an insertable buckle is also provided on the working component, and the clothing treatment apparatus also comprises a cabinet on which a slot matching with the buckle is provided; the buckle is arranged such that it can move toward the slot during the process of the working component entering the working position, and can be inserted into the slot after the working component enters the working position.

30. The clothing treatment apparatus according to claim 17, wherein the support components are support blocks.

31. The clothing treatment apparatus according to claim 19, wherein a height of the rear side of the second movement component is higher than a height of the front side of the second movement component.

32. A clothing treatment apparatus, wherein the clothing treatment apparatus comprises a first movement component, a second movement component, and a pull-out working component;

the second movement component is a protruding sliding rail, a sliding surface of which is a slideway, and a groove is provided on the slide-

way;

the working component is provided with a support component, and the first movement component is provided on the working component; and

the clothing treatment apparatus is arranged such that during the pulling-out process of the working component, the first movement component can drive the working component to move on the second movement component, and after the working component reaches a working position, the first movement component can move to the groove, so that the first movement component does not support the gravity of the working component or supports part of the gravity of the working component, and the support component supports the remaining part of the gravity of the working component.

33. The clothing treatment apparatus according to claim 32, wherein the support component is arranged to be capable of abutting against the protruding sliding rail when the first movement component moves to the groove.

34. The clothing treatment apparatus according to claim 33, wherein an operating side of the clothing treatment apparatus is a front side, and there is a height difference between front and rear sides of the second movement component.

35. The clothing treatment apparatus according to claim 33, wherein the first movement component is a rear roller, and anti-deviation blocks for clamping the protruding sliding rail are also provided on left and right sides of the rear roller; correspondingly, the groove is arranged on a rear side of the slideway.

36. The clothing treatment apparatus according to claim 35, wherein the clothing treatment apparatus further comprises a front roller, which is arranged on a front side of the working component and is arranged to be capable of abutting against the ground.

37. The clothing treatment apparatus according to claim 33, wherein the first movement component is a sliding device, which is arranged to be capable of sliding into or out of the groove.

38. The clothing treatment apparatus according to claim 37, wherein the sliding device is a slider with rounded corners on the side edges.

39. The clothing treatment apparatus according to claim 32, wherein a damping device is also provided on a rear side of the second movement component.

40. The clothing treatment apparatus according to claim

39, wherein the damping device is a spring.

41. The clothing treatment apparatus according to claim 32, wherein the support component is arranged to be capable of abutting against the ground when the first movement component moves to the groove. 5
42. The clothing treatment apparatus according to claim 32, wherein the support component is arranged to be capable of abutting against a bottom surface of the clothing treatment apparatus when the first movement component moves to the groove. 10
43. The clothing treatment apparatus according to claim 32, wherein a sensor capable of detecting whether the first movement component has stopped in place is also provided on an inner side of the groove. 15
44. The clothing treatment apparatus according to claim 43, wherein the first movement component is a structure that can be extended and retracted up and down, so that the sensor can be triggered when the first movement component moves to the groove. 20
45. The clothing treatment apparatus according to claim 32, wherein an insertable buckle is also provided on the working component, and the clothing treatment apparatus also comprises a cabinet on which a slot matching with the buckle is provided; the buckle is arranged such that it can move toward the slot during the process of the working component entering the working position, and can be inserted into the slot after the working component enters the working position. 25 30
46. The clothing treatment apparatus according to claim 32, wherein the support component is a support block. 35
47. The clothing treatment apparatus according to claim 34, wherein a height of the rear side of the second movement component is higher than a height of the front side of the second movement component. 40
48. A clothing treatment apparatus, wherein the clothing treatment apparatus comprises a first movement component, a second movement component, a pull-out working component, and an anti-deviation guide component; 45

the second movement component is provided with a groove;
the working component is provided with a support component, and the first movement component is provided on the working component; and
the clothing treatment apparatus is arranged such that during the pulling-out process of the

working component, the first movement component can drive the working component to move on the second movement component, and after the working component reaches a working position, the first movement component can move to the groove, so that the first movement component does not support the gravity of the working component or supports part of the gravity of the working component, and the support component supports the remaining part of the gravity of the working component; and the anti-deviation guide component is arranged to ensure that the first movement component does not deviate during the movement on the second movement component.

49. The clothing treatment apparatus according to claim 48, wherein the second movement component is a sliding rail with protruding guide blocks arranged on both sides and a slideway arranged in the middle; the groove is arranged on the middle slideway, and the support component is arranged to be capable of abutting against the protruding guide blocks when the first movement component moves to the groove.
50. The clothing treatment apparatus according to claim 49, wherein an operating side of the clothing treatment apparatus is a front side, and there is a height difference between front and rear sides of the second movement component.
51. The clothing treatment apparatus according to claim 49, wherein the first movement component is a rear roller, and correspondingly, the groove is arranged on a rear side of the slideway. 50
52. The clothing treatment apparatus according to claim 51, wherein the clothing treatment apparatus further comprises a front roller, which is arranged on a front side of the working component and is arranged to be capable of abutting against the ground.
53. The clothing treatment apparatus according to claim 52, wherein the anti-deviation guide component is a long strip plate, which is slidably arranged inside the slideway, and one end of the long strip plate is connected to a mounting seat of the front roller and/or the rear roller.
54. The clothing treatment apparatus according to claim 49, wherein the first movement component is a sliding device, which is arranged to be capable of sliding into or out of the groove. 55
55. The clothing treatment apparatus according to claim 54, wherein the sliding device is a slider with rounded corners on the side edges.

56. The clothing treatment apparatus according to claim 48, wherein a damping device is also provided on a rear side of the second movement component.
57. The clothing treatment apparatus according to claim 56, wherein the damping device is a spring. 5
58. The clothing treatment apparatus according to claim 48, wherein the second movement component is a sliding rail with a protruding guide block arranged on an outer side and a slideway arranged on an inner side; the groove is arranged on the slideway on the inner side, and the support component is arranged to be capable of abutting against the protruding guide block when the first movement component moves to the groove. 10 15
59. The clothing treatment apparatus according to claim 48, wherein the second movement component is a sliding rail with a protruding guide block arranged on an inner side and a slideway arranged on an outer side; the groove is arranged on the slideway on the outer side, and the support component is arranged to be capable of abutting against the protruding guide block when the first movement component moves to the groove. 20 25
60. The clothing treatment apparatus according to claim 48, wherein a sensor capable of detecting whether the first movement component has stopped in place is also provided on an inner side of the groove. 30
61. The clothing treatment apparatus according to claim 60, wherein the first movement component is a structure that can be extended and retracted up and down, so that the sensor can be triggered when the first movement component moves to the groove. 35
62. The clothing treatment apparatus according to claim 48, wherein an insertable buckle is also provided on the working component, and the clothing treatment apparatus also comprises a cabinet on which a slot matching with the buckle is provided; the buckle is arranged such that it can move toward the slot during the process of the working component entering the working position, and can be inserted into the slot after the working component enters the working position. 40 45
63. The clothing treatment apparatus according to claim 48, wherein the support component is a support block. 50
64. The clothing treatment apparatus according to any one of claims 49, 58 and 59, wherein the anti-deviation guide component is a guide roller, which is arranged on the working component and abuts against the slideway. 55
65. The clothing treatment apparatus according to any one of claims 49, 58 and 59, wherein the anti-deviation guide component is a guide slider, which is arranged on the working component and is slidably arranged on the slideway.
66. The clothing treatment apparatus according to claim 50, wherein a height of the rear side of the second movement component is higher than a height of the front side of the second movement component.

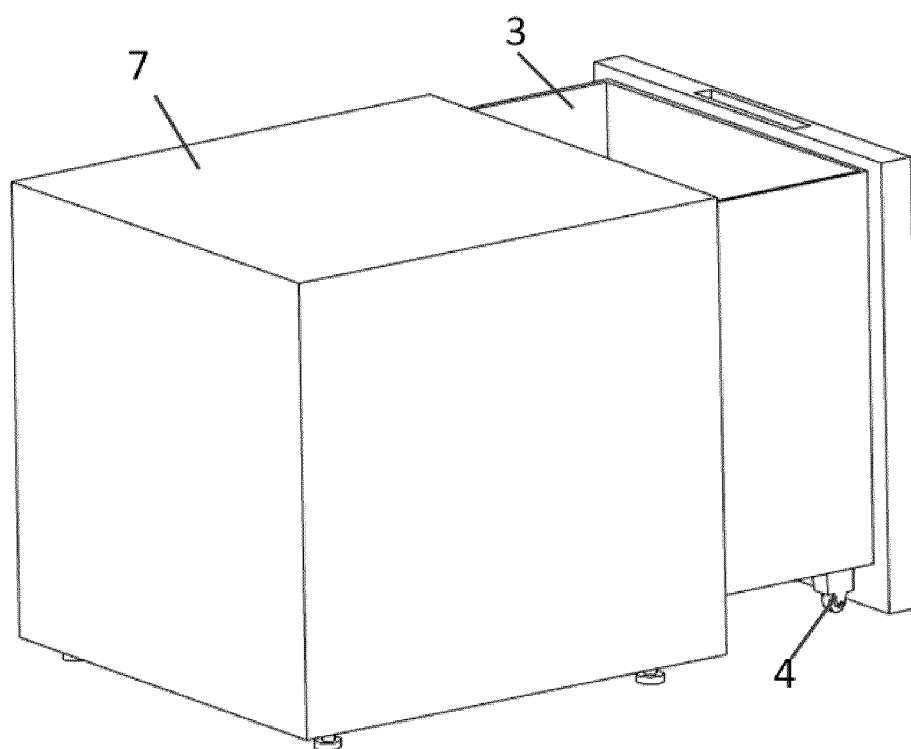


FIG.1

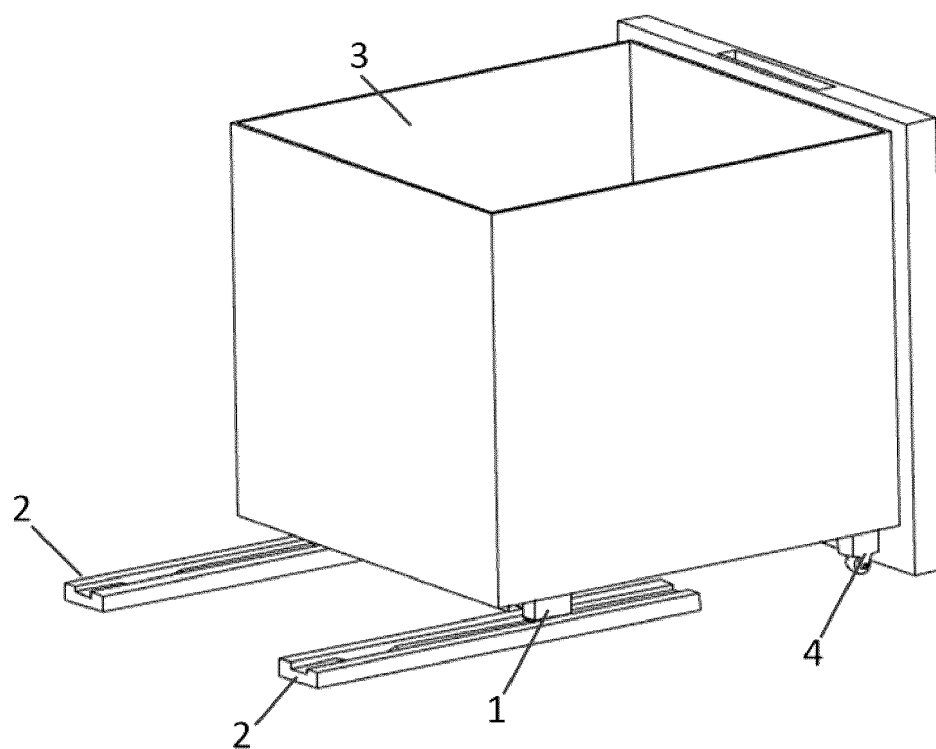


FIG. 2

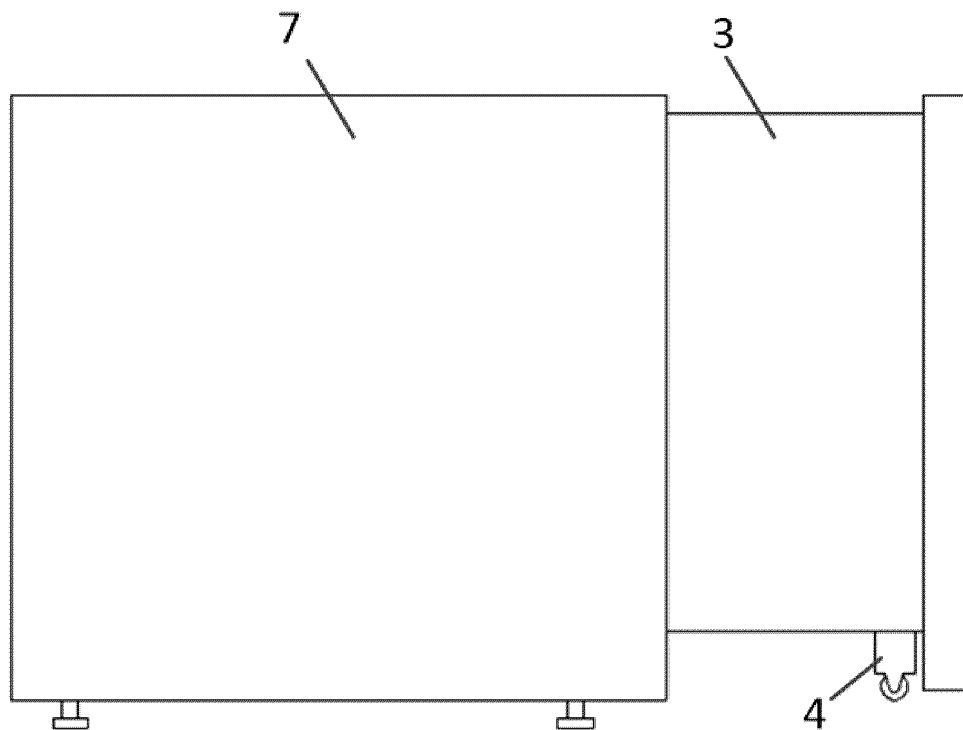


FIG. 3

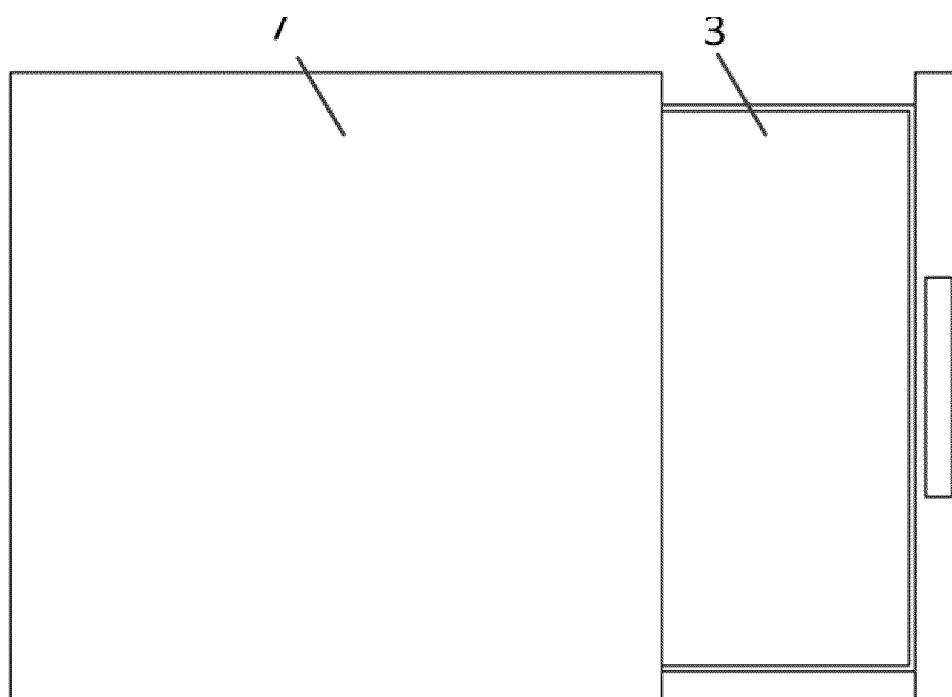


FIG. 4

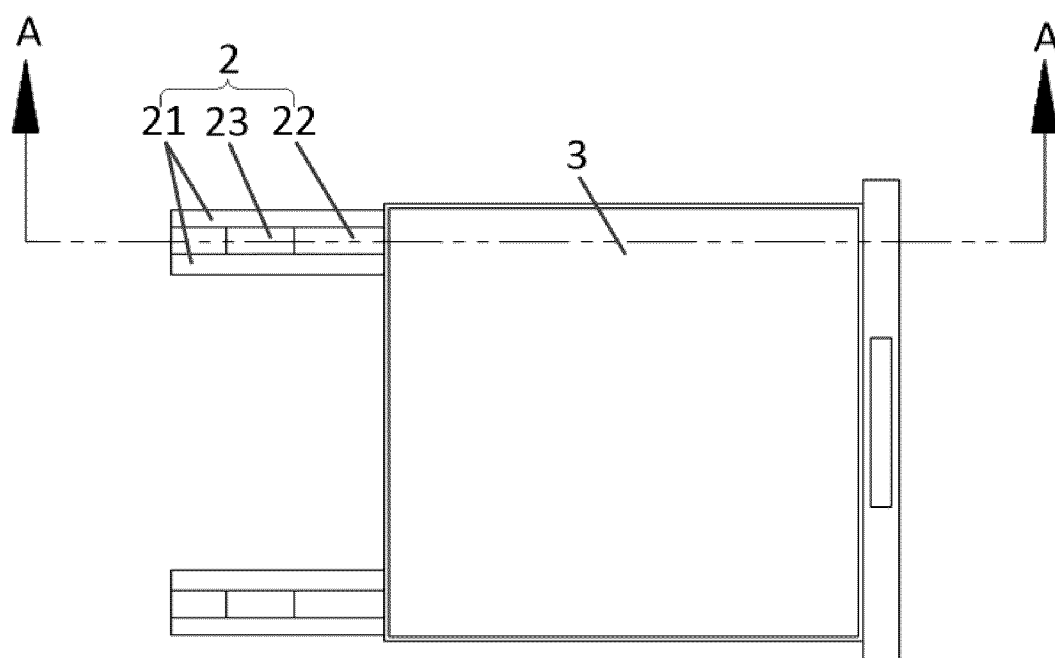


FIG. 5

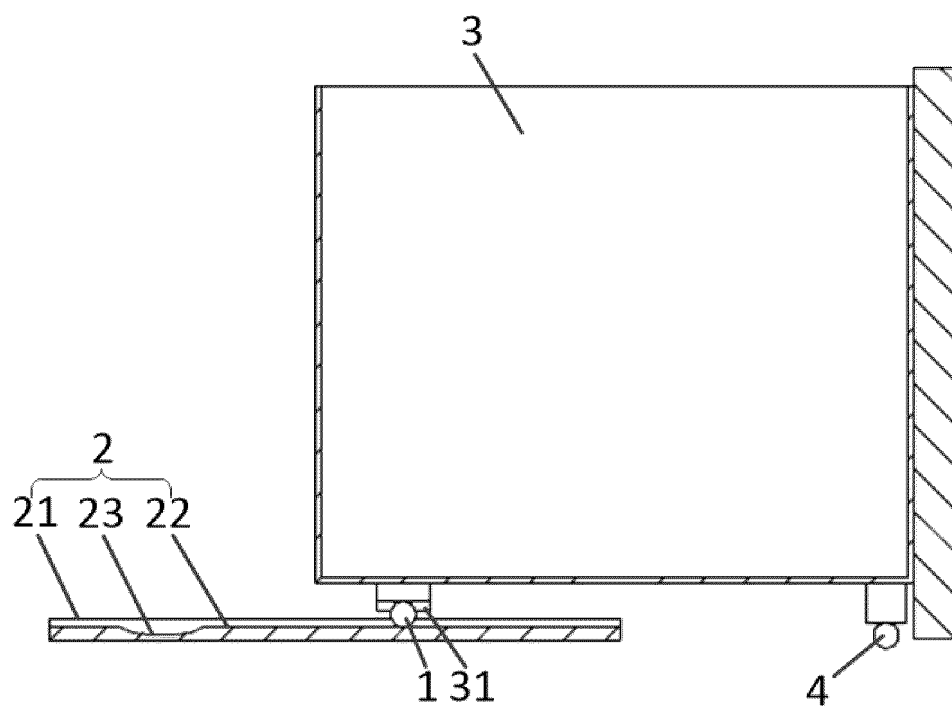


FIG. 6

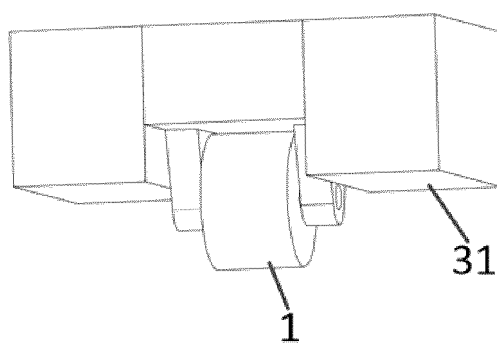


FIG. 7

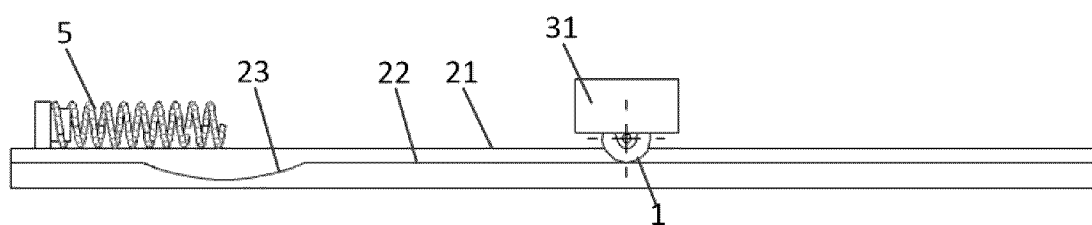


FIG.8

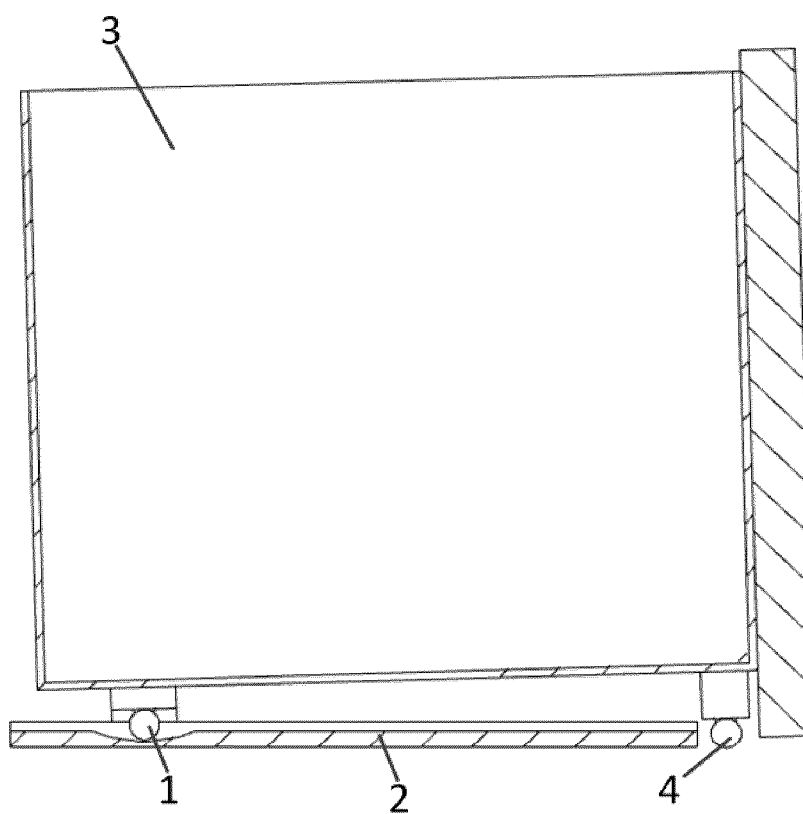


FIG.9

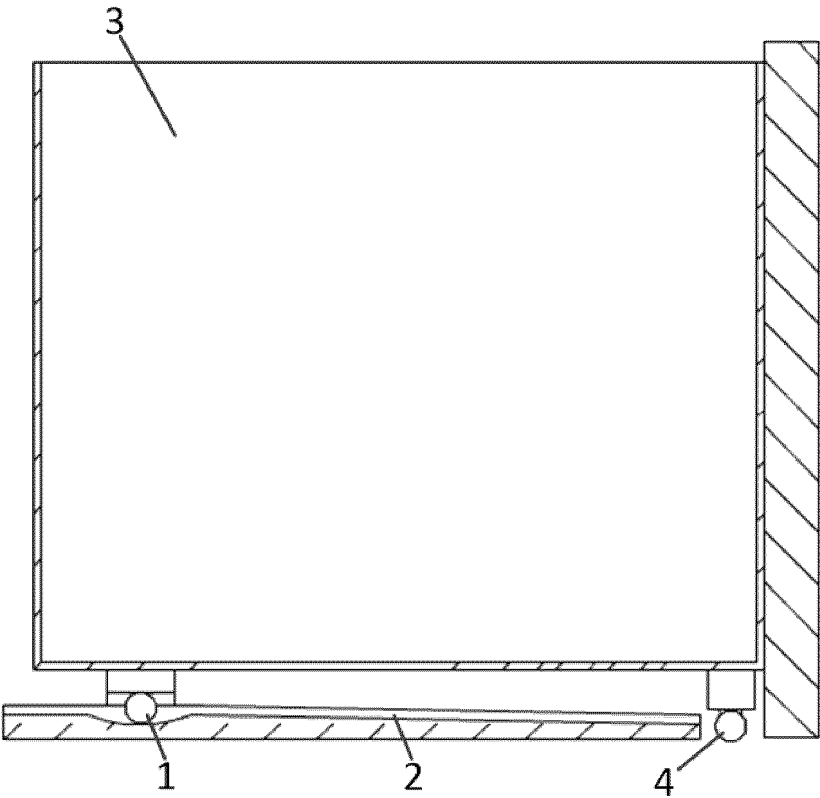


FIG.10

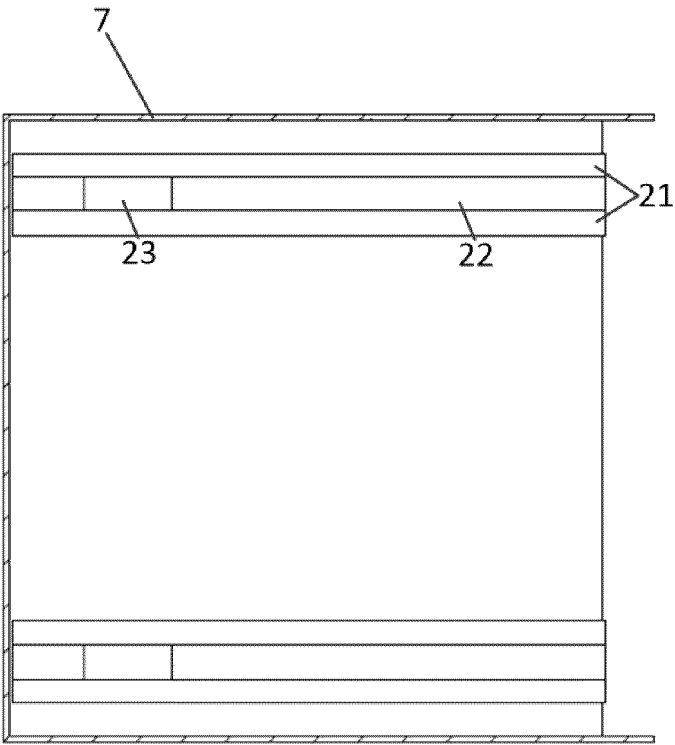


FIG.11

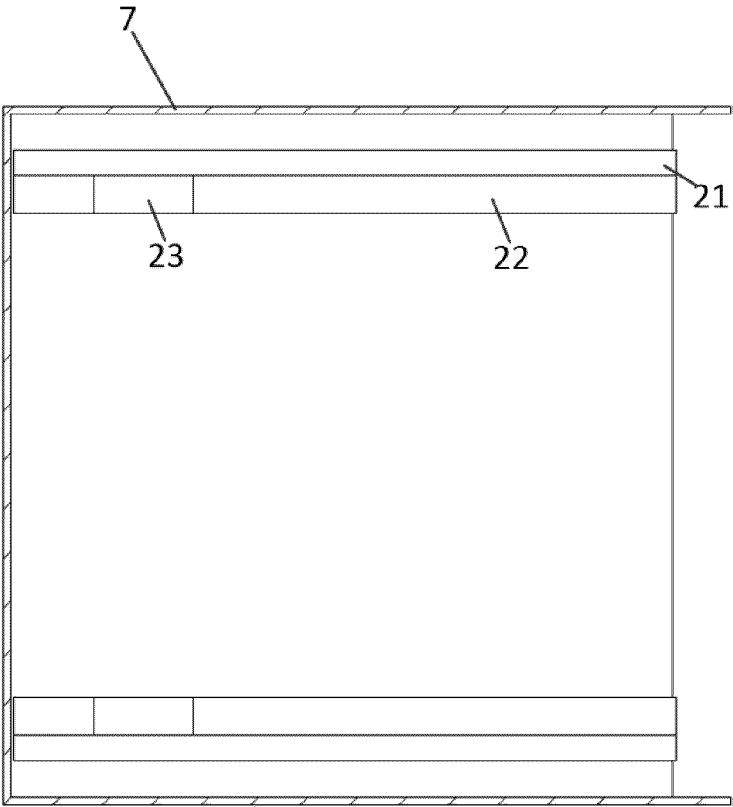


FIG.12

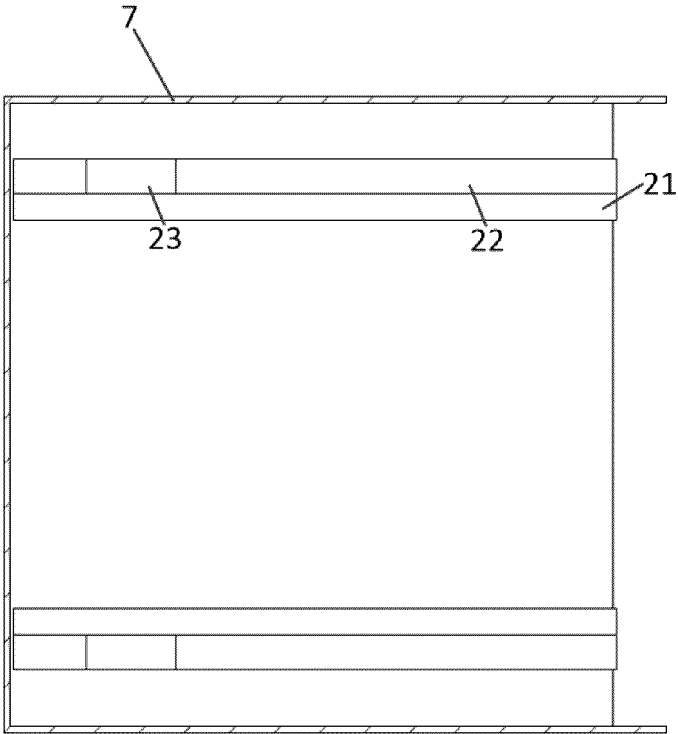


FIG.13

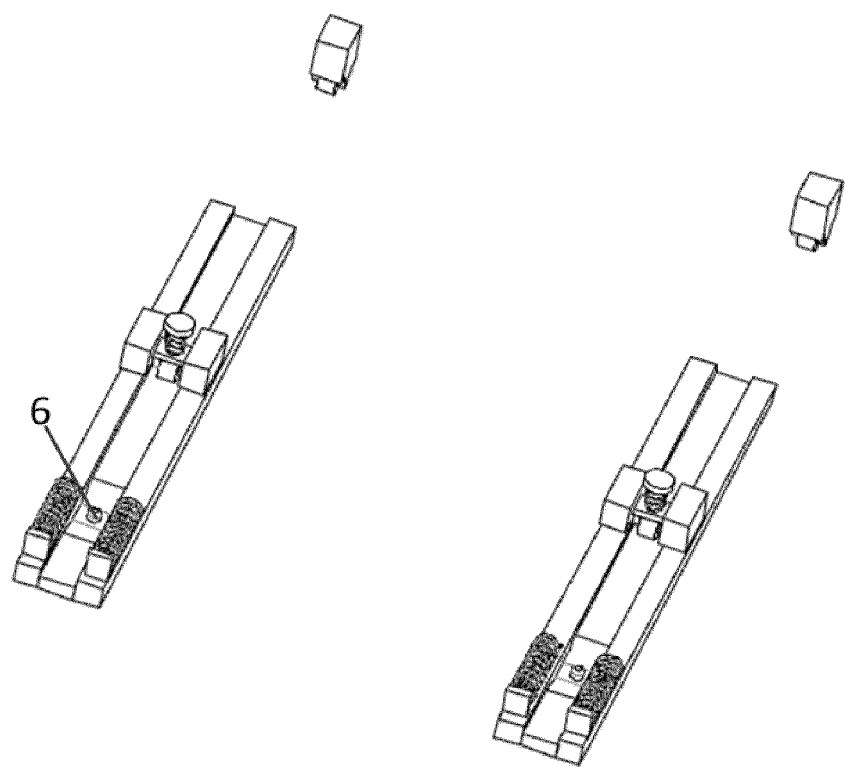


FIG.14

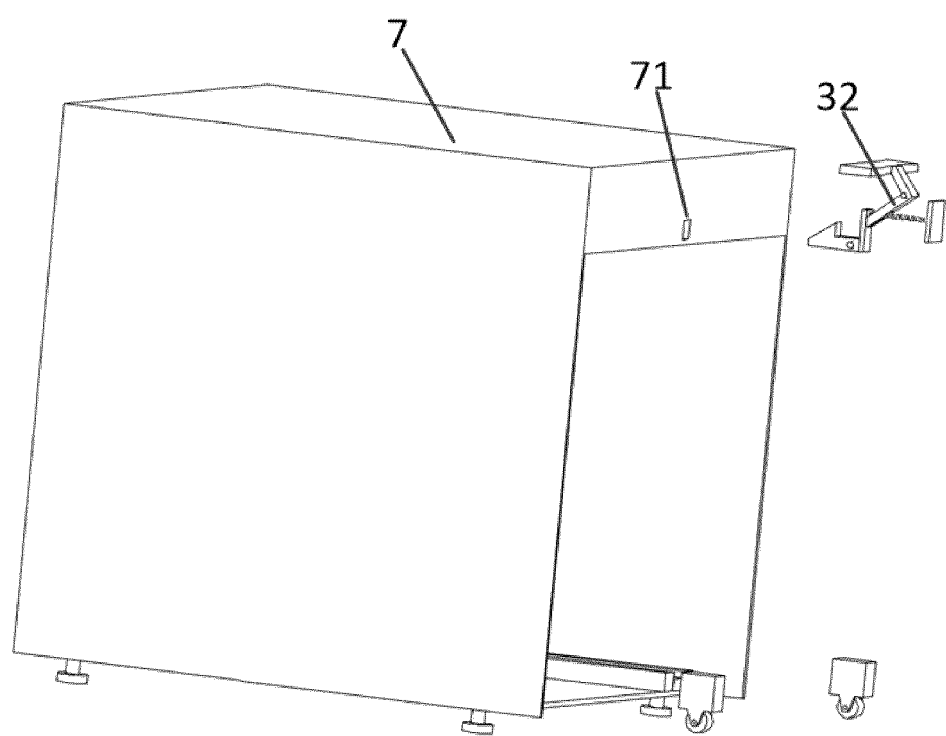


FIG.15

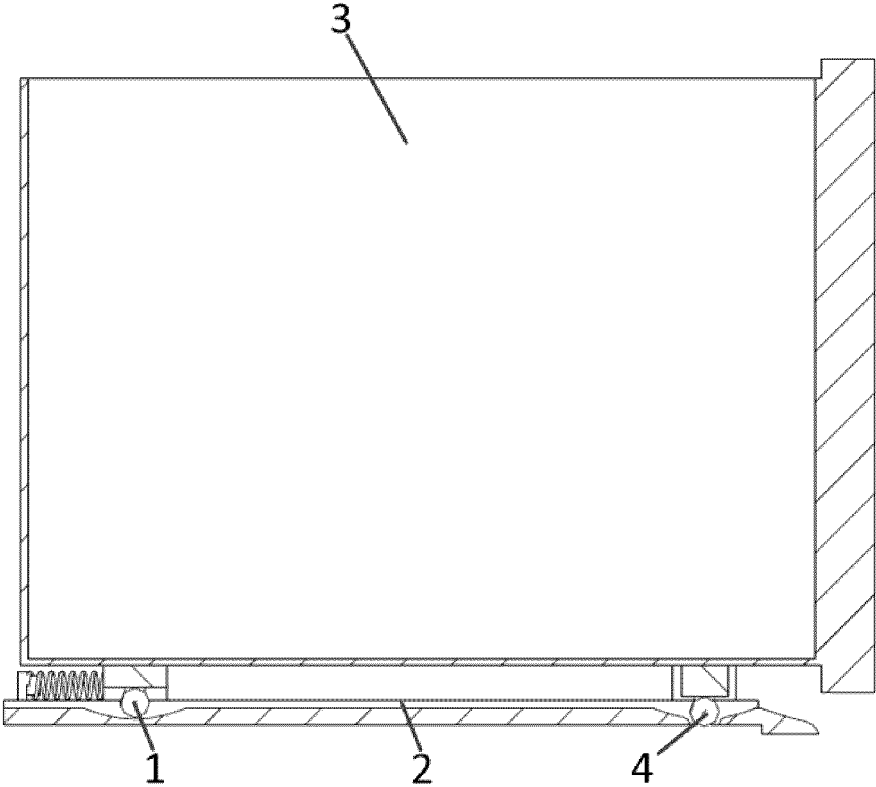


FIG.16

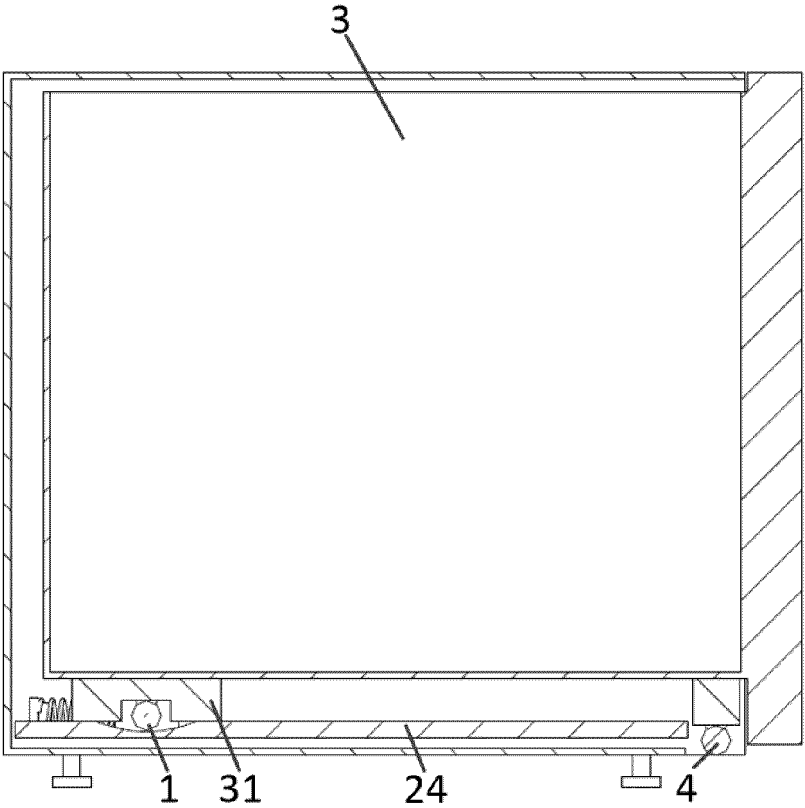


FIG.17

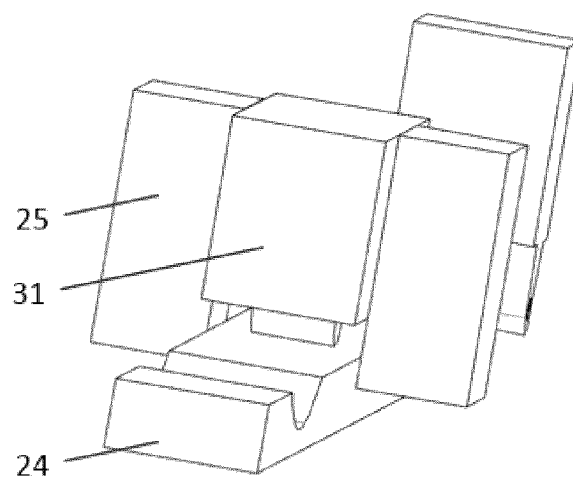


FIG.18

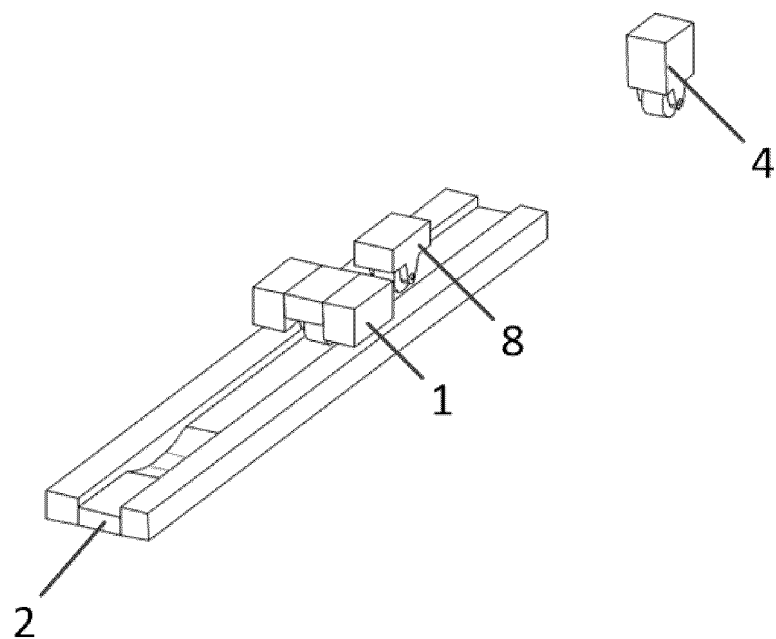


FIG.19

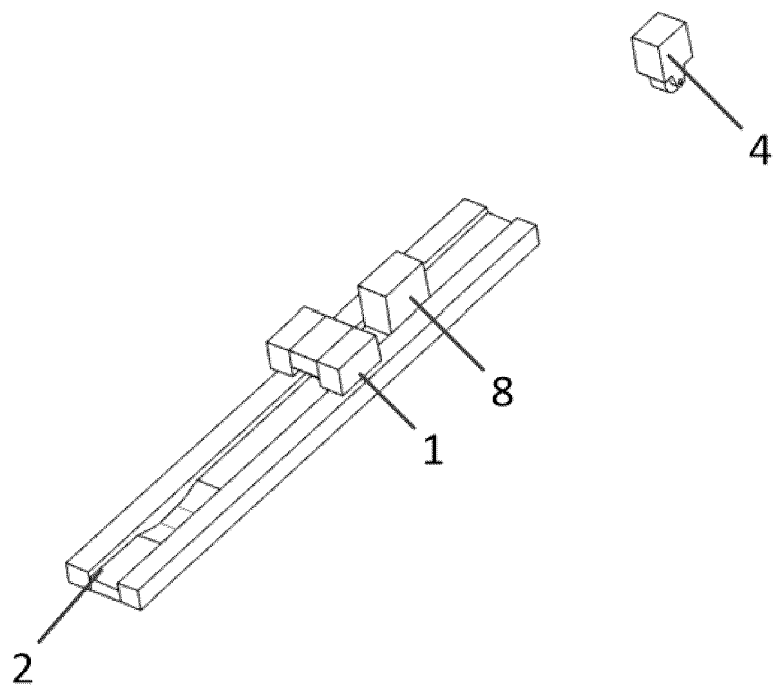


FIG.20

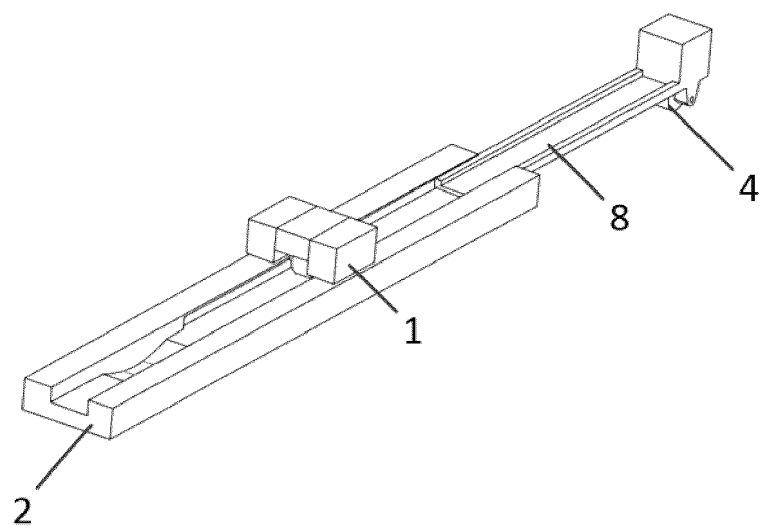


FIG.21

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2023/098208

A. CLASSIFICATION OF SUBJECT MATTER

D06F39/12(2006.01)i; F16M11/04(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D06F39/-, F16M11/-

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNTXT, ENTXTC, WPABSC, CNKI: 海尔, 吕佩师, 田云, 王佑喜, 刘天一, 凹槽, 限位, 槽, 坑, 轨, 抽拉, 抽屉, 拉出, 洗衣机, 脱水机, 烘干机, 支撑, 偏移, 导向, 晃动, 震动, 振动, 底座, 支架, 支撑架, 基座, 重力, 重量; ENTXT, VEN: haier, groove?, recess?, flute?, orbit?, rail+, path?, rack?, track?, slide+, sliding, drawer?, draw-off, laundry machine, washer?, washing machine, dehydrator?, dewaterer?, water extractor, support+, shift excursion, deflection, squint, deviation, guid+, shake, sway, rock+, oscillat+, vibrat+, shock+, base frame, basement, foundation support, bear frame, supporter, gravity.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 218372881 U (QINGDAO HAIER WASHING ELECTRIC APPLIANCE CO., LTD. et al.) 24 January 2023 (2023-01-24) description, paragraphs 61-82, and figures 1-18	1-16, 48-66
PX	CN 218345725 U (QINGDAO HAIER WASHING ELECTRIC APPLIANCE CO., LTD. et al.) 20 January 2023 (2023-01-20) description, paragraphs 54-74, and figures 1-15	1-31
PX	CN 218345726 U (QINGDAO HAIER WASHING ELECTRIC APPLIANCE CO., LTD. et al.) 20 January 2023 (2023-01-20) description, paragraphs 68-77, and figures 1-17	1-16
PX	CN 218372879 U (QINGDAO HAIER WASHING ELECTRIC APPLIANCE CO., LTD. et al.) 24 January 2023 (2023-01-24) description, paragraphs 55-76, and figures 1-17	1-16, 32-47

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

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Date of the actual completion of the international search

08 September 2023

Date of mailing of the international search report

11 September 2023

Name and mailing address of the ISA/CN

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Beijing 100088

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2023/098208

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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PX	CN 218666793 U (QINGDAO HAIER WASHING MACHINE CO., LTD. et al.) 21 March 2023 (2023-03-21) description, paragraphs 64-87, and figures 1-19	1-16
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2023/098208

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REFERENCES CITED IN THE DESCRIPTION

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