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(54) **FOLDABLE HANGER AND HEATING DEVICE**

KLAPPBARER AUFHÄNGER UND HEIZVORRICHTUNG

CINTRE PLIABLE ET DISPOSITIF DE CHAUFFAGE

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Description

Cross-Reference to Related Applications

[0001] The present invention is a national stage application of International Patent Application No. PCT/CN2018/113085, which is filed on October 31, 2018, and claims priority to Chinese Patent Application No. 201810404740.X, filed on April 28, 2018 and entitled "Foldable Hanger and Heating Device".

Technical Field

[0002] The invention relates to a technical field of hangers, and in particular to a foldable hanger and a heating device.

Background

[0003] Electric heaters have become household necessities in areas lacking of central heating. In order to make functions diversified, the electric heaters on market are usually equipped with a detachable clothes drying hanger, which solves a problem that it is difficult to dry clothes in wet and cold winter while heating. The clothes drying hanger is generally set as foldable to reduce packaging and transportation costs and facilitate accommodation. For example, a foldable hanger applied to an electric heater known to inventors includes a frame, supporting feet hinged at two ends of the frame and hanger rod rack at two sides of the frame. The hanger rod rack includes a hanging rod and a rotating arm supporting the hanging rod. One end of the rotating arm is hinged on the frame which is divided into left frame and right frame hinged with each other. A support has a left support and right support hinged with each other. The hinged structure needs to fold the left and right supports and the left and right frames respectively, so as to complete a storage of the foldable hanger, and an operation is also complex when unfolding. No matter in a packaging process or in a use process of users, each part needs to be folded or unfolded one by one, which increases disassembly and assembly steps and storage time.

[0004] The document D1 EP 3253536 A1 discloses a portable tool stand having automatically deployable legs. The tool stand has a body with a work surface and opposed ends. Deployable legs are pivotally mounted to the tool stand. The legs move between a stored position adjacent to the body and a support position wherein the legs are deployed to support the body. Retractable arms are mounted to each end of the body and slide with respect to the body. The deployable legs and the arms are operably connected such that sliding the arms with respect to the body moves the legs between the stored position and the support position.

[0005] The document D2 CN 203295851 U discloses a folded clothes rack for an electric heater and the electric heater. The folded clothes rack for the electric heater

includes a sliding device, a first supporting frame, a second supporting frame, a first clothes rod, a second clothes rod and a traction device, wherein the traction device includes a connection rod assembly and a pull rod, two fixed ends of the pull rod are connected with the first supporting frame and the second supporting frame respectively, two guide ends of the pull rod are connected with two driving ends of the connection rod assembly respectively, and two driven ends of the connection rod assembly are arranged on the first clothes rod and the second clothes rod respectively. When the pull rod compresses inwards, the first supporting frame and the second supporting frame are folded inwards and pull the first clothes rod and the second clothes rod to slide oppositely. The folded clothes rack for the electric heater and the electric heater are easy to install, beautiful, practical, convenient to store, and capable of meeting multi-aspect and multilevel using requirements of customers.

[0006] The document D3 KR 20100084442 A discloses an interlinked spreadable foldable laundry drier provided to simplify a structure by not using an extra support by maintaining the spread status of a wing drying rack with a supporting force of the support. The interlinked spreadable foldable laundry drier includes a pair of stands including a connection bar and a pair of wing drying racks. Stand joint pins and a gear combination pins are projected in each ends of the stands and the wing drying racks. A connecting rod is installed in the end part of the stands. The connection bar restricts a spreading width. The wing drying rack includes a hanging pole. The hanging pole is successively placed. The stands and the wing drying racks fold and unfold by a rotating transferring gear.

Summary

[0007] The invention is defined by the appended set of claims.

[0008] Technical problems to be solved in the invention is to overcome defects of the foldable hanger known to inventors that there are too many folding and unfolding steps and operation is inconvenient, so as to provide a foldable hanger, the operation steps of which can be reduced, and folding and unfolding of which is easier and more convenient.

[0009] Some embodiments of the present invention provide a heating device with the foldable hanger.

[0010] The technical solutions of the invention are as follows.

[0011] The present invention provides a foldable hanger, which includes: a hanger body; folding feet movably connected to the hanger body and having a supporting state after unfolding and a storing state after folding; a hanging and drying member movably connected to the hanger body and having a hanging and drying state distant from the hanger body and a resetting state close to the hanger body; and a linkage mechanism disposed between the folding feet and the hanging and drying mem-

ber. A change of a state of any one of the folding feet and the hanging and drying member drives, through the linkage mechanism, a state of the other of the folding feet and the hanging and drying member to change. The supporting state corresponds to the hanging and drying state, and the storing state corresponds to the resetting state.

[0012] According to the invention, the folding feet are hinged on the hanger body; the hanging and drying member has a sliding part which is in sliding fit with a slide rail disposed on the hanger body; the linkage mechanism converts a reciprocating rotation of the folding feet to a reciprocating sliding of the hanging and drying member or converts a reciprocating sliding of the hanging and drying member to a reciprocating rotation of the folding feet.

[0013] According to the invention, the linkage mechanism is an inclined wedge mechanism.

[0014] According to the invention, the inclined wedge mechanism includes a linkage part disposed on the folding feet and a sliding block disposed on the hanger body; the sliding block is in bevel fit with the sliding part; a guide part cooperating with a guide structure disposed on the hanger body is also disposed on the sliding block; the linkage part pushes the sliding block to move along the guide structure, and the sliding block drives the sliding part to move along the slide rail, so that the hanging and drying member moves to the hanging and drying state; on the contrary, the hanging and drying member drives the folding feet to move through the sliding part, the sliding block and the linkage part.

[0015] In some embodiments, the guide structure is a through hole disposed at the bottom of the hanger body, the guide part is adapted to extend into the through hole, and the linkage part pushes the guide part to move along the through hole.

[0016] In some embodiments, the linkage part is a hinged end part of the folding feet.

[0017] In some embodiments, the inclined wedge mechanism further includes an elastic reset structure acting on the hanging and drying member and/or the folding feet; the elastic reset structure applies a first resetting force to move the hanging and drying member toward the resetting state; and/or, the elastic reset structure applies a second resetting force to move the folding feet toward the storing state.

[0018] In some embodiments, the linkage mechanism is a gear drive mechanism.

[0019] In some embodiments, the gear drive mechanism includes a gear disposed on a hinged end of the folding feet, a rack disposed on the sliding part, and a dual gear meshed with the gear and the rack respectively.

[0020] In some embodiments, the sliding part is a support rod in sliding fit with the slide rail.

[0021] In some embodiments, the hanging and drying member further includes a hanging and drying rod connected to a free end of the support rod.

[0022] In some embodiments, the hanger body is also

provided with a fixed clothes drying board, and the hanging and drying rod is on a side of the fixed clothes drying board.

[0023] In some embodiments, the sliding part is a sliding slot in sliding fit with the slide rail.

[0024] In some embodiments, the hanging and drying member further includes a movable clothes drying board, and the sliding slot is disposed on the movable clothes drying board.

[0025] Some embodiments of the present invention provide a heating device, which includes a heating body and the above foldable hanger, wherein the foldable hanger is detachably connected to the heating body.

[0026] The technical solutions of the invention have the following advantages.

1. The foldable hanger provided by the invention includes the hanger body, and the folding feet and the hanging and drying member movably connected to the hanger body, and the linkage mechanism disposed between the folding feet and the hanging and drying member; the folding feet have the supporting state after unfolding and the storing state after folding; the hanging and drying member has the hanging and drying state distant from the hanger body and the resetting state close to the hanger body; the change of the state of any one of the folding feet and the hanging and drying member is change, through the linkage mechanism, a state of the other of the folding feet and the hanging and drying member to change; the supporting state corresponds to the hanging and drying state, and the storing state corresponds to the resetting state. Therefore, a setting of the linkage mechanism makes the hanging and drying member away from or close to the hanger body when the folding feet are unfolded or folded, or makes the hanging and drying member to drive the folding feet to unfold or fold when being away from or close to the hanger body, so that no matter in a process of packaging and transportation or in a use process of users, the hanger body is unfolded or folded in one step without separately operating the folding feet and the hanging and drying member, which reduces operation steps, saves operation time, improves a user experience by completing an operation at one time, and makes a packaging, installation and storage process easier and more convenient.

2. For the foldable hanger provided by some embodiments of the present invention, the folding feet are hinged on the hanger body, the hanging and drying member is in sliding fit with the slide rail on the hanger body through its sliding part, and the linkage mechanism converts a reciprocating rotation of the folding feet to a reciprocating sliding of the hanging and drying member; in such a manner, when the foldable hanger is packaged or stored, the hanging and drying member moves close to the hanger body while the user folds the folding feet, so that the hanging

and drying member also moves to the resetting state while the feet are folded to the storing state; when the foldable hanger is installed or used, the hanging and drying member moves away from the hanger body while the user unfolds the folding feet, so that the hanging and drying member also moves to the hanging and drying state while the folding feet are unfolded to the supporting state; or the linkage mechanism converts the reciprocating sliding of the hanging and drying member to the reciprocating rotation of the folding feet; in such a manner, when the foldable hanger is packaged or stored, the folding feet are folded while the user pushes the hanging and drying member to move close to the hanger body, so that the folding feet are folded to the storing state while the hanging and drying member moves to the resetting state; when the foldable hanger is installed or used, the folding feet are unfolded while the user pulls the hanging and drying member to move away from hanger body, so that the folding feet are unfolded to the supporting state while the hanging and drying member moves to the hanging and drying state.

3. For the foldable hanger provided by some embodiments of the present invention, the linkage mechanism is the inclined wedge mechanism; rotating movement of the folding feet and sliding movement of the hanging and drying member are converted through the inclined wedge mechanism, which has stable structure, uneasy damage and long service life.

4. For the foldable hanger provided by the invention, the inclined wedge mechanism includes the linkage part disposed on the folding feet and the sliding block disposed on the hanger body; the sliding block is in bevel fit with the sliding part; the guide part matching with the guide structure disposed on the hanger body is also disposed on the sliding block; the linkage part pushes the sliding block to move along the guide structure, and the sliding block drives the sliding part to move along the slide rail, so that the hanging and drying member moves to the hanging and drying state; the sliding block is in bevel fit with the sliding part, so that slide lift of the sliding block is converted to translation of the sliding part, or the translation of the sliding part is converted to a resetting of the sliding block.

5. For the foldable hanger provided by some embodiments of the invention, the inclined wedge mechanism further includes the elastic reset structure disposed on the hanging and drying member; the elastic reset structure applies a first resetting force to move the hanging and drying member toward the resetting state; when the folding feet rotate to the supporting state, its linkage part pushes against the sliding block, and the sliding part of the hanging and drying member overcomes the first resetting force to move to the hanging and drying state; when the folding feet rotate to the storing state, its linkage part gradually

moves away from the sliding block, and the hanging and drying member move to the resetting state under an action of the first resetting force;

or the inclined wedge mechanism further includes the elastic reset structure disposed on the folding feet; the elastic reset structure applies the second resetting force to move the folding feet toward the storing state; when the folding feet rotate to the supporting state, its linkage part pushes against the sliding block, and the sliding part of the hanging and drying member moves to the hanging and drying state; when the hanging and drying member moves to the resetting state, its sliding part pushes against the sliding block, and the folding feet rotates to the storing state under the action of the second resetting force;

or the inclined wedge mechanism further includes the elastic reset structure disposed on the hanging and drying member and the folding feet, and the elastic reset structure is helpful for them to move to the reset state or the storing state with less effort and ease.

6. For the foldable hanger provided by some embodiments of the invention, the linkage mechanism is the gear drive mechanism; the greater torque for gear transmission, the more smooth and stable the movement of the hanging and drying member and/or the folding feet.

7. For the foldable hanger provided by some embodiments of the present invention, the sliding part is the support rod in sliding fit with the slide rail, and the support rod slides reciprocally along the slide rail to make the hanging and drying member close to or far away from the hanger body; the hanging and drying member further includes the hanging and drying rod connected to the free end of the support rod; the reciprocating sliding of the support rod realizes an extension of the hanging and drying rod; there is also the fixed clothes drying board disposed on the hanger body, and the hanging and drying rod is on the side of the fixed clothes drying board, extending or retracting from it.

8. For the foldable hanger provided by some embodiments of the invention, the sliding part is the sliding slot in sliding fit with the slide rail; the sliding slot and the slide rail are cooperated to realize the extension or retraction of the hanging and drying member; the hanging and drying member further includes the movable clothes drying board, and the sliding slot is disposed on the movable clothes drying board; the movable clothes drying board extends or retracts relative to the hanger body through the sliding fit of its sliding slot and slide rail.

9. The heating device provided by some embodiments of the invention includes the heating body and

the foldable hanger detachably connected to the heating body; the foldable hanger is detachably mounted on the heating body, which is convenient to dry clothes; during storage, the foldable hanger is folded and stored directly by one-step operation, which is easy and convenient.

Brief Description of the Drawings

[0027] In order to describe the technical solutions in specific implementation modes of the invention or the art known to inventors more clearly, the drawings required to be used for descriptions about the specific implementation modes or the art known to inventors are simply introduced below. It is apparent that the drawings described below are only some implementation modes of the invention. Those skilled in the art further obtain other drawings according to these drawings without creative work.

Fig. 1 illustrates a top view of a foldable hanger in a use state provided in embodiment 1 of the invention. Fig. 2 illustrates a front view of the fold hanger as shown in Fig. 1 in a use state.

Fig. 3 illustrates a three-dimensional view of the fold hanger as shown in Fig. 1 in a use state.

Fig. 4 illustrates an upward view of the fold hanger as shown in Fig. 1 in a storing state.

Fig. 5 illustrates a structure diagram of a cooperation between folding feet and a inclined wedge mechanism of the foldable hanger as shown in Fig. 1.

Fig. 6 illustrates a structure diagram (from another angle) of the cooperation between the folding feet and the inclined wedge mechanism as shown in Fig. 5.

Fig. 7 illustrates a three-dimensional view of a foldable hanger in a use state provided in another embodiment.

Fig. 8 illustrates a structure diagram of a cooperation between the folding feet and a gear drive mechanism of the foldable hanger provided in another embodiment.

[0028] Descriptions about the reference signs:

1. hanger body; 2. folding feet; 3. hanging and drying rod; 4. support rod; 5. fixed clothes drying board; 6. sliding block; 7. guide part; 8. linkage part; 9. movable clothes drying board; 10. gear; 11. rack; 12. dual gear.

Detailed Description of the Embodiments

[0029] The technical solutions of the invention are described clearly and completely below in combination with the drawings. Apparently, the described embodiments are merely a part of the embodiments of the invention, not all of the embodiments. All other embodiments obtained by those skilled in the art based on the embodiments in the invention without creative work shall fall with-

in a scope of protection of the invention.

[0030] In the descriptions of the invention, it is to be noted that orientation or position relationships indicated by terms "upper", "lower", "vertical", "horizontal" and the like are orientation or position relationships shown in the drawings, are adopted not to indicate or imply that indicated devices or members must be in specific orientations or structured and operated in specific orientations but only to conveniently describe the invention and simplify descriptions. In addition, the terms "first" and "second" are used for descriptive purposes only and are not to be construed as indicating or implying relative importance.

[0031] In the description of the invention, it is to be noted that unless otherwise definitely specified and limited, terms "mount" and "connect" should be broadly understood. For example, the terms refer to fixed connection and also refer to detachable connection or integrated connection. The terms refer to mechanical connection or electrical connection. The terms refer to direct mutual connection, also refer to indirect connection through a medium and refer to communication in two members. For those skilled in the art, specific meanings of these terms in the invention can be understood according to a specific condition.

[0032] In addition, the technical features involved in different implementation modes of the invention described below can be combined without conflicts.

Embodiment 1

[0033] As shown in Fig. 1 to Fig. 6, a foldable hanger provided by the embodiment includes a hanger body 1, and folding feet 2 and a hanging and drying member movably connected to the hanger body 1, and a linkage mechanism disposed between the folding feet 2 and the hanging and drying member; the folding feet 2 have a supporting state after unfolding and a storing state after folding; the hanging and drying member has a hanging and drying state distant from the hanger body 1 and a resetting state close to the hanger body 1; a change of a state of the folding feet 2 drives, through the linkage mechanism, a state of the hanging and drying member to change; the supporting state corresponds to the hanging and drying state, and the storing state corresponds to the resetting state. Therefore, a setting of the linkage mechanism can make the hanging and drying member away from or close to the hanger body 1 when the folding feet 2 are unfolded or folded, so that no matter in a process of packaging and transportation or in a use process of users, the hanger body can be unfolded or folded in one step without separately operating the folding feet and the hanging and drying member, which reduces operation steps, saves operation time, improves a user experience by completing an operation at one time, and makes a packaging, installation and storage process easier and more convenient.

[0034] In some embodiments, the hanger body 1 is rec-

tangular, the folding feet 2 are hinged on the hanger body 1, and the hanging and drying member is in sliding fit with a slide rail on the hanger body 1 through its sliding part; the hanger body 1 is provided with the slide rail formed by a cavity, and the hanging and drying member includes the sliding part and a hanging and drying rod 3 disposed on the sliding part, the sliding part being a support rod 4 disposed in the cavity and capable of reciprocating sliding along the cavity, and the hanging and drying member being a hanging and drying state 3 connected to a free end of the support rod 4. In such a manner, when the foldable hanger is packaged or stored, the hanging and drying member slides close to the hanger body 1 while the user rotates and folds the folding feet 2, so that the hanging and drying member also moves to the resetting state while the folding feet are folded to the storing state; when the foldable hanger is installed or used, the hanging and drying member slides away from the hanger body 1 while the user rotates to unfold the folding feet 2, so that the hanging and drying member also moves to the hanging and drying state while the folding feet are unfolded to the supporting state.

[0035] There is a pair of folding feet 2 disposed at a bottom of the hanger body 1, so that they can be folded and stored under the hanger body 1. There are two cavities, which are disposed along a width direction of hanger body 1 respectively and located at two ends of hanger body 1. There are two pairs of support rods 4, each pair of support rods 4 extend into a same end of two cavities respectively, and there is a hanging and drying rod 3 connected between free ends of each pair of support rods 4. Two hanging and drying rods 3 are respectively located at two sides of the hanger body 1, and can extend away from the hanger body 1 or retract back towards the direction close to the hanger body 1.

[0036] An inner wall of the cavity is provided with a clamping slot. The clamping slot is in tabling fit with an elastic clamping pin on an outer wall of the support rod 4 to prevent the support rod 4 from falling out of the cavity.

[0037] The hanger body 1 is also disposed with a fixed clothes drying board 5, and two hanging and drying rods 3 are respectively located at two sides of the fixed clothes drying board 5. When the hanging and drying rod 3 is in the resetting state, it is disposed close to the two sides of the fixed clothes drying board 5. The fixed clothes drying board 5 is provided with a plurality of through holes.

[0038] In some embodiments, as shown in Fig. 5 to Fig. 6, the linkage mechanism is a inclined wedge mechanism, and the inclined wedge mechanism includes a linkage part 8 disposed on the folding feet 2 and a sliding block 6 disposed on the hanger body 1. An end portion of one end of the support rod 4 extended into the cavity is a bevel and the sliding block 6 has a bevel cooperated with the bevel, so that the sliding block 6 and the end portion of the support rod 4 form a bevel fit. The sliding block 6 is also provided with a guide part 7 cooperating with a guide structure disposed on hanger body 1; in some embodiments, the guide structure is a through hole

disposed on a bottom surface of hanger body 1, and an axial direction of the through hole is perpendicular to a sliding direction of support rod 4; the guide part 7 is a guide block disposed together with the sliding block 6, and the guide block, a contour of which adapts to a contour of the through hole, extends out of the through hole. When the linkage part 8 of the folding feet 2 pushes the guide block to move along the through hole toward a direction away from the bottom surface of the hanger body 1, the sliding block 6 pushes against the end portion of the support rod 4 through the bevel, so that the support rod 4 slides out of the cavity, and the hanging and drying rod 3 extends out to the hanging and drying state.

[0039] The linkage part 8 is an end portion of a hinged end of the folding feet 2. When the folding feet 2 are fully unfolded, its end face pushes against the guide part 7 to drive the support rod 4 to slide.

[0040] The inclined wedge mechanism further includes an elastic reset structure disposed on the hanging and drying member. The elastic reset structure is an elastic compression spring disposed between the cavity and the support rod 4. When the support rod 4 moves toward a direction extending out of the cavity, the elastic compression spring compresses; and when the folding feet 2 fold to the storing state, its hinged end gradually eliminates a push against a guide hole, and the support rod 4 retracts into the cavity under a first resetting force of the elastic compression spring. The elastic reset structure is helpful for the hanging and drying rod 3 to move to the resetting state with less effort and ease.

[0041] In some embodiments, a first radial lug boss extending outward is disposed on the support rod 4, an opening of the cavity is provided with a second radial lug boss extending inwards to prevent the support rod 4 from falling out, and the elastic compression spring is disposed between the first radial lug boss and the second radial lug boss.

[0042] Some embodiments of the present embodiment also provides a heating device, which includes a heating body and the foldable hanger detachably connected to the heating body. The foldable hanger is detachably mounted on the heating body, which is convenient to dry clothes; during storage, the foldable hanger is folded and stored directly by one-step operation, which is easy and convenient.

[0043] In some embodiments, the heating device is an electric heater, the heating body is radiating fins, the folding feet 2 of the foldable hanger are clamped above the radiating fins, the hanger body is above the radiating fins, and the hanging and drying member is at two sides of the radiating fins.

[0044] As an alternative implementation mode of embodiment 1, as shown in Fig. 7 and Fig. 8, the hanging and drying member is a pair of movable clothes drying boards 9 and the hanging and drying rod 3 disposed on the outside of each movable clothes drying board 9; the movable clothes drying board 9 is in sliding fit with the slide rail on the hanger body 1 through its sliding part;

the sliding part is sliding slots disposed at two ends of the movable clothes drying board 9, and the slide way is a plurality of convex block located at two ends of the hanger body 1 in a length direction; the pair of movable clothes drying boards 9 can close to or move away from each other through a sliding of the sliding slot along the convex block. The linkage mechanism is a gear drive mechanism. The gear drive mechanism includes a gear 10 disposed on the hinged end of the folding feet 2, a rack 11 disposed on the side wall of sliding part, and a dual gear 12 meshed with the gear 10 and the rack 11. The gear 10 on the folding feet 2 is meshed with a small gear of the dual gear 12, and a big gear of the dual gear 12 is meshed with the rack 11 on a side wall of the sliding part. The folding feet 2 rotate or the sliding part slides, so that the gear 10 or the rack 11 is driven to drive the dual gear 12 to rotate, thus realizing a sliding of the sliding part or a rotation of the folding feet 2, at this point, a rotation plane of the folding feet 2 is parallel to a sliding direction of the movable clothes drying board 9.

[0045] As an alternative implementation mode of embodiment 1, as shown in Fig. 8, the linkage mechanism is a gear transmission mechanism. The gear transmission mechanism includes the gear 10 disposed on the hinged end of the folding feet 2, the rack 11 disposed on the side wall of the support rod 4, and the dual gear 12 meshed with the gear 10 and the rack 11 respectively. The gear 10 on the folding feet 2 is meshed with the small gear of the dual gear 12, and the big gear of the dual gear 12 is meshed with the rack 11 on the side wall of the sliding part. The folding feet 2 rotate or the sliding part slides, so that the gear 10 or the rack 11 is driven to drive the dual gear 12 to rotate, thus realizing the sliding of the sliding part or the rotation of the folding feet 2, at this point, the rotation plane of the folding feet 2 is parallel to the sliding direction of the support rod 4.

[0046] As an alternative implementation mode of embodiment 1, the support rod is provided with a groove extending axially, and the elastic compression spring is disposed in the groove. One end of the elastic compression spring is abutted against an inner end of the groove, and the other end of the elastic compression spring is abutted against the second radial lug boss extending inward, which is disposed at the opening of the cavity to prevent the support rod from falling out.

[0047] As an alternative implementation mode of embodiment 1, the elastic reset structure is disposed between the folding feet and the hanger body. The elastic reset structure is the elastic compression spring which applies the second resetting force to move the folding feet toward the storing state. When the folding feet rotate to the supporting state, its linkage part pushes against the sliding block, and the sliding part of the hanging and drying member moves to the hanging and drying state; when the hanging and drying member is pushed to move to the resetting state, its sliding part pushes against the sliding block, and the folding feet rotates to the storing state under an action of the second resetting force.

[0048] As an alternative implementation mode of embodiment 1, the guide structure is a guide bar disposed on the hanger body and perpendicular to the slide rail. The sliding block has a guide groove matching with the guide bar. The sliding block is disposed in the hanger body, and reciprocating moves along the guide bar to push the sliding part to reciprocating slide.

[0049] As an alternative implementation mode of embodiment 1, the linkage part is a protrusion on the folding feet. When the folding feet are unfolded, the protrusion pushes against the guide block.

[0050] As an alternative implementation mode of embodiment 1, the heating device is water heater.

[0051] It is apparent that the abovementioned embodiments are only examples for clear description and not intended to limit the implementation modes. Those of ordinary skill in the art further make variations or modifications of other different forms on a basis of the above descriptions. It is unnecessary and impossible to exhaust all of the implementation modes herein.

Claims

1. A foldable hanger, comprising:

a hanger body (1);
folding feet (2) movably connected to the hanger body (1) and having a supporting state after unfolding and a storing state after folding;
a hanging and drying member movably connected to the hanger body (1) and having a hanging and drying state distant from the hanger body (1) and a resetting state close to the hanger body (1); and
a linkage mechanism disposed between the folding feet (2) and the hanging and drying member; a change of a state of any one of the folding feet (2) and the hanging and drying member drives, through the linkage mechanism, a state of the other of the folding feet (2) and the hanging and drying member to change; wherein the supporting state corresponds to the hanging and drying state, and the storing state corresponds to the resetting state;
wherein the folding feet (2) are hinged on the hanger body (1); the hanging and drying member has a sliding part which is in sliding fit with a slide rail disposed on the hanger body (1); the linkage mechanism converts a reciprocating rotation of the folding feet (2) to a reciprocating sliding of the hanging and drying member or converts a reciprocating sliding of the hanging and drying member to a reciprocating rotation of the folding feet (2);
the linkage mechanism is an inclined wedge mechanism;
characterized in that:

- the inclined wedge mechanism comprises a linkage part (8) disposed on the folding feet (2) and a sliding block (6) disposed on the hanger body (1); the sliding block (6) is in bevel fit with the sliding part; a guide part (7) cooperating with a guide structure disposed on the hanger body (1) is disposed on the sliding block (6); the linkage part (8) pushes the sliding block (6) to move along the guide structure, and the sliding block (6) drives the sliding part to move along the slide rail, so that the hanging and drying member moves to the hanging and drying state; on the contrary, the hanging and drying member drives the folding feet (2) to move through the sliding part, the sliding block (6) and the linkage part (8).
2. The foldable hanger as claimed in claim 1, wherein the guide structure is a through hole disposed at a bottom of the hanger body (1), the guide part (7) is adapted to extend into the through hole, and the linkage part (8) pushes the guide part (7) to move along the through hole.
 3. The foldable hanger as claimed in claim 1, wherein the linkage part (8) is a hinged end part of the folding feet (2).
 4. The foldable hanger as claimed in claim 1, wherein the inclined wedge mechanism further comprises an elastic reset structure acting on the hanging and drying member and/or the folding feet (2); the elastic reset structure applies a first resetting force to move the hanging and drying member toward the resetting state; and/or, the elastic reset structure applies a second resetting force to move the folding feet (2) toward the storing state.
 5. The foldable hanger as claimed in claim 1, wherein the linkage mechanism is a gear transmission mechanism.
 6. The foldable hanger as claimed in claim 5, wherein the gear transmission mechanism comprises a gear (10) disposed on a hinged end of the folding feet (2), a rack (11) disposed on the sliding part, and a dual gear (12) meshed with the gear (10) and the rack (11) respectively.
 7. The foldable hanger as claimed in any one of claims 1 to 6, wherein the sliding part is a support rod (4) in sliding fit with the slide rail.
 8. The foldable hanger as claimed in claim 7, wherein the hanging and drying member further comprises a hanging and drying rod (3) connected to a free end of the support rod (4).
 9. The foldable hanger as claimed in claim 8, wherein

the hanger body (1) is also provided with a fixed clothes drying board (5), and the hanging and drying rod (3) is on a side of the fixed clothes drying board (5).

10. The foldable hanger as claimed in any one of claims 1 to 6, wherein the sliding part is a sliding slot in sliding fit with the slide rail.
11. The foldable hanger as claimed in claim 10, wherein the hanging and drying member further comprises a movable clothes drying board (9), and the sliding slot is disposed on the movable clothes drying board (9).
12. A heating device, comprising a heating body and the foldable hanger as claimed in any one of claims 1 to 11, wherein the foldable hanger is detachably connected to the heating body.

Patentansprüche

1. Klappbarer Aufhänger, umfassend:

einen Aufhängerkörper (1);
 Klappfüße (2), die bewegbar mit dem Aufhängerkörper (1) verbunden sind und einen Stützzustand nach dem Ausklappen und einen Lagerzustand nach dem Einklappen aufweisen;
 ein Aufhänge- und Trocknungselement, das bewegbar mit dem Aufhängerkörper (1) verbunden ist und einen Aufhänge- und Trocknungszustand entfernt von dem Aufhängerkörper (1) und einen Rücksetzungszustand nahe dem Aufhängerkörper (1) aufweist; und
 einen Kopplungsmechanismus, der zwischen den Klappfüßen (2) und dem Aufhänge- und Trocknungselement angeordnet ist, wobei eine Zustandsänderung eines beliebigen der Klappfüße (2) und des Aufhänge- und Trocknungselements über den Kopplungsmechanismus bewirkt, dass sich ein Zustand des anderen der Klappfüße (2) und des Aufhänge- und Trocknungselements ändert; wobei der Stützzustand dem Aufhänge- und Trocknungszustand entspricht und der Lagerzustand dem Rücksetzungszustand entspricht;
 wobei die Klappfüße (2) an dem Aufhängerkörper (1) angelenkt sind; wobei das Aufhänge- und Trocknungselement ein Gleitteil aufweist, das in Gleitpassung mit einer Gleitschiene ist, die an dem Aufhängerkörper (1) angeordnet ist; wobei der Kopplungsmechanismus eine reziproke Drehung der Klappfüße (2) in eine reziproke Gleitbewegung des Aufhänge- und Trocknungselements umwandelt oder eine reziproke Gleitbewegung des Aufhänge- und Trocknungselements in eine reziproke Drehung der

- Klappfüße (2) umwandelt;
wobei der Kopplungsmechanismus ein geneigter Keilmechanismus ist;
dadurch gekennzeichnet, dass:
der geneigte Keilmechanismus ein Kopplungsteil (8), das an den Klappfüßen (2) angeordnet ist, und einen Gleitschuh (6), der an dem Aufhängerkörper (1) angeordnet ist, umfasst; wobei der Gleitschuh (6) in Schrägpassung mit dem Gleitteil ist; wobei ein Führungsteil (7), das mit einer an dem Aufhängerkörper (1) angeordneten Führungsstruktur zusammenwirkt, an dem Gleitschuh (6) angeordnet ist; wobei das Kopplungsteil (8) den Gleitschuh (6) schiebt, damit sich dieser entlang der Führungsstruktur bewegt, und der Gleitschuh (6) bewirkt, dass sich das Gleitteil entlang der Gleitschiene bewegt, sodass sich das Aufhänge- und Trocknungselement in den Aufhänge- und Trocknungszustand bewegt; im Gegenzug bewirkt das Aufhänge- und Trocknungselement über das Gleitteil, den Gleitschuh (6) und das Kopplungsteil (8) eine Bewegung der Klappfüße (2).
2. Klappbarer Aufhänger nach Anspruch 1, wobei die Führungsstruktur ein Durchgangsloch ist, das an einer Unterseite des Aufhängerkörpers (1) angeordnet ist, das Führungsteil (7) dazu ausgelegt ist, sich in das Durchgangsloch zu erstrecken, und das Kopplungsteil (8) das Führungsteil (7) schiebt, damit sich dieses entlang des Durchgangslochs bewegt.
3. Klappbarer Aufhänger nach Anspruch 1, wobei das Kopplungsteil (8) ein angelenktes Endteil der Klappfüße (2) ist.
4. Klappbarer Aufhänger nach Anspruch 1, wobei der geneigte Keilmechanismus ferner eine elastische Rücksetzstruktur umfasst, die auf das Aufhänge- und Trocknungselement und/oder die Klappfüße (2) einwirkt; die elastische Rücksetzstruktur eine erste Rücksetzkraft aufbringt, um das Aufhänge- und Trocknungselement in Richtung des Rücksetzzustands zu bewegen; und/oder die elastische Rücksetzstruktur eine zweite Rücksetzkraft aufbringt, um die Klappfüße (2) in Richtung des Lagerzustands zu bewegen.
5. Klappbarer Aufhänger nach Anspruch 1, wobei der Kopplungsmechanismus ein Zahnradgetriebemechanismus ist.
6. Klappbarer Aufhänger nach Anspruch 5, wobei der Zahnradgetriebemechanismus ein Zahnrad (10), das an einem angelenkten Ende der Klappfüße (2) angeordnet ist, eine Zahnstange (11), die an dem Gleitteil angeordnet ist, und ein Doppelzahnrad (12), das mit dem Zahnrad (10) bzw. der Zahnstange (11) in Eingriff steht, umfasst.
7. Klappbarer Aufhänger nach einem der Ansprüche 1 bis 6, wobei das Gleitteil eine Stützstange (4) in Gleitpassung mit der Gleitschiene ist.
8. Klappbarer Aufhänger nach Anspruch 7, wobei das Aufhänge- und Trocknungselement ferner eine Aufhänge- und Trocknungsstange (3) umfasst, die mit einem freien Ende der Stützstange (4) verbunden ist.
9. Klappbarer Aufhänger nach Anspruch 8, wobei der Aufhängerkörper (1) zudem mit einer feststehenden Wäschetrocknungsplatte (5) bereitgestellt ist und sich die Aufhänge- und Trocknungsstange (3) an einer Seite der feststehenden Wäschetrocknungsplatte (5) befindet.
10. Klappbarer Aufhänger nach einem der Ansprüche 1 bis 6, wobei das Gleitteil ein Gleitschlitz in Gleitpassung mit der Gleitschiene ist.
11. Klappbarer Aufhänger nach Anspruch 10, wobei das Aufhänge- und Trocknungselement ferner eine bewegbare Wäschetrocknungsplatte (9) umfasst und der Gleitschlitz an der bewegbaren Wäschetrocknungsplatte (9) angeordnet ist.
12. Heizvorrichtung, die einen Heizkörper und den klappbaren Aufhänger nach einem der Ansprüche 1 bis 11 umfasst, wobei der klappbare Aufhänger abnehmbar mit dem Heizkörper verbunden ist.

Revendications

1. Cintre pliable, comprenant :

un corps de cintre (1) ;
des pieds pliants (2) connectés de manière mobile au corps de cintre (1) et ayant un état de support après dépliage et un état de stockage après pliage ;
un élément de suspension et de séchage connecté de manière mobile au corps de cintre (1) et ayant un état de suspension et de séchage distant du corps de cintre (1) et un état de réinitialisation proche du corps de cintre (1) ; et
un mécanisme de liaison disposé entre les pieds pliants (2) et l'élément de suspension et de séchage ; un changement d'état de l'un quelconque des pieds pliants (2) et de l'élément de suspension et de séchage entraîne, par le biais du mécanisme de liaison, un changement d'état de l'autre des pieds pliants (2) et de l'élément de suspension et de séchage ; dans lequel l'état de support correspond à l'état de suspension et de séchage, et l'état de stockage correspond à

- l'état de réinitialisation ;
 dans lequel les pieds pliants (2) sont articulés sur le corps de cintre (1) ; l'élément de suspension et de séchage a une partie coulissante qui est en ajustement coulissant avec une glissière disposée sur le corps de cintre (1) ; le mécanisme de liaison convertit une rotation alternative des pieds pliants (2) en un glissement alternatif de l'élément de suspension et de séchage ou convertit un glissement alternatif de l'élément de suspension et de séchage en une rotation alternative des pieds pliants (2) ; le mécanisme de liaison est un mécanisme à coin incliné ;
- caractérisée en ce que :**
- le mécanisme à coin incliné comprend une partie de liaison (8) disposée sur les pieds pliants (2) et un bloc coulissant (6) disposé sur le corps de cintre (1) ; le bloc coulissant (6) est en biseau avec la partie coulissante ; une partie de guidage (7) coopérant avec une structure de guidage disposée sur le corps de cintre (1) est disposée sur le bloc coulissant (6) ; la partie de liaison (8) pousse le bloc coulissant (6) pour se déplacer le long de la structure de guidage, et le bloc coulissant (6) entraîne la partie coulissante pour se déplacer le long de la glissière, de sorte que l'élément de suspension et de séchage se déplace vers l'état de suspension et de séchage ; au contraire, l'élément de suspension et de séchage entraîne le déplacement des pieds pliants (2) à travers la partie coulissante, le bloc coulissant (6) et la partie de liaison (8).
2. Cintre pliable selon la revendication 1, dans lequel la structure de guidage est un trou traversant disposé au fond du corps de cintre (1), la partie de guidage (7) est conçue pour s'étendre dans le trou traversant, et la partie de liaison (8) pousse la partie de guidage (7) pour se déplacer le long du trou traversant.
 3. Cintre pliable selon la revendication 1, dans lequel la partie de liaison (8) est une partie d'extrémité articulée des pieds pliants (2).
 4. Cintre pliable selon la revendication 1, dans lequel le mécanisme à coin incliné comprend également une structure de rappel élastique agissant sur l'élément de suspension et de séchage et/ou les pieds pliants (2) ; la structure de réinitialisation élastique applique une première force de réinitialisation pour déplacer l'élément de suspension et de séchage vers l'état de réinitialisation ; et/ou, la structure de rappel élastique applique une seconde force de rappel pour déplacer les pieds pliants (2) vers l'état de stockage.
 5. Cintre pliable selon la revendication 1, dans lequel
- le mécanisme de liaison est un mécanisme de transmission à engrenage.
6. Cintre pliable selon la revendication 5, dans lequel le mécanisme de transmission à engrenage comprend un engrenage (10) disposé sur une extrémité articulée des pieds pliants (2), une crémaillère (11) disposée sur la partie coulissante, et un engrenage double (12) en prise respectivement avec l'engrenage (10) et la crémaillère (11).
 7. Cintre pliable selon l'une quelconque des revendications 1 à 6, dans lequel la partie coulissante est une tige de support (4) en ajustement coulissant avec la glissière.
 8. Cintre pliable selon la revendication 7, dans lequel l'élément de suspension et de séchage comprend en outre une tige de suspension et de séchage (3) connectée à une extrémité libre de la tige de support (4).
 9. Cintre pliable selon la revendication 8, dans lequel le corps du cintre (1) est également pourvu d'une planche de séchage de vêtements fixe (5), et la tige de suspension et de séchage (3) est sur un côté de la planche de séchage de vêtements fixe (5).
 10. Cintre pliable selon l'une quelconque des revendications 1 à 6, dans lequel la partie coulissante est une fente coulissante en ajustement coulissant avec la glissière.
 11. Cintre pliable selon la revendication 10, dans lequel l'élément de suspension et de séchage comprend également une planche de séchage de vêtements mobile (9), et la fente coulissante est disposée sur la planche de séchage de vêtements mobile (9).
 12. Dispositif de chauffage, comprenant un corps chauffant et le cintre pliable selon l'une quelconque des revendications 1 à 11, dans lequel le cintre pliable est connecté de manière amovible au corps chauffant.

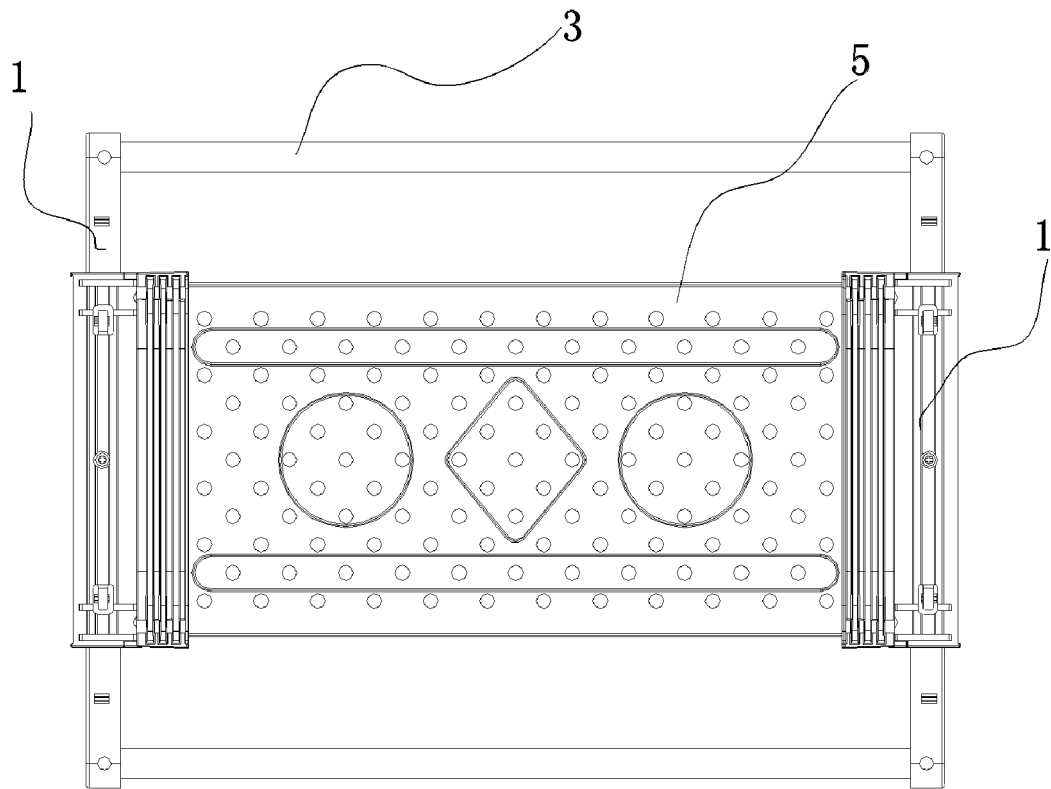


Fig. 1

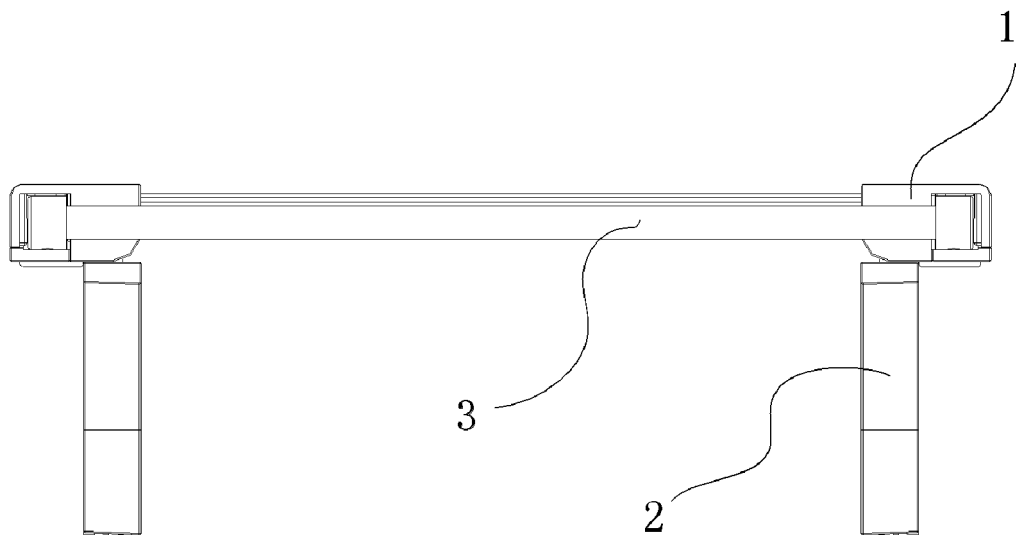


Fig. 2

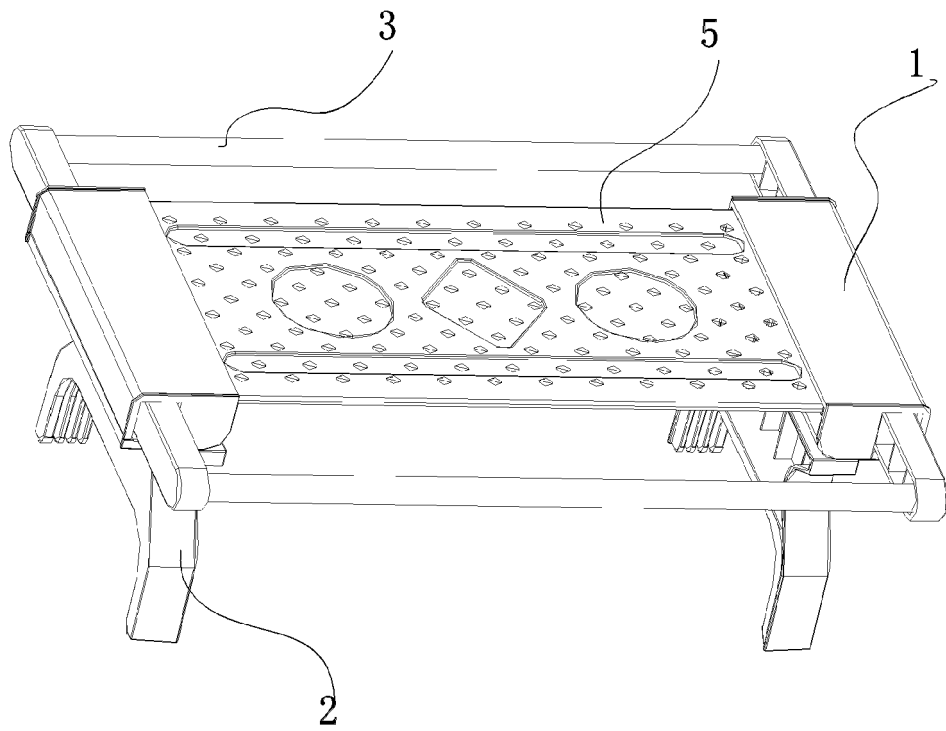


Fig. 3

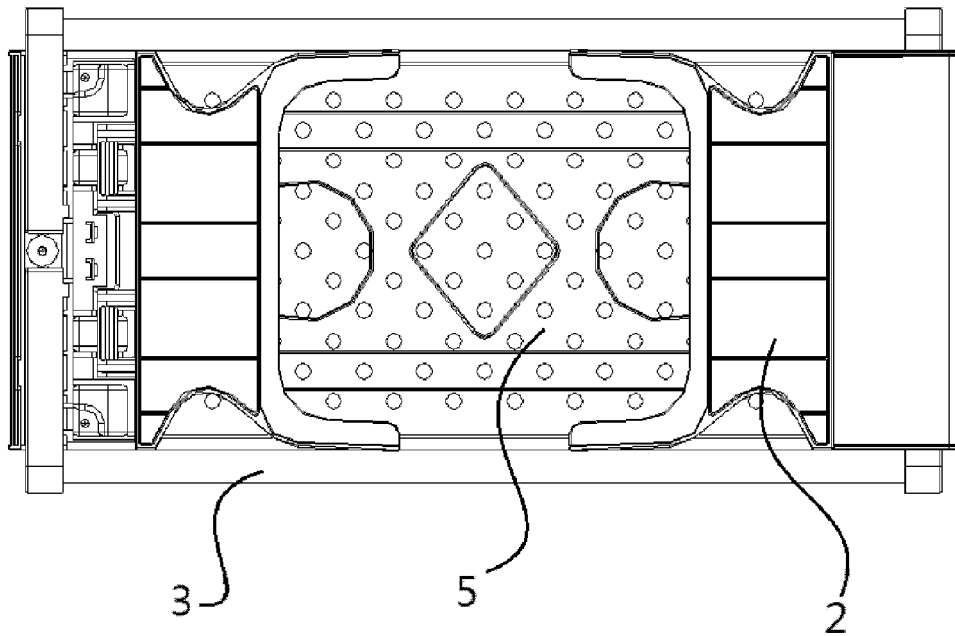


Fig. 4

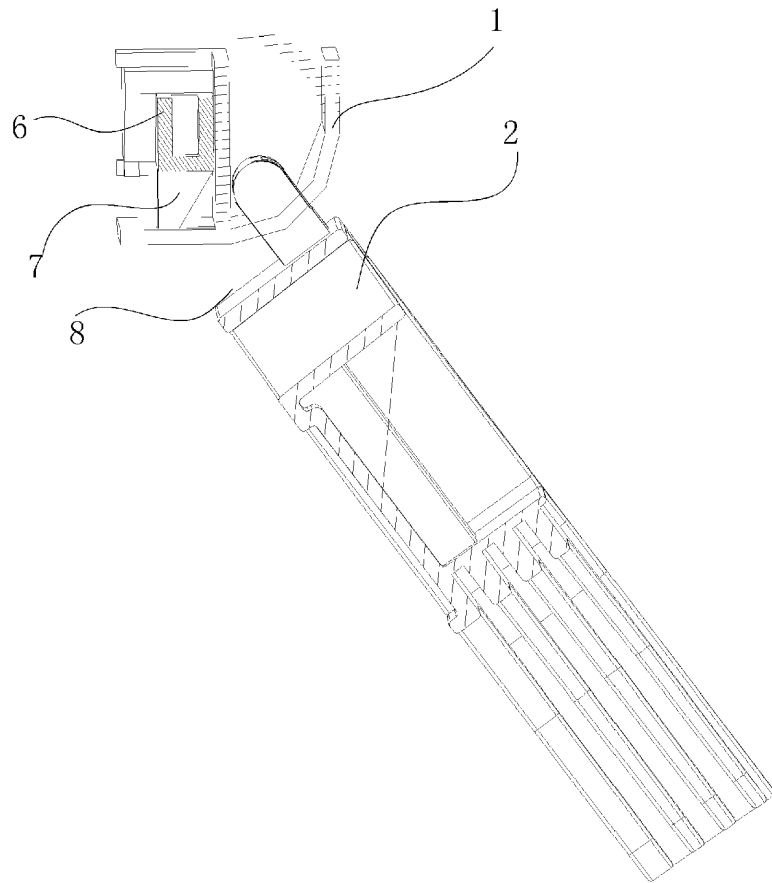


Fig. 5

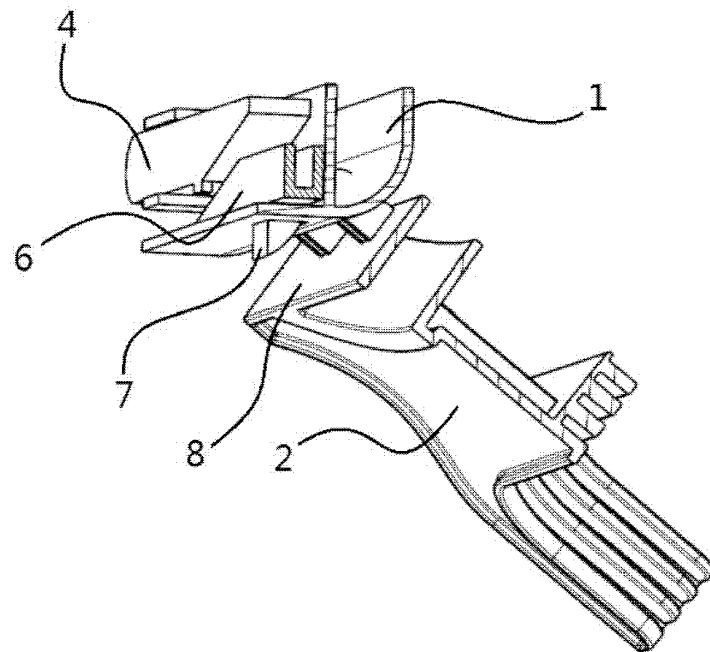


Fig. 6

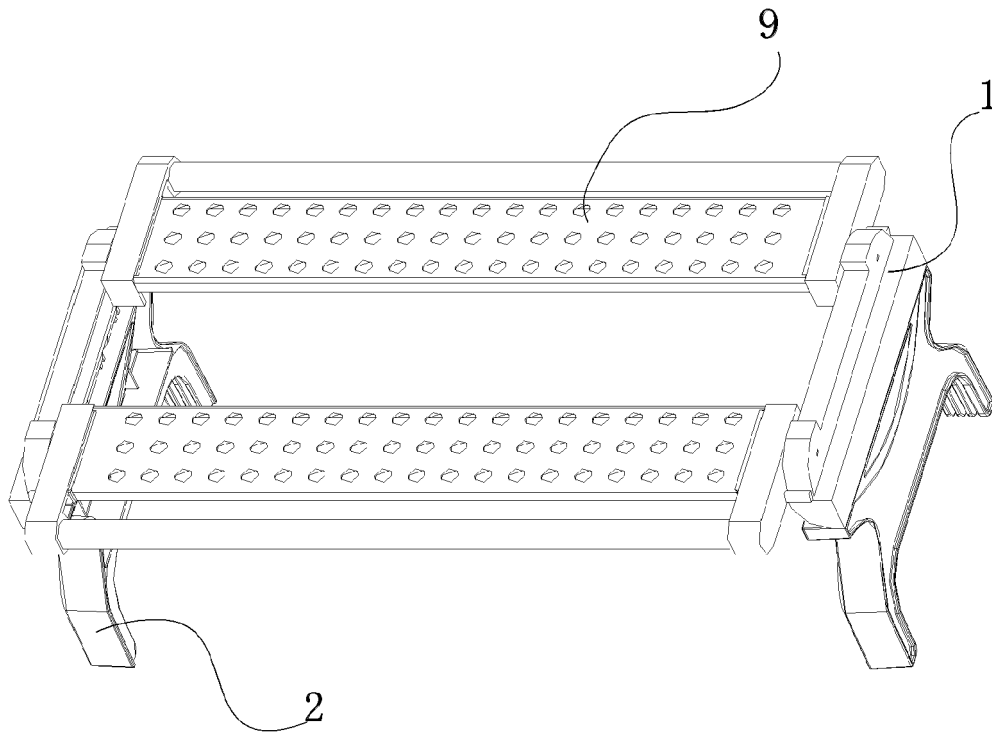


Fig. 7

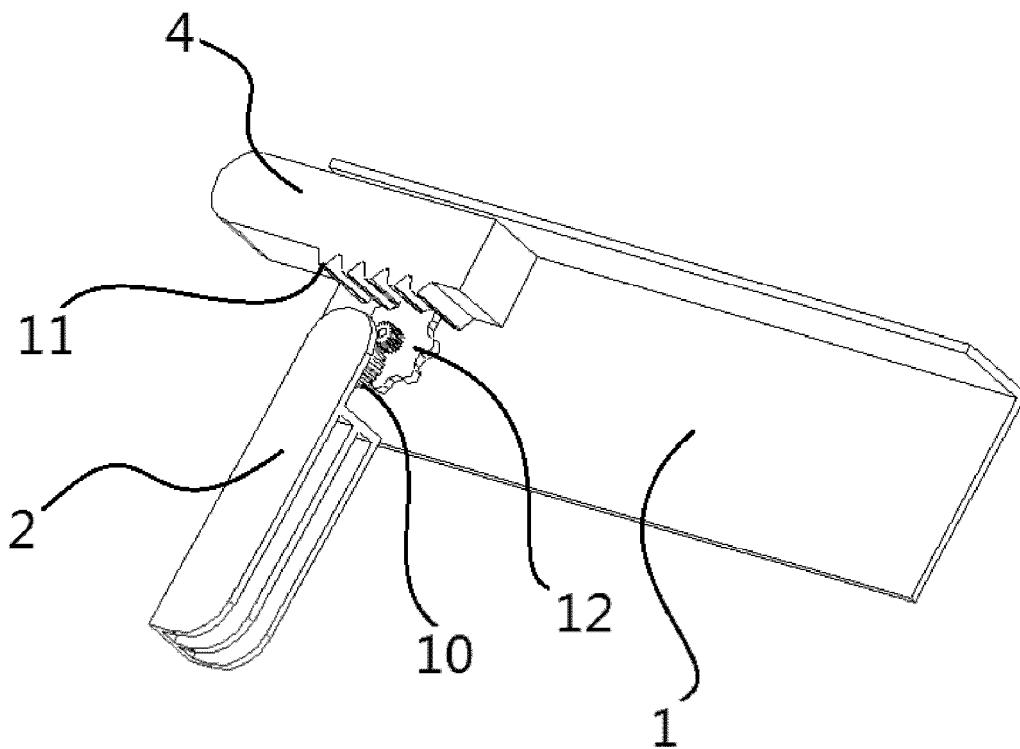


Fig. 8

REFERENCES CITED IN THE DESCRIPTION

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