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(54) **SLATTED SUPPORT STRUCTURE**

LATTENTRAGESTRUKTUR

STRUCTURE DE SUPPORT À LATTES

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Description

Field of the invention

[0001] The invention relates to the field of slatted support structures. More specifically it relates to a slatted support structure for beds, sitting beds or even chairs.

Background of the invention

[0002] Slatted support structures are popular support structures for a bed. They may for example be covered by a mattress. Slatted support structures typically consist of a wooden or metal frame which is supporting fixed slats or slats that can bounce and sometimes also tilt. Slats are separated with a space in between them. The total area of the slats may for example be 60% of the total surface of the bed.

[0003] The number of slats per slatted support structure may vary from structure to structure. Some support structures may comprise more than 10 or even more than 14 or even more than 28 slats. Depending on the number of slats, slats with different properties may be selected. They may for example have a different width, a different thickness, a different strength, a different distance between them, a different curve, a different resilience and/or a different material of which they are made. The slats may for example be made of wood, fiberglass, or a combination of different materials. For mounting the slats on the frame they are typically forced in a slat holder on the frame.

[0004] In prior art slatted support structures the choice of the slats may also be dependent on the position of the slat in the bed. Soft slats may for example be placed at the shoulders, while reinforced slats may be positioned on the middle area of the slatted support structure (where the middle area of the body is supposed to be).

[0005] Additionally, in some prior art positioning systems the slats are mounted such that they can be adjusted in height with regard to the frame. The height may be different for different slats along the length of the bed. This allows to personalize the positioning of the slats.

[0006] Many different design parameters can be taken into account when designing such slatted support structures which allow to individually adjust the height of a slat with regard to the frame. These may result in more or less complex systems, more or less user friendly systems, more or less accurate systems. In view of these different design requirements there is room for improvement in slatted support structures for a bed, a sitting bed or a chair.

[0007] EP 2 186 445 A1 discloses a slatted support structure known in the art.

Summary of the invention

[0008] It is an object of embodiments of the present invention to provide a good slatted support structure for

a bed, a sitting bed, or a chair.

[0009] The above objective is accomplished by a method and device according to the present invention.

[0010] In a first aspect embodiments of the present invention relate to a slatted support structure for a bed or a chair, the slatted support structure comprises a frame, at least one hinge, and at least one slat.

[0011] Each hinge comprises a first beam and a second beam rotatably connected by means of a connecting element. The beams are supported by a first and second support of the frame. A slat is at a first end supported by the first beam and at a second end by the second beam. The connecting element is configured such that an angle between the first beam and the second beam can be chosen and such that the beams can be secured to a fixed position at the chosen angle or to a resilient position wherein the angle can change resiliently around the chosen angle.

[0012] According to the present invention the frame comprises a first and a second support in a length direction of the slatted support structure, wherein the length direction is orthogonal to the slat direction.

[0013] According to the present invention each hinge comprises a first beam and a second beam, wherein each beam comprises a frame mounting position, a hinge mounting position and a slat mounting position.

[0014] The first beam and the second beam are rotatably connected at the hinge mounting positions by means of a connecting element.

[0015] The first beam is supported at the frame mounting position by the first support and the second beam is supported at frame mounting position by the second support.

[0016] At least one slat is at a first end supported by the first beam at the slat mounting position thereof and at a second end by the second beam at the slat mounting position thereof.

[0017] The connecting element is configured such that an angle between the first beam and the second beam can be chosen and such that the beams can be secured to a fixed position at the chosen angle or to a resilient position wherein the angle can change resiliently around the chosen angle.

[0018] In embodiments of the present invention the connecting element is configured such that it can be operated from a central position.

[0019] According to the present invention the connecting element comprises a positioning element which is connected with the slat or the frame and which is configured such that an angle between the first beam and the second beam can be chosen and such that the beams can be secured to a fixed position at the chosen angle or to a resilient position wherein the angle can change resiliently around the chosen angle.

[0020] According to the present invention the connecting element is configured such that the beams can be secured to a fixed position at the chosen angle.

[0021] When the positioning element is connected with

the slat it is configured such that the distance between the slat and the hinge mounting positions of the first and the second beam can be changed by the positioning element, thereby changing the angle between the first beam and the second beam.

[0022] When the positioning element is connected with the frame it is configured such that the distance between the frame and the hinge mounting positions of the first and the second beam can be changed by the positioning element, thereby changing the angle between the first beam and the second beam.

[0023] It is an advantage of embodiments of the present invention that the height of a slat can be changed by changing the angle between the beams of a hinge. This allows to change the height of a slat from a central position (e.g. by moving the connecting element up or down such that the angle between the beams changes). The slat is changed in height at both ends simultaneously and over the same height at both sides. It is, moreover, advantageous that it is not required to have positioning systems at each side of the slat. Advantages thereof are that it allows to free up space which was occupied by the adjustment devices in prior art solutions and that no separate control of the height on both ends of the slat is required.

[0024] According to the present invention the angle between the first beam and the second beam can be chosen such that the beams can be secured to a resilient position wherein the angle can change resiliently around the chosen angle. It is thereby advantageous that the same resilience can be obtained independent of the chosen angle.

[0025] In embodiments of the present invention the frame mounting position is present between the hinge mounting position and the slat mounting position.

[0026] It is an advantage of embodiments of the present invention that the width of the frame can be smaller than the length of the slats. This allows to reduce the total width of the slatted support structure (e.g. bed) to the length of the slats. This is achieved by a hinge wherein the beams of the hinge have a frame mounting position which is in between the hinge mounting position and the slat mounting position. This is not the case in prior art beds wherein the positioning systems are mounted to the frame of the bed and wherein the outer ends of the slats are mounted on the positioning systems. In these prior art beds the positioning systems are making the bed wider than the length of the slats.

[0027] According to the present invention the positioning element of the connecting element of at least one of the hinges comprises a first element and a second element. The second element or the first element is connected with the slat or with the frame. The positioning element is configured such that the position of the first element with respect to the second element can be changed such that the beams can be secured to a fixed position at the chosen angle or to a resilient position wherein the angle can change resiliently around the cho-

sen angle.

[0028] In embodiments of the present invention the first element may for example be a spindle screw and the second element may be a nut. The spindle screw and the nut are mounted such that the angle between the first and the second beam can be changed by rotating the spindle screw with respect to the nut.

[0029] In an alternative embodiment the first element may for example be a rack and the second element a gear.

[0030] In yet another alternative embodiment the first element may for example be an elongated cylinder with transversal holes along the length of the cylinder and the second element may be a pin which fits in these holes.

[0031] In yet another alternative embodiment the first element may for example be a hydraulic tube and the second element a piston.

[0032] Depending on the implementation seamless or stepwise transitions of the angle can be achieved. Depending on the implementation the angle may be changed manual or in an automated fashion.

[0033] In embodiments of the present invention the connecting element of at least one of the hinges comprises a spindle screw and a nut which are mounted such that the angle between the first and the second beam can be changed by rotating the spindle screw with regard to the nut.

[0034] It is an advantage of embodiments of the present invention that the height of the slat can be gradually changed by rotating the spindle screw with regard to the nut. Thereby the height of the slat is changed simultaneously at both ends of the slat. Instead of discrete positions a continuous regulation of the position of the slat is possible.

[0035] In embodiments of the present invention the second element (e.g. nut) is mounted to the frame or slat and the first element (e.g. spindle screw) is mounted to the first beam and/or the second beam at the hinge mounting position, or the first element (e.g. spindle screw) is mounted to the frame or slat and the second element (e.g. nut) is mounted to the first beam and/or the second beam at the hinge mounting position.

[0036] In embodiments of the present invention the frame comprises a bar oriented in the length direction in the middle between the first support and the second support and in a fixed position with regard to the first support and the second support wherein the spindle screw or the nut is mounted on the bar.

[0037] In embodiments of the present invention a hole is made in one of the slats such that it is possible to insert a screwdriver through the hole for rotating the first element or second element which may for example be a spindle screw.

[0038] It is an advantage of embodiments of the present invention that the spindle screw is easily accessible.

[0039] In embodiments of the present invention the slatted support structure comprises a screwdriver for ro-

tating the spindle screw, wherein a scale is indicated on a shaft of the screwdriver.

[0040] It is an advantage of embodiments of the present invention that the position of the slat with regard to the scale of the screwdriver is indicative for the height of the slat with regard to the frame.

[0041] In embodiments of the present invention the slatted support structure comprises a spring which is mounted such that the angle can change resiliently around the chosen angle and/or such that the position of the hinge can change resiliently with regard to the frame.

[0042] It is an advantage of embodiments of the present invention that the slat can move resiliently up and down and that this movement is the same at both ends of the slat. This means that if one pushes on one end of the slat, the other end of the slat lowers over the same distance of the slat. Thus a horizontal slat can be obtained independent of the position of the pressure. In embodiments of the present invention the connecting element comprises a spring which is mounted such that the angle can change resiliently around the chosen angle and/or such that the position of the hinge can change resiliently with regard to the frame.

[0043] In embodiments of the present invention at least one of the hinges comprises a first and a second spring, wherein the first end of the at least one slat is connected with one side of the first spring and wherein the opposite side of the first spring is connected with the first beam at the slat mounting position, and wherein the second end of the at least one slat is connected with one side of the second spring and wherein the opposite side of the second spring is connected with the second beam at the slat mounting position.

[0044] It is an advantage of embodiments of the present invention that the slat can be resiliently supported by means of the first and second spring. It is, moreover, advantageous that this first and second spring may compensate for changes in the distance between the slat mounting positions of the first and second beam caused by changes in the angle between the first and second beam.

[0045] In embodiments of the present invention the frame is subdivided in the length direction into subframes and the subframes are connected such that they can rotate with regard to each other.

[0046] It is an advantage of embodiments of the present invention that the support structure comprising the plurality of hinges does not prevent that the frame can be subdivided into subframes which can rotate with regard to each other.

[0047] In embodiments of the present invention the slatted support structure comprises a motor which is mounted such that the angle between the first beam and the second beam can be changed by actuating the positioning element.

[0048] In embodiments of the present invention the connecting element of at least one of the hinges may for example comprise a spindle screw and a nut. The motor

may in that case be mounted for driving the spindle screw. The motor may for example be mounted to the frame and the nut may for example be mounted to one of the beams at the hinge mounting position, such that the angle between the first and the second beam can be changed by rotating the spindle screw with regard to the nut using the motor.

[0049] In an alternative embodiment the motor may for example be mounted such that it can rotate a gear. By rotating the gear, the rack can be moved with respect to this gear.

[0050] It is an advantage of embodiments of the present invention that the height of the slat can be gradually changed by controlling the number of rotations of a motor.

[0051] In embodiments of the present invention the slatted support structure comprises a controller having an interface which allows remote control of the angle of at least one of the hinges.

[0052] The angle may for example be controlled using a motor. It is an advantage of embodiments of the present invention that it is possible to adjust the height of at least some of the slats without having to remove a cover from the slatted support structure.

[0053] In embodiments of the present invention the slatted support structure comprises a controller and at least one sensor, wherein the at least one sensor is adapted for measuring the pressure distribution and/or force distribution exercised by someone on the slatted support structure or on a cover over the slatted support structure and for passing the pressure distribution and/or force distribution to the controller which is adapted for controlling the height of the slats based on the obtained pressure and/or force distribution from the at least one sensor.

[0054] It is an advantage of embodiments of the present invention that automated control of the height of the slats is possible based on the pressure and/or force distribution by someone on the slatted support structure. The slatted support structure may for example be a bed and someone may be sleeping on a mattress on the slatted support structure. It is thereby advantageous that the heights of the slats are automatically adjusted when the person is moving in its sleep.

[0055] In a second aspect embodiments of the present invention relate to a method for controlling the height of slats in a slatted support structure in accordance with embodiments of the present invention. The method comprises adjusting the height of the slats based on measured body parameters and/or the method comprises obtaining the pressure distribution and/or force distribution exercised by someone on the slatted support structure or on a cover over the slatted support structure, and controlling the height of the slats based on the obtained pressure and/or force distribution.

[0056] In a third aspect embodiments of the present invention relate to a bed, chair or sitting bed comprising a slatted support structure in accordance with embodi-

ments of the present invention.

[0057] The first beam and the second beam are rotatably connectable at the hinge mounting positions by means of a connecting element and the first beam is adapted to be supported at the frame mounting position by a first support and the second beam is adapted to be supported at frame mounting position by a second support.

[0058] A slat can be supported at a first end by the first beam at the slat mounting position thereof and at a second end by the second beam at the slat mounting position thereof.

[0059] The connecting element is configured such that an angle between the first beam and the second beam can be chosen and such that the beams can be secured to a fixed position at the chosen angle or to a resilient position wherein the angle can change resiliently around the chosen angle.

[0060] In embodiments of the present invention the connecting element is configured such that it can be operated from a central position.

[0061] According to the present invention the connecting element comprises a positioning element which is connected with the slat or the frame and which is configured such that an angle between the first beam and the second beam can be chosen and such that the beams can be secured to a fixed position at the chosen angle or to a resilient position wherein the angle can change resiliently around the chosen angle.

[0062] Particular and preferred aspects of the invention are set out in the accompanying independent and dependent claims.

[0063] These and other aspects of the invention will be apparent from and elucidated with reference to the embodiment(s) described hereinafter.

Brief description of the drawings

[0064]

FIG. 1 shows 3D schematic drawing and a schematic drawing of a cross section of a slatted support structure in accordance with embodiments of the present invention.

FIG. 2 shows a 3D schematic drawing of a frame in accordance with embodiments of the present invention.

FIG. 3 shows a 3D schematic drawing of a slatted support structure in accordance with embodiments of the present invention.

FIG. 4 shows a 3D schematic drawing of a hinge and a slat, supported by the hinge, in accordance with embodiments of the present invention.

FIG. 5 shows the same hinge and slat as in FIG. 4

but with a different angle between the beams.

FIG. 6 shows a detailed image of a hinge, a slat 140 and the shaft 155 of a screwdriver in accordance with embodiments of the present invention.

FIG. 7 shows an image of a hinge wherein the spindle screw can be operated using a motor which is fixed to the third bar in accordance with embodiments of the present invention.

FIG. 8 shows a schematic drawing of a hinge comprising a rack and a gear for changing the angle between the beams.

FIG. 9 shows a schematic drawing of a hinge comprising an elongated cylinder with transversal holes along the length of the cylinder and a pin which fits in these holes.

FIG. 10 shows two schematic drawings of a hinge with different angles between the first beam and the second beam.

FIG. 11 and FIG. 12 show schematic drawings of a frame which is subdivided into subframes and wherein the subframes are connected such that they can rotate with regard to each other, in accordance with embodiments of the present invention.

FIG. 13 and FIG. 14 show 3D drawings of the same slatted support structures as FIG. 11 and FIG. 12.

FIG. 15 shows a slatted support structure comprising a controller for controlling the height of the slats in accordance with embodiments of the present invention.

FIG. 16 shows a schematic drawing of a cross section of a slatted support structure wherein the connecting element comprises a spring in accordance with embodiments of the present invention.

FIG. 17 shows a 3D schematic drawing of the same slatted structure as in FIG. 16.

[0065] Any reference signs in the claims shall not be construed as limiting the scope. In the different drawings, the same reference signs refer to the same or analogous elements.

Detailed description of illustrative embodiments

[0066] The present invention will be described with respect to particular embodiments and with reference to certain drawings but the invention is not limited thereto but only by the claims. The drawings described are only schematic and are non-limiting. In the drawings, the size

of some of the elements may be exaggerated and not drawn on scale for illustrative purposes. The dimensions and the relative dimensions do not correspond to actual reductions to practice of the invention.

[0067] The terms first, second and the like in the description and in the claims, are used for distinguishing between similar elements and not necessarily for describing a sequence, either temporally, spatially, in ranking or in any other manner.

[0068] Moreover, the terms top, under and the like in the description and the claims are used for descriptive purposes and not necessarily for describing relative positions.

[0069] It is to be noticed that the term "comprising", used in the claims, should not be interpreted as being restricted to the means listed thereafter; it does not exclude other elements or steps. It is thus to be interpreted as specifying the presence of the stated features, integers, steps or components as referred to, but does not preclude the presence or addition of one or more other features, integers, steps or components, or groups thereof. Thus, the scope of the expression "a device comprising means A and B" should not be limited to devices consisting only of components A and B. It means that with respect to the present invention, the only relevant components of the device are A and B.

[0070] Reference throughout this specification to "one embodiment" or "an embodiment" means that a particular feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, appearances of the phrases "in one embodiment" or "in an embodiment" in various places throughout this specification are not necessarily all referring to the same embodiment, but may.

[0071] In the description provided herein, numerous specific details are set forth. However, it is understood that embodiments of the invention as defined by the appended claims may be practiced without these specific details. In other instances, well-known methods, structures and techniques have not been shown in detail in order not to obscure an understanding of this description.

[0072] Where in embodiments of the present invention reference is made the height of a slat, reference is made to the shortest distance between the slat and the first support or second support of the frame (i.e. the shortest distance between the slat and the places where the hinge is supported by the frame).

[0073] Where in embodiments of the present invention reference is made to "a beam", reference is made to an elongated structure which comprises a frame mounting position a hinge mounting position and a slat mounting position. Two of such beams are connected together at the hinge mounting position to form a hinge.

[0074] In a first aspect embodiments of the present invention relate to a slatted support structure 100 for a bed or chair.

[0075] The slatted support structure comprises a frame

130, at least one hinge 110 mounted on the frame, and at least one slat 140 supported by the at least one hinge 110.

[0076] The frame 130 comprising a first 131 and a second support 132 in a length direction of the slatted support structure, wherein the length direction is orthogonal to the slat direction.

[0077] Each hinge 110 comprises a first beam 111 and a second beam 115, wherein each beam 111, 115 comprises frame mounting position 113, 117 a hinge mounting position 114, 118 and a slat mounting position 112, 116. In embodiments of the present invention the frame mounting position 113, 117 may be present between the hinge mounting position 114, 118 and the slat mounting position 112, 116. In alternative embodiments of the present invention the slat mounting position may be in between the frame mounting position and the hinge mounting position.

[0078] The first beam 111 and the second beam 115 are rotatably connected at the hinge mounting positions 114, 118 by means of a connecting element 120.

[0079] The first beam 111 is supported at the frame mounting position 113 by the first support 131 and the second beam 115 is supported at frame mounting position 117 by the second support 132

[0080] At least one slat 140 is at a first end 141 supported by the first beam 111 at the slat mounting position 112 thereof and at a second end 142 by the second beam 115 at the slat mounting position 116 thereof.

[0081] The connecting element 120 is configured such that an angle between the first beam 111 and the second beam 115 can be changed and such that the beams can be secured to a fixed position with a chosen angle or to a resilient position wherein the angle can change resiliently around the chosen angle.

[0082] This may for example be achieved by providing a hole through both beams in a direction orthogonal to the beam direction and by connecting both beams with a nut and bolt. By fastening the nut and bolt, the beams are pressed together and the angle is fixed. By releasing them the angle can be changed. The hole may for example be an elongated hole over the length direction of the beams.

[0083] In embodiments of the present invention the connecting element 120 comprises a positioning element 150 which can be operated from a central position.

[0084] In embodiments of the present invention the connecting element 120 is connected with the slat 140 or the frame 130 and which is configured such that an angle between the first beam 111 and the second beam 115 can be changed and such that the beams can be secured to a fixed position with a chosen angle or to a resilient position wherein the angle can change resiliently around the chosen angle and/or wherein the connecting element 120 is configured such that the beams can be secured to a fixed position at the chosen angle.

[0085] Different methods are possible for setting the angle between the beams. In the example described in

the following paragraphs setting the angle between the beams can be done using a spindle screw and a nut. The invention is, however, not limited thereto. Also, for example pneumatic systems, rack/gear, etc. may be used. This will be discussed later in the description.

[0086] In embodiments of the present invention the slatted support structure comprises a plurality of hinges 110 mounted on the frame, and a plurality of slats 140 supported by the hinges 110.

[0087] A schematic drawing of a cross section of an example of such a slatted support structure is shown in FIG. 1. In this example the first support 131 and the second support 132 are bars oriented in the length direction of the frame. The first beam 111 is connected with the first bar 131 using a pin (e.g. screw) hole connection around which the first beam can rotate. This is also the case for the second beam 115 which is connected similarly to the second bar 132. Other connections between the beams and the first and second bar are possible. A spring may for example be present between the first beam and the first bar, and another spring between the second beam and the second bar. These springs may be resilient in a direction orthogonal to the slat direction and orthogonal to the length direction of the frame. These springs may compensate for changes in the distance between the frame mounting positions of the first and second beam caused by changes in the angle between the first and second beam.

[0088] Where in embodiments of the present invention reference is made to springs, different spring types may be used. Springs may be classified in groups such as compression springs / torsion springs / tension springs. Springs may have different shapes such as U shape / oval shape / round shape / helical shape / block shape / cantilever / balloon, etc. Springs may also comprise different materials such as plastic / metal/foam / wood /gas-spring / airpressure / etc. Resilient elements such as rubber, foam, balloon, fabric may be created to create a spring (i.e. a resilient element). The invention is not limited to springs in this classification.

[0089] Both beams 111, 115 are rotatably connected at the hinge mounting positions 114, 118 by means of a connecting element 120. In this example this is achieved by a narrowed first beam 111 at the height of the hinge mounting position 114, such that it fits in a recess of the second beam 115 between protruding parts of the second beam at the height of the hinge mounting position 118. Both beams are rotatably connected using pins (e.g. screws) through the protruding parts and partially in the narrowed part such that both beams can rotate around the pins. In this example the connecting element moreover comprises a spindle screw 151 in the narrowed part of the first beam 111.

[0090] According to the present invention the positioning element 150 comprises a first element 151 and a second element 152. In this example the first element is a spindle screw and the second element is a nut. The spindle screw 151 is screwed into a nut 152 which is fixed

to a bar 133 of the frame 130. The bar 133 is oriented in the length direction and has a fixed position with regard to the first support 131 and the second support 132. In the example the bar 133 is located between the first bar 131 and the second bar 132 at a position further away from the slats than the first bar and the second bar. By screwing the spindle screw 151 it is possible to change the distance between the hinge mounting positions 114, 118 and the third bar 133, and hence it is possible to change the angle between the beams. This will cause the beams to rotate around the frame mounting positions and as a result the slat mounting positions will change height and will change the height of the slat 140.

[0091] In this example a hole 153 is present in the slat 140. This hole is in the extension of the spindle screw 151 and the bolt 152 such that it is possible to insert a screwdriver 154 through the hole 153 for rotating the spindle screw 151.

[0092] In embodiments of the present invention the slatted support structure comprises a spring which is mounted such that the position of the hinge can change resiliently with regard to the frame. The connecting element 120 may for example comprise a spring which is mounted such that the angle can change resiliently around the chosen angle. This may be achieved by providing a spring between the first beam and the second beam. In embodiments of the present invention a spring may be present between the first and/or second beam (at the hinge mounting position) and the frame. This spring may be resilient in a direction orthogonal to the slat direction and to length direction of the frame.

[0093] This is illustrated by the drawings in FIG. 13 and FIG. 14. Besides a spindle screw 151 and a nut 152, the connecting element 120 also comprises a spring 183 which allows the angle between the beams to move resiliently around a fixed angle. In this example the spring is a helical spring, however other types of springs are also possible. A torsion spring may for example be connected with one end to one beam of the hinge and with the other end to the other beam of the hinge. Alternatively a resilient element (e.g. a balloon) may be present between the connecting element 120 and the slat 140. This could for example replace the spring 183.

[0094] Alternatively at least part of the connecting element itself or at least parts of the beams are made resilient such that the angle can change resiliently around the chosen angle and/or such that the position of the hinge can change resiliently with regard to the frame. Parts of the beams of the connecting element can for example be made of elastic material (e.g. elastomeric plastic).

[0095] At the slat mounting positions 112 and 116, supporting elements 181, 182, are connected to the beams. These supporting elements are configured to carry the slat 140. The connection between the slat and the supporting element may be such that the supporting element can move with respect to the slat in the length direction of the slat. It may also be prevented that the slat can

move in the length direction of the frame (i.e. orthogonal to the beams of the hinge).

[0096] FIG. 14 shows a 3D schematic drawing of the same slatted structure as in FIG. 13. Whereas in the cross-section of FIG. 13 the nut 152 and the spring 183 were visible, in FIG. 14 only the outer shell is visible.

[0097] A hinge may support one or more slats. In this example the hinge 110 supports only one slat 140. The slat comprises a first spring 161 and a second spring 162. The first end 141 of the slat 140 is connected with one side of the first spring 161 and the opposite side of the first spring is connected with the first beam 111 at the slat mounting position 112. The second end 142 of the slat 140 is connected with one side of the second spring 162 and the opposite side of the second spring is connected with the second beam 115 at the slat mounting position 116.

[0098] In this example the spring is a U-shaped spring. However, different other types of springs such as for example helical springs or torsion springs may be used.

[0099] According to the present invention the connecting element 120 and the connections between the frame mounting positions are designed such that the angle between the first beam 111 and the second beam 115 can be changed. The distance between the frame mounting positions 113, 117 of the first and second beam may for example be fixed while the distance between the hinge mounting positions 114, 118 may be variable. Alternatively the first and the second frame mounting positions 113, 117 may be supported by the first and second support 131, 132 while they still can shift over the first and second support.

[0100] FIG. 2 shows a 3D schematic drawing of a frame 130 in accordance with embodiments of the present invention. It shows a first bar 131, and a second bar 132 for supporting the hinges, and it shows a third bar 133 in between the first bar 131 and the second bar 132 for fixing the nuts 152 of the connecting elements 120. The first, second, and third bar are oriented in the length direction and are on their outer sides fixed to outer frames 134, 135. The frame may for example be a steel frame. Other materials such as wood are also possible.

[0101] The slats may for example be made of wood, fiberglass, or a combination of different materials, plastic, bio based plastics and the beams of the hinge may for example be made of plastic, metal, wood. This may be fiber reinforced plastic. The beams may for example be fabricated by casting them.

[0102] FIG. 3 shows a 3D schematic drawing of a slatted support structure in accordance with embodiments of the present invention. In the drawing only three slats are shown. The invention is, however, not limited thereto. Two of the slats 140 have a hole 153 to insert a screwdriver to turn a spindle screw 151 to change the height of the slats. The height of a third slat 140 can be changed by operating a motor 157 which turns the spindle screw.

[0103] FIG. 4 shows a 3D schematic drawing of a hinge 110 and a slat 140, supported by the hinge 110, in ac-

cordance with embodiments of the present invention. It shows the first beam 111, the second beam 115, the first spring 161, the second spring 162, the screwdriver 154 through the hole 153, and the positioning element 150 which, in this example, comprises the spindle screw 151, and the nut 152. In this figure the hinge mounting positions 114, 118, the frame mounting positions 113, 117 and the slat mounting positions 112, 116 are indicated.

[0104] FIG. 5 shows a 3D schematic drawing of a hinge and a slat in accordance with embodiments of the present invention. In FIG. 4 the hinge mounting positions 114, 118 are closer to the slat 140 than in FIG. 5. When mounted on a frame in accordance with embodiments of the present invention, this will result in slat of which the height is higher in FIG. 5 than in FIG. 4.

[0105] FIG. 6 shows a detailed image of a hinge, a slat 140 and the shaft 155 of a screwdriver in accordance with embodiments of the present invention. A scale 156 is indicated on the shaft 155 of the screwdriver. The position of the slat 140 with regard to the scale 156 is indicative for the height of the slat with regard to the frame. In FIG. 6 a ring 158 is inserted in the hole for clearly indicating the position of the slat with regard to the scale. In FIG. 6 the positioning element 150 comprising the nut 152 and the spindle screw 151 are also shown.

[0106] FIG. 7 shows an image of a hinge 110 wherein the spindle screw can be operated using a motor 157 which is fixed to the third bar 133.

[0107] The angle between the beams of a hinge may be controlled using alternative systems. The angle may for example be controlled using a hydrodynamic system. The first element may for example be a hydraulic tube and the second element a piston.

[0108] FIG. 8 shows a schematic drawing of a hinge for which the positioning element 150 comprises a first element and a second element. In the example the first element 151 is a rack and the second element 152 is a gear. On one side the rack is fixed to the frame. In this example this is illustrated by the dashed lines at the bottom of the rack. The gear is connected to the first beam 111 at the hinge mounting position. The position of the rack 151 can be changed with respect to the gear 152 by rotating the gear. This will result in a change of the angle between the first beam and the second beam.

In the example of FIG. 9 the first element 151 is an elongated cylinder with transversal holes along the length of the cylinder and the second element 152 is a pin which fits in these holes. On one side the elongated cylinder is fixed to the frame. In this example this is illustrated by the dashed lines at the bottom of the rack. The pin fits in a hole in the first beam 111 and a hole in the second beam 115 at the hinge mounting position. The position of the elongated cylinder 151 can be changed with respect to the pin 152 by inserting the pin in a different hole in the elongated cylinder. This will result in a change of the angle between the first beam and the second beam. This is also illustrated in FIG. 10 wherein the angle between the beams is changed by changing the hole of the

elongated cylinder in which the pin is inserted. FIG. 11 and FIG. 12 show schematic drawings of a frame which is subdivided into subframes and wherein the subframes are connected such that they can rotate with regard to each other. The side view of the frames are shown. Thereby the first bar 131 of the frame is shown. This bar is subdivided into smaller bars 131a, 131b, 131c, 131d, 131e which are connected 136 such that they can rotate with regard to each other. In FIG. 11 different hinges 110 are mounted on the frame and slats 140 are mounted on the hinges. The height of the slats can either be changed using a screwdriver (the slats supported by the hinges of which a bolt 152 is shown which can be connected to the frame), or using a motor 157 (the slats supported by the hinges of which a motor is shown which can be connected to the frame). In this example the height of the slats in the middle of the frame can be adjusted using the motor. As these slats are positioned in the middle of the body their height position is more important for a good body support.

[0109] FIG. 11 shows the frame in lying position. FIG. 12 shows the frame in sitting position. The angle between neighbouring subframes may for example vary between 0° and 90°, or for example between 0° and 60°, or for example between 0° and 30°.

[0110] The number of slats may for example be more than 10, or even more than 12, or even more than 15. In this example for 6 of the slats manual control of the height is possible while for 7 of the slats the height of the slats can be controlled using a motor. Such a motor may for example be a stepper motor. The stepper motor may be surrounded by sound damping material.

[0111] Other configurations may be possible. Another configuration may for example comprises 6 fixed slats, and 7 slats of which the height is manually configurable. Preferably the height of the middle slats is configurable.

[0112] FIG. 13 and FIG. 14 show 3D drawings of the same slatted support structures as FIG. 11 and FIG. 12. FIG. 13 shows the frame in lying position. FIG. 14 shows the frame in sitting position. As can be seen from these figures holes 153 are present in the outer slats 140 to make control of the height of the slat using a screwdriver easier. The middle slats do not have these holes. In this exemplary embodiment of the present invention the height of these slats can be controlled using a motor.

[0113] In embodiments of the present invention the slatted support structure 100 may comprise a controller 170 which has an interface 171 which allows remote control of the motor of at least one of the hinges 110. An example thereof is illustrated in FIG. 15. In this example the slatted support structure moreover comprises sensors 172. These sensors 172 are adapted for measuring the pressure distribution and/or force distribution exercised by someone on the slatted support structure 100 or on a cover over the slatted support structure and for passing the pressure distribution and/or force distribution to the controller 170 which is adapted for controlling the height of the slats 140 based on the obtained pressure

and/or force distribution from the at least one sensor 172.

[0114] In a second aspect embodiments of the present invention relate to a method for controlling the height of slats in a slatted support structure in accordance with embodiments of the present invention.

[0115] In embodiments of the present invention the body parameters of a person may be measured and the height of the slats may be adjusted such that they provide a good support in accordance with these body parameters. The slats may moreover be adjusted according to the preferred lying position of the person on the bed.

[0116] The body parameters may be stored in a table and the corresponding optimal heights of the slats may be adjusted manually for some slats and/or by remote control of the motors (e.g. using a tablet or computer) for other slats.

[0117] In embodiments of the present invention the pressure distribution and/or force distribution exercised by someone on the slatted support structure 100 or on a cover over the slatted support structure is measured and the height of the slats 140 is controlled based on this information. In embodiments of the present invention this height may be controlled by driving a motor which is fixed to the frame and which can rotate a spindle screw to move the hinge mounting position up and down.

Claims

1. A slatted support structure (100) for a bed or a chair, the slatted support structure comprising a frame (130), at least one hinge (110), and at least one slat (140),

the frame (130) comprising a first (131) and a second support (132) in a length direction of the slatted support structure, wherein the length direction is orthogonal to the slat direction, each hinge (110) comprising a first beam (111) and a second beam (115), wherein each beam (111, 115) comprises a frame mounting position (113, 117) a hinge mounting position (114, 118), and a slat mounting position (112, 116), wherein the first beam (111) and the second beam (115) are rotatably connected at the hinge mounting positions (114, 118) by means of a connecting element (120), and wherein the first beam (111) is supported at the frame mounting position (113) by the first support (131) and the second beam (115) is supported at frame mounting position (117) by the second support (132), and wherein the at least one slat (140) is at a first end (141) supported by the first beam (111) at the slat mounting position (112) thereof and at a second end (142) by the second beam (115) at the slat mounting position (116) thereof, characterized in that the connecting element

- (120) comprises a positioning element (150) which comprises a first element (151) and a second element (152) wherein the second element (152) or the first element (151) is connected with the at least one, slat (140) or frame (130) and wherein the positioning element (150) is configured such that the position of the first element (151) with respect to the second element (152) can be changed such that an angle between the first beam (111) and the second beam (115) can be chosen and such that the first and second beams can be secured to a fixed position at the chosen angle or to a resilient position wherein the angle can change resiliently around the chosen angle.
2. A slatted support structure (100) according to claim 1, wherein for the beams (111, 115) of a hinge the frame mounting position (113, 117) is present between the hinge mounting position (114, 118) and the slat mounting position (112, 116).
 3. A slatted support structure (100) according to any of the previous claims, wherein the second element (152) is mounted to the frame (130) or slat (140) and wherein the first element (151) is mounted to the first beam (111) and/or the second beam (115) at the hinge mounting position (114, 118), or wherein the first element (151) is mounted to the frame (130) or slat (140) and wherein the second element (152) is mounted to the first beam (111) and/or the second beam (115) at the hinge mounting position (114, 118).
 4. A slatted support structure (100) according to claim 3, wherein the first element is a spindle screw and wherein a hole (153) is made in one of the slats (140) such that it is possible to insert a screwdriver (154) through the hole (153) for rotating the spindle screw (151).
 5. A slatted support structure (100) according to claim 4, the slatted support structure comprising a screwdriver (154) for rotating the spindle screw (151), wherein a scale (156) is indicated on a shaft (155) of the screwdriver (154).
 6. A slatted support structure (100) according to any of the previous claims wherein the slatted support structure comprises a spring which is mounted such that the angle can change resiliently around the chosen angle and/or such that the position of the hinge can change resiliently with regard to the frame.
 7. A slatted support structure (100) according to any of the previous claims, wherein at least one of the hinges (110) comprises a first (161) and a second (162) spring,
 - wherein the first end (141) of the at least one slat (140) is connected with one side of the first spring (161) and wherein the opposite side of the first spring is connected with the first beam (111) at the slat mounting position (112), and wherein the second end (142) of the at least one slat (140) is connected with one side of the second spring (162) and wherein the opposite side of the second spring is connected with the second beam (115) at the slat mounting position (116).
 8. A slatted support structure (100) according to any of the previous claims wherein the frame (130) is subdivided in the length direction into subframes and wherein the subframes are connected such that they can rotate with regard to each other.
 9. A slatted support structure (100) according to any of the previous claims wherein the slatted support structure comprises a motor which is mounted such that the angle between the first beam and the second beam can be changed by actuating the positioning element (150).
 10. A slatted support structure (100) according to claim 9, the slatted support structure comprising a controller (170) having an interface (171) which allows remote control of the angle of at least one of the hinges (110).
 11. A slatted support structure (100) according to claim 9, the slatted support structure comprising a controller (170) and at least one sensor (172), wherein the at least one sensor (172) is adapted for measuring the pressure distribution and/or force distribution exercised by someone on the slatted support structure (100) or on a cover over the slatted support structure and for passing the pressure distribution and/or force distribution to the controller (170) which is adapted for controlling the height of the slats (140) based on the obtained pressure and/or force distribution from the at least one sensor (172).
 12. A method for controlling the height of slats in a slatted support structure in accordance with any of the claims 1 to 11, the method comprising:
 - adjusting the height of the slats base on measured body parameters,
 - and/or
 - obtaining the pressure distribution and/or force distribution exercised by someone on the slatted support structure (100) or on a cover over the slatted support structure,
 - controlling the height of the slats (140) based on the obtained pressure and/or force distribution.

13. A bed, chair or sitting bed comprising a slatted support structure in accordance with any of the claims 1 to 11.

Patentansprüche

1. Eine Lattentragestruktur (100) für ein Bett oder einen Stuhl, wobei die Lattentragestruktur einen Rahmen (130), mindestens ein Gelenk (110), und mindestens eine Latte (140) umfasst,

wobei der Rahmen (130) einen ersten (131) und einen zweiten Träger (132) in einer Längsrichtung der Lattentragestruktur umfasst, wobei die Längsrichtung orthogonal zur Lattenrichtung verläuft,

wobei jedes Scharnier (110) einen ersten Stützbalken (111) und einen zweiten Stützbalken (115) umfasst, wobei jeder Stützbalken (111, 115) eine Rahmenmontageposition (113, 117), eine Gelenkmontageposition (114, 118), und eine Lattenmontageposition (112, 116) umfasst, wobei der erste Stützbalken (111) und der zweite Stützbalken (115) anhand eines Verbindungselements (120) in den Gelenkmontagepositionen (114, 118) drehbar verbunden sind, und wobei der erste Stützbalken (111) in der Rahmenmontageposition (113) durch den ersten Träger (131) getragen wird, und der zweite Stützbalken (115) in der Rahmenmontageposition (117) durch den zweiten Träger (132) getragen wird, und wobei die

mindestens eine Latte (140) an einem ersten Ende (141) von dem ersten Stützbalken (111) in deren Lattenmontageposition (112) und an einem zweiten Ende (142) durch den zweiten Stützbalken (115) in deren Lattenmontageposition (116) getragen wird,

dadurch gekennzeichnet, dass das Verbindungselement (120) ein Positionierungselement (150) umfasst, das ein erstes Element (151) und ein zweites Element (152) umfasst, wobei das zweite Element (152) oder das erste Element (151) mit der mindestens einen Latte (140) oder

dem Rahmen (130) verbunden ist, und wobei das Positionierungselement (150) konfiguriert ist, sodass die Position des ersten Elements (151) in Bezug auf das zweite Element (152) geändert werden kann, sodass ein Winkel zwischen dem ersten Stützbalken (111) und dem zweiten Stützbalken (115) ausgewählt werden kann, und sodass der erste und zweite Stützbalken in einer festen Position im ausgewählten Winkel, oder in einer nachgiebigen Position befestigt werden können, in der sich der

Winkel nachgiebig um den gewählten Winkel herum ändern kann.

2. Eine Lattentragestruktur (100) nach Anspruch 1, wobei für die Stützbalken (111, 115) eines Gelenks die Rahmenmontageposition (113, 117) zwischen der Gelenkmontageposition (114, 118) und der Lattenmontageposition (112, 116) vorhanden ist.
3. Eine Lattentragestruktur (100) nach einem der vorstehenden Ansprüche, wobei das zweite Element (152) an dem Rahmen (130) oder Latte (140) montiert ist, und wobei das erste Element (151) an dem ersten Stützbalken (111) und/oder dem zweiten Stützbalken (115) in der Gelenkmontageposition (114, 118) montiert ist, oder wobei das erste Element (151) an dem Rahmen (130) oder Latte (140) montiert ist, und wobei das zweite Element (152) an dem ersten Stützbalken (111) und/oder dem zweiten Stützbalken (115) in der Gelenkmontageposition (114, 118) montiert ist.
4. Eine Lattentragestruktur (100) nach Anspruch 3, wobei das erste Element eine Spindelschraube ist, und wobei ein Loch (153) in eine der Latten (140) eingearbeitet ist, sodass es möglich ist, einen Schraubendreher (154) durch das Loch (153) hindurch zum Drehen der Spindelschraube (151) einzuführen.
5. Eine Lattentragestruktur (100) nach Anspruch 4, wobei die Lattentragestruktur einen Schraubendreher (154) zum Drehen der Spindelschraube (151) umfasst, wobei am Schaft (155) des Schraubendrehers (154) eine Skala (156) angezeigt wird.
6. Eine Lattentragestruktur (100) nach einem der vorstehenden Ansprüche, wobei die Lattentragestruktur eine Feder umfasst, die derart montiert ist, dass sich der Winkel nachgiebig um den ausgewählten Winkel ändern kann, und/oder sodass sich die Position des Gelenks nachgiebig in Bezug auf den Rahmen ändern kann.
7. Eine Lattentragestruktur (100) nach einem der vorstehenden Ansprüche, wobei mindestens eines der Gelenke (110) eine erste (161) und eine zweite (162) Feder umfasst,

wobei das erste Ende (141) der mindestens einen Latte (140) mit einer Seite der ersten Feder (161) verbunden ist, und wobei die gegenüberliegende Seite der ersten Feder mit dem ersten Stützbalken (111) in der Lattenmontageposition (112) verbunden ist, und wobei das zweite Ende (142) der mindestens einen Latte (140) mit einer Seite der zweiten Feder (162) verbunden ist, und wobei die gegenüberliegende Seite der zweiten Feder mit

dem zweiten Stützbalken (115) in der Lattenmontageposition (116) verbunden ist.

8. Eine Lattentragestruktur (100) nach einem der vorstehenden Ansprüche, wobei der Rahmen (130) in der Längsrichtung in Teilrahmen unterteilt ist, und wobei die Teilrahmen verbunden sind, sodass sie sich in Bezug zueinander drehen können. 5
9. Eine Lattentragestruktur (100) nach einem der vorstehenden Ansprüche, wobei die Lattentragestruktur einen Motor umfasst, der so montiert ist, dass der Winkel zwischen dem ersten Stützbalken und dem zweiten Stützbalken durch Betätigen des Positionierungselements (150) geändert werden kann. 10 15
10. Eine Lattentragestruktur (100) nach Anspruch 9, wobei die Lattentragestruktur eine Steuereinheit (170) umfasst, die eine Schnittstelle (171) aufweist, die eine Fernsteuerung des Winkels von mindestens einem der Gelenke (110) erlaubt. 20
11. Eine Lattentragestruktur (100) nach Anspruch 9, wobei die Lattentragestruktur eine Steuereinheit (170) und mindestens einen Sensor (172) umfasst, wobei der mindestens eine Sensor (172) zum Messen der Druckverteilung und/oder Kraftverteilung angepasst ist, die von jemandem auf die Lattentragestruktur (100) oder über die Lattentragestruktur auf eine Abdeckung ausgeübt wird, und zur Weitergabe der Druckverteilung und/oder Kraftverteilung an die Steuereinheit (170), die zum Steuern der Höhe der Latten (140) basierend auf der erhaltenen Druckverteilung und/oder Kraftverteilung von dem mindestens einen Sensor (172) angepasst ist. 25 30 35
12. Ein Verfahren zum Steuern der Höhe von Latten in einer Lattentragestruktur nach einem der Ansprüche 1 bis 11, wobei das Verfahren umfasst: 40
 - Anpassen der Höhe der Latten basierend auf gemessenen Körperparametern, und/oder
 - Erhalten der Druckverteilung und/oder Kraftverteilung, die von jemandem auf die Lattentragestruktur (100) oder über die Lattentragestruktur auf eine Abdeckung ausgeübt wird,
 - Steuern der Höhe der Latten (140) basierend auf der erhaltenen Druck- und/oder Kraftverteilung. 45 50
13. Ein Bett, Stuhl oder Sitzbett, umfassend eine Lattentragestruktur nach einem der Ansprüche 1 bis 11. 55

Revendications

1. Une structure support à lattes (100) pour un lit ou

une chaise, la structure support à lattes comprenant un cadre (130), au moins une charnière (110) et au moins une latte (140), le cadre (130) comprenant un premier (131) et un deuxième support (132) dans une direction de longueur de la structure support à lattes, la direction de longueur étant orthogonale à la direction de la latte, chaque charnière (110) comprenant un premier faisceau (111) et un deuxième faisceau (115), chaque faisceau (111, 115) comprenant une position de montage de cadre (113, 117), une position de montage de charnière (114, 118) et une position de montage de latte (112, 116), le premier faisceau (111) et le deuxième faisceau (115) étant reliés de manière rotative aux positions de montage de charnière (114, 118) au moyen d'un élément de liaison (120), et le premier faisceau (111) étant supporté à la position de montage de cadre (113) par le premier support (131) et le deuxième faisceau (115) étant supporté à la position de montage de cadre (117) par le deuxième support (132), et la ou les latte(s) (140) étant supportée à une première extrémité (141) par le premier faisceau (111) à la position de montage de latte (112) de celui-ci et à une deuxième extrémité (142) par le deuxième faisceau (115) à la position de montage de latte (116) de celui-ci, **caractérisée en ce que** l'élément de liaison (120) comprend un élément de positionnement (150) qui comprend un premier élément (151) et un deuxième élément (152) le deuxième élément (152) ou le premier élément (151) étant connecté avec la ou les latte(s) (140) ou le cadre (130) et l'élément de positionnement (150) étant conçu de telle sorte que la position du premier élément (151) par rapport au deuxième élément (152) peut être modifiée de telle sorte qu'un angle entre le premier faisceau (111) et le deuxième faisceau (115) peut être choisi et de telle sorte que les premier et deuxième faisceaux puissent être fixés à une position fixe à l'angle choisi ou à une position élastique dans laquelle l'angle peut changer élastiquement autour de l'angle choisi.

2. Une structure support à lattes (100) selon la revendication 1, dans laquelle pour les faisceaux (111, 115) d'une charnière la position de montage de cadre (113, 117) est présente entre la position de montage de charnière (114, 118) et la position de montage de latte (112, 116).

3. Une structure support à lattes (100) selon l'une quelconque des revendications précédentes, dans laquelle le deuxième élément (152) est monté sur le cadre (130) ou la latte (140) et dans laquelle le premier élément (151) est monté sur le premier faisceau (111) et/ou le deuxième faisceau (115) à la position de montage de charnière (114, 118), ou dans laquelle le premier élément (151) est monté sur le cadre (130) ou la latte (140) et dans laquelle le deuxième

élément (152) est monté sur le premier faisceau (111) et/ou le deuxième faisceau (115) à la position de montage de charnière (114, 118).

4. Une structure support à lattes (100) selon la revendication 3, dans laquelle le premier élément est une vis à fût et dans laquelle un trou (153) est réalisé dans l'une des lattes (140) de telle sorte qu'il est possible d'insérer un tournevis (154) à travers le trou (153) pour faire tourner la vis à fût (151). 5
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5. Une structure support à lattes (100) selon la revendication 4, la structure support à lattes comprenant un tournevis (154) pour faire tourner la vis à fût (151), dans laquelle une échelle (156) est indiquée sur un arbre (155) du tournevis (154). 15
6. Une structure support à lattes (100) selon l'une quelconque des revendications précédentes, dans laquelle la structure support à lattes comprend un ressort qui est monté de telle sorte que l'angle peut changer élastiquement autour de l'angle choisi et/ou de telle sorte que la position de la charnière peut changer élastiquement par rapport au cadre. 20
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7. Une structure support à lattes (100) selon l'une quelconque des revendications précédentes, dans laquelle au moins une des charnières (110) comprend un premier (161) et un deuxième (162) ressort, dans laquelle la première extrémité (141) de la ou des latte(s) (140) est reliée à un côté du premier ressort (161) et dans laquelle le côté opposé du premier ressort est relié au premier faisceau (111) à la position de montage de latte (112), et dans laquelle la deuxième extrémité (142) de la ou des latte(s) (140) est reliée à un côté du deuxième ressort (162) et dans laquelle le côté opposé du deuxième ressort est relié au deuxième faisceau (115) à la position de montage de latte (116). 30
35
40
8. Une structure support à lattes (100) selon l'une quelconque des revendications précédentes, dans laquelle le cadre (130) est subdivisé dans la direction de la longueur en sous-cadres et dans laquelle les sous-cadres sont reliés de telle sorte qu'ils peuvent tourner l'un par rapport à l'autre. 45
9. Une structure support à lattes (100) selon l'une quelconque des revendications précédentes, dans laquelle la structure support à lattes comprend un moteur qui est monté de telle sorte que l'angle entre le premier faisceau et le deuxième faisceau peut être changé en actionnant l'élément de positionnement (150). 50
55
10. Une structure support à lattes (100) selon la revendication 9, la structure support à lattes comprenant un contrôleur (170) ayant une interface (171) qui per-

met un contrôle à distance de l'angle d'au moins une des charnières (110).

11. Une structure support à lattes (100) selon la revendication 9, la structure support à lattes comprenant un contrôleur (170) et au moins un capteur (172), le au moins un capteur (172) étant conçu pour mesurer la répartition de pression et/ou la répartition de force exercée par quelqu'un sur la structure support à lattes (100) ou sur un couvercle sur la structure support à lattes et pour transmettre la répartition de pression et/ou de force au contrôleur (170) qui est conçu pour commander la hauteur des lattes (140) en fonction de la répartition de pression et/ou de force obtenue à partir du ou des capteurs (172).
12. Un procédé pour commander la hauteur des lattes dans une structure support à lattes conformément à l'une quelconque des revendications 1 à 11, le procédé comprenant : l'ajustement de la hauteur des lattes en fonction des paramètres corporels mesurés, et/ou l'obtention de la répartition de pression et/ou de force exercée par quelqu'un sur la structure support à lattes (100) ou sur un couvercle sur la structure support à lattes, et la commande de la hauteur des lattes (140) en fonction de la répartition de pression et/ou de force obtenue.
13. Un lit, une chaise ou un lit assis comprenant une structure support à lattes conformément à l'une quelconque des revendications 1 à 11.

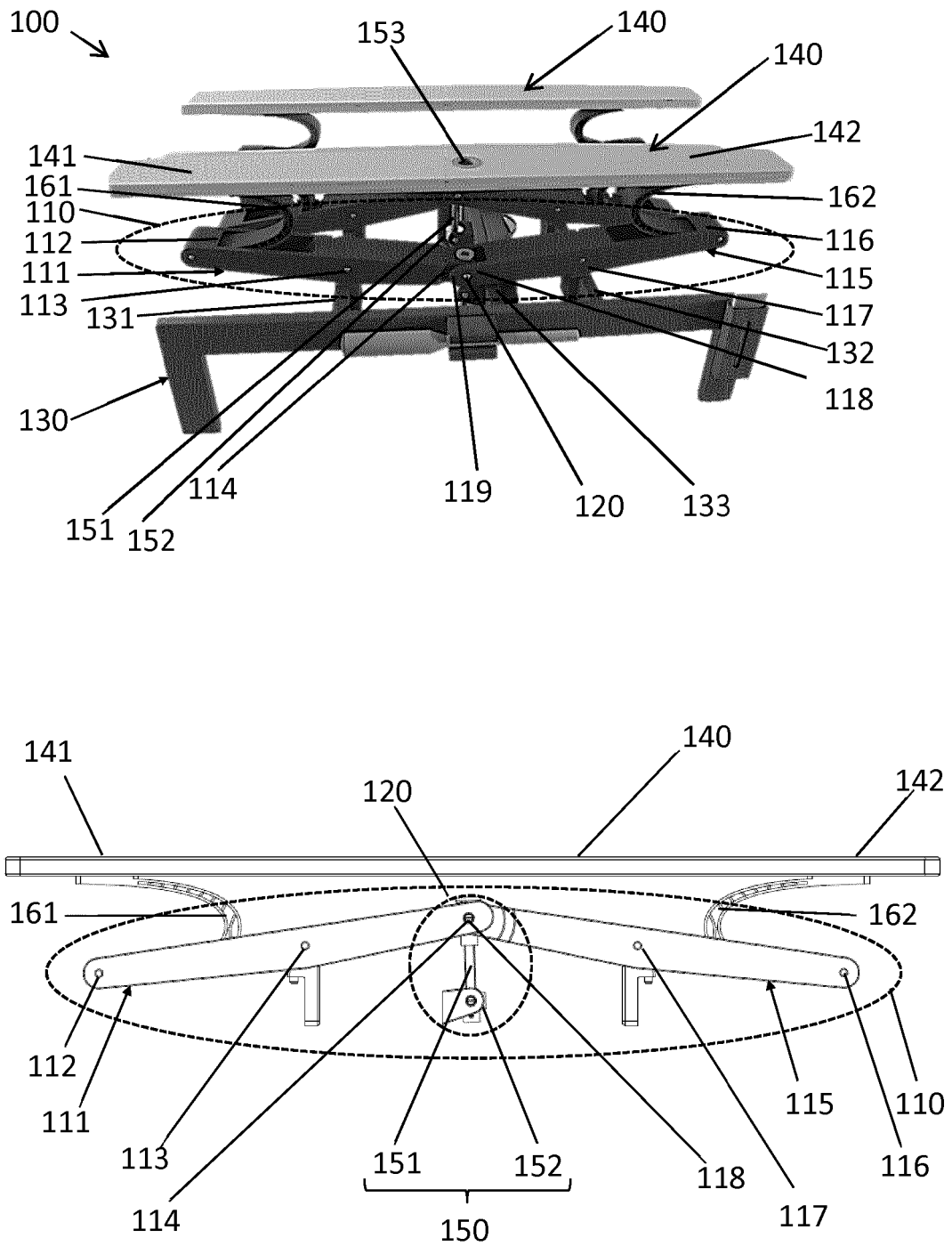


FIG. 1

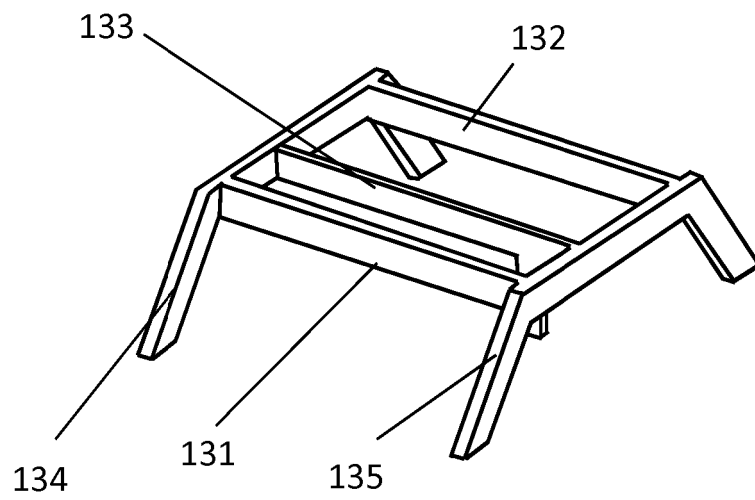


FIG. 2

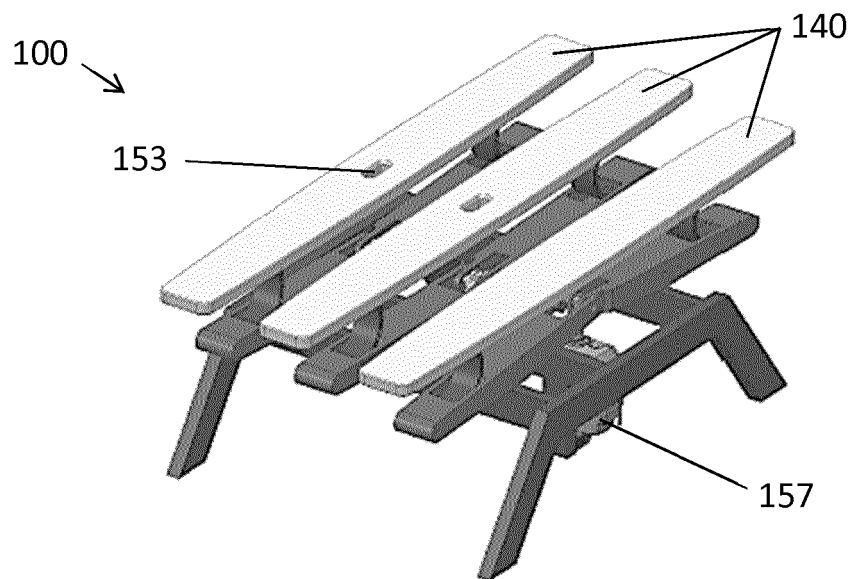


FIG. 3

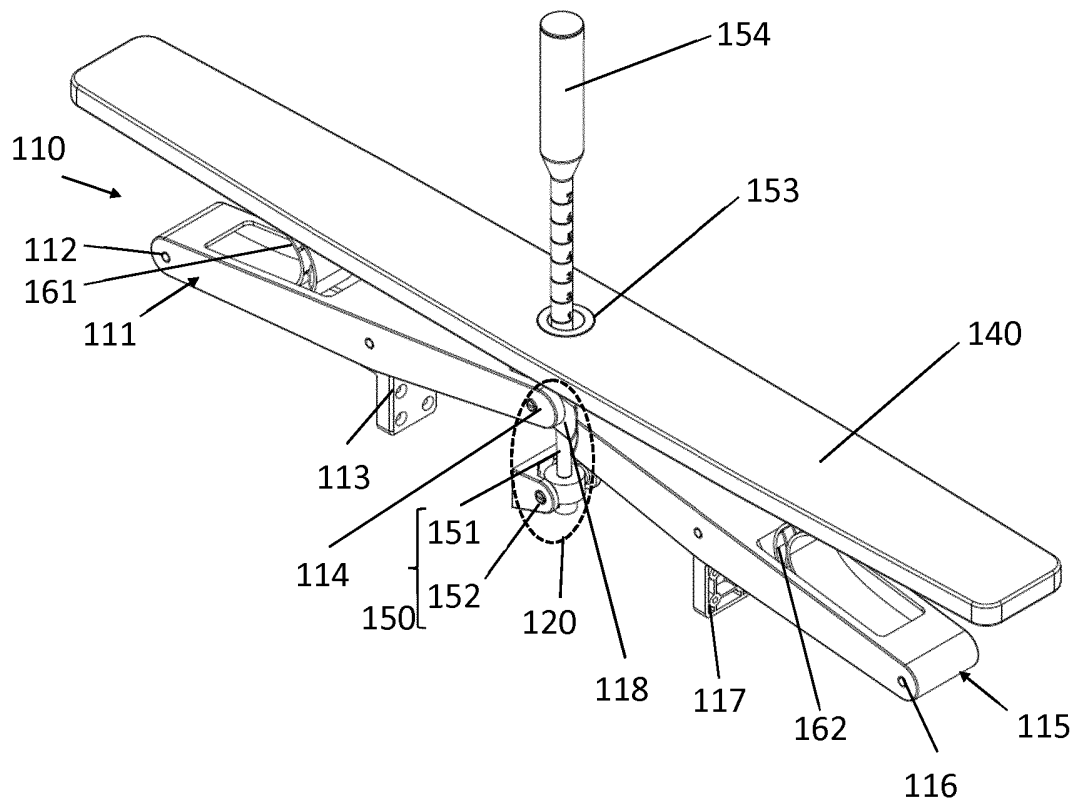


FIG. 4

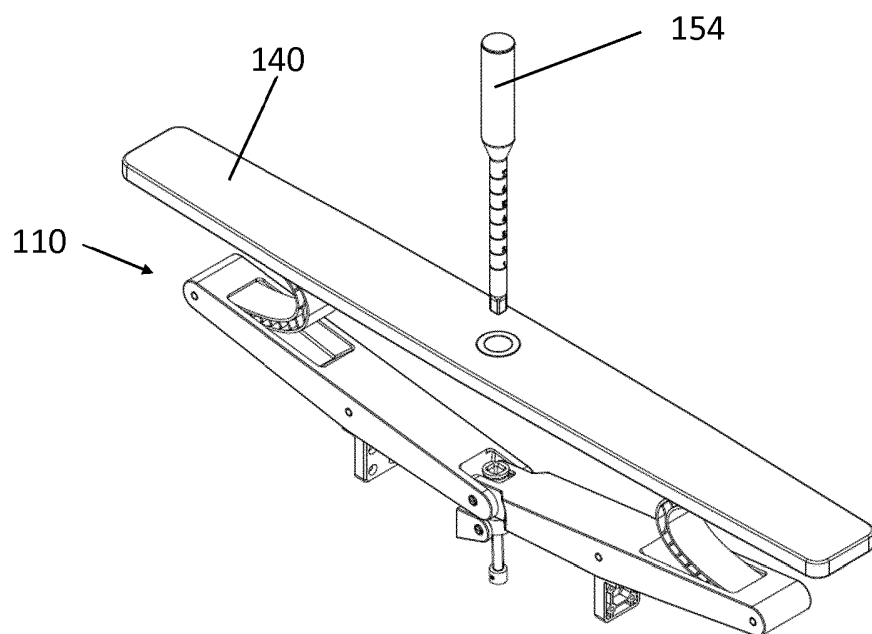


FIG. 5

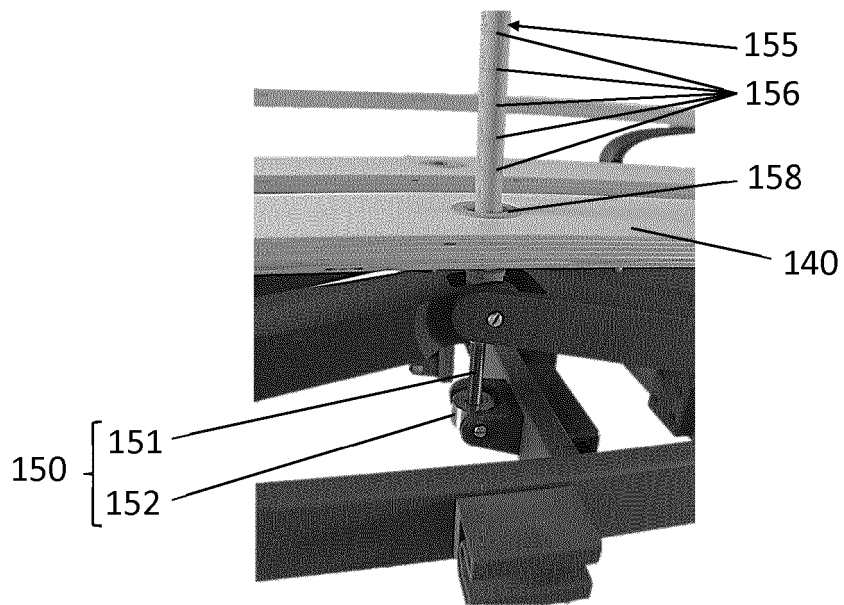


FIG. 6

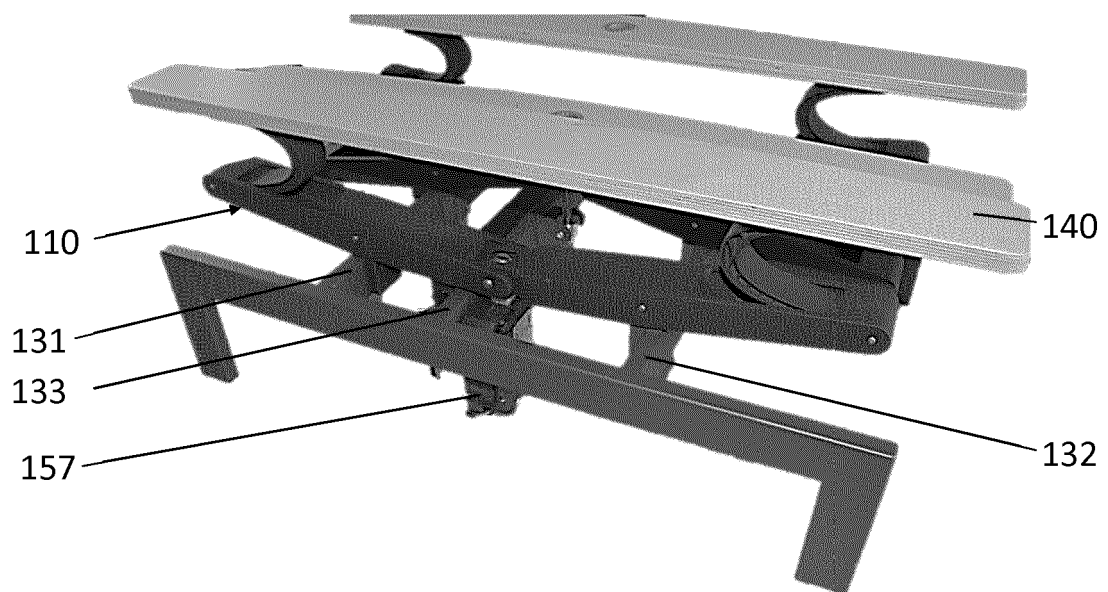


FIG. 7

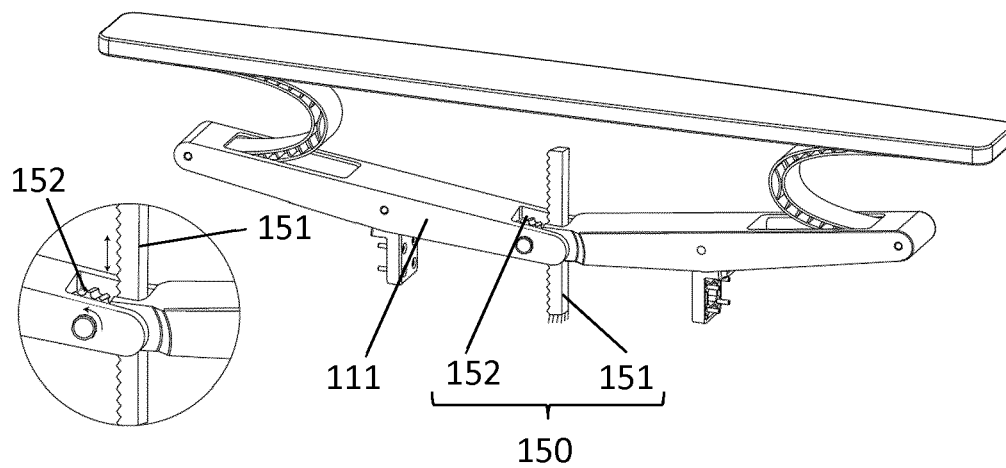


FIG. 8

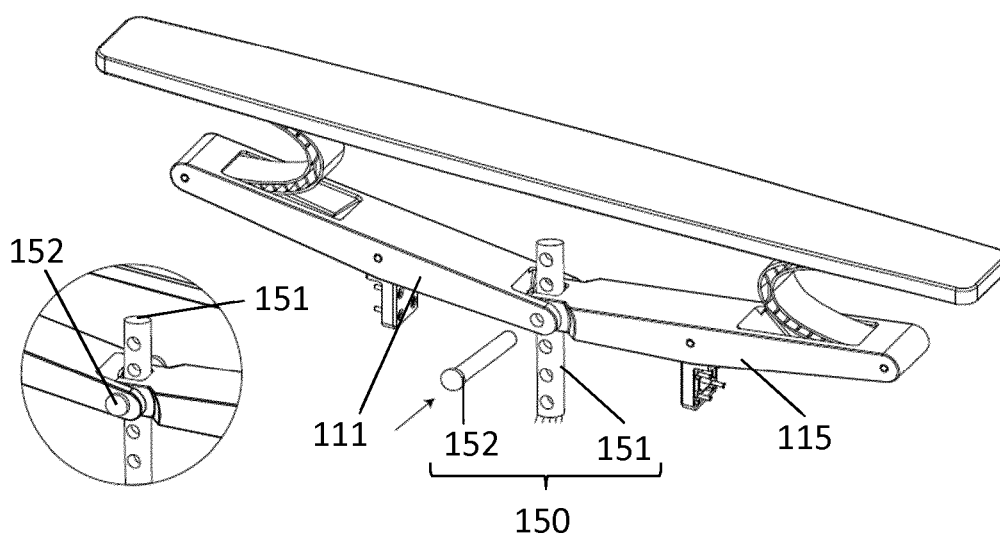


FIG. 9

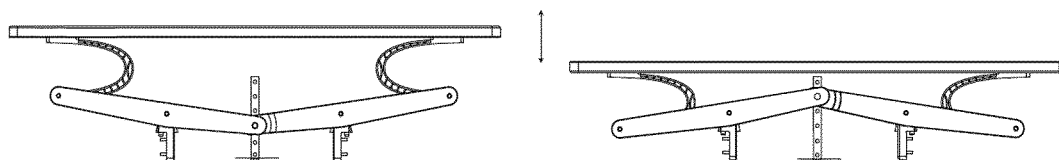


FIG. 10

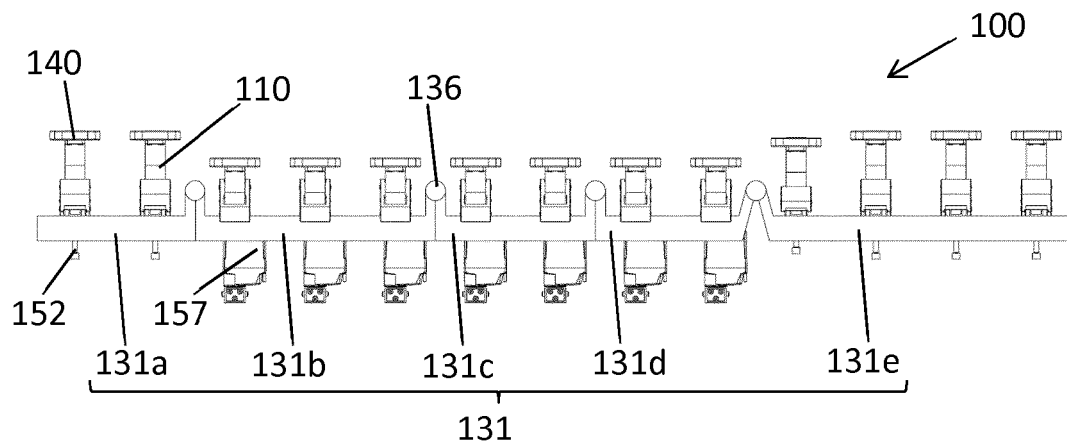


FIG. 11

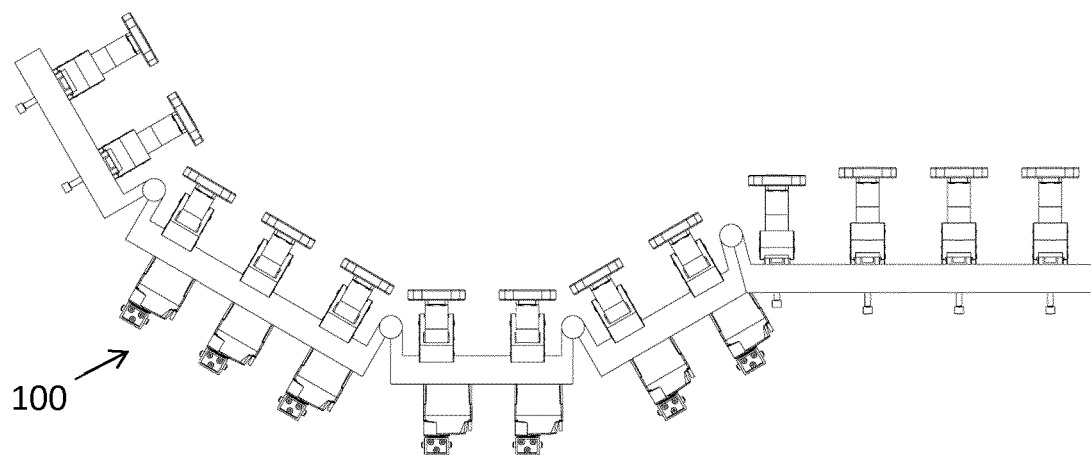


FIG. 12

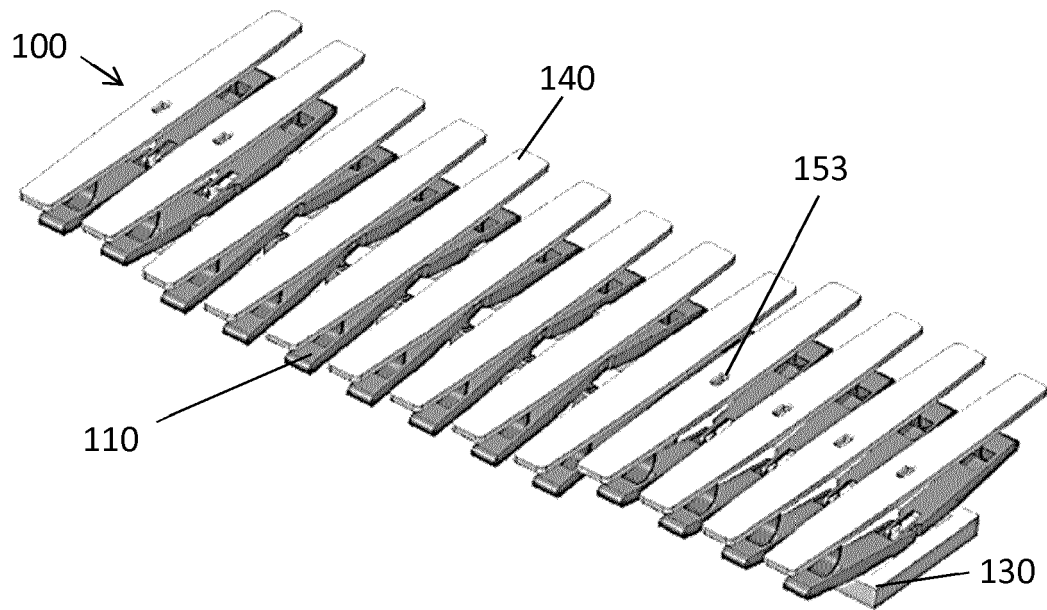


FIG. 13

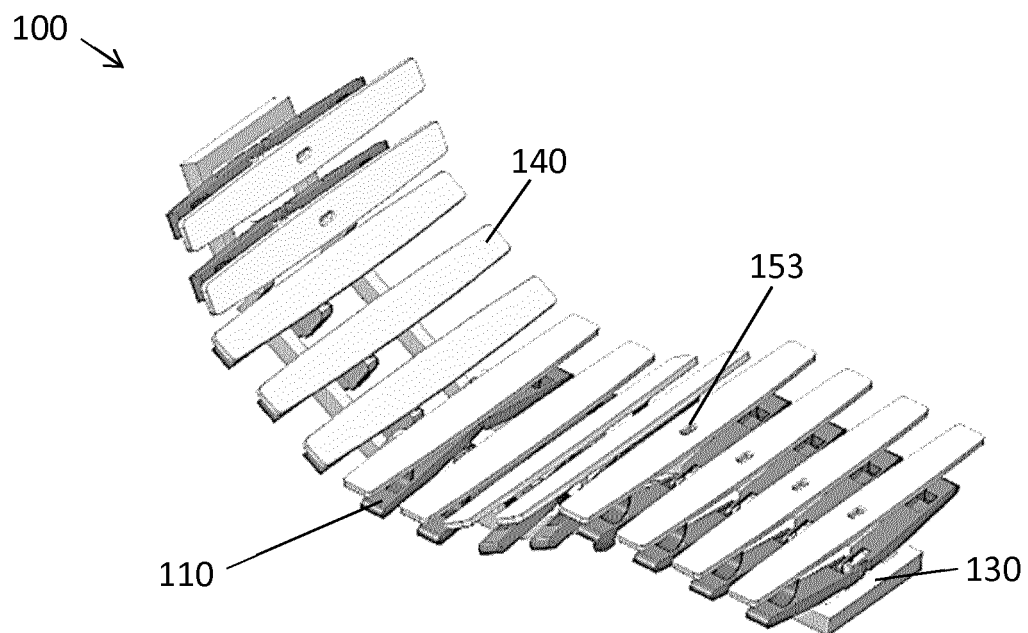


FIG. 14

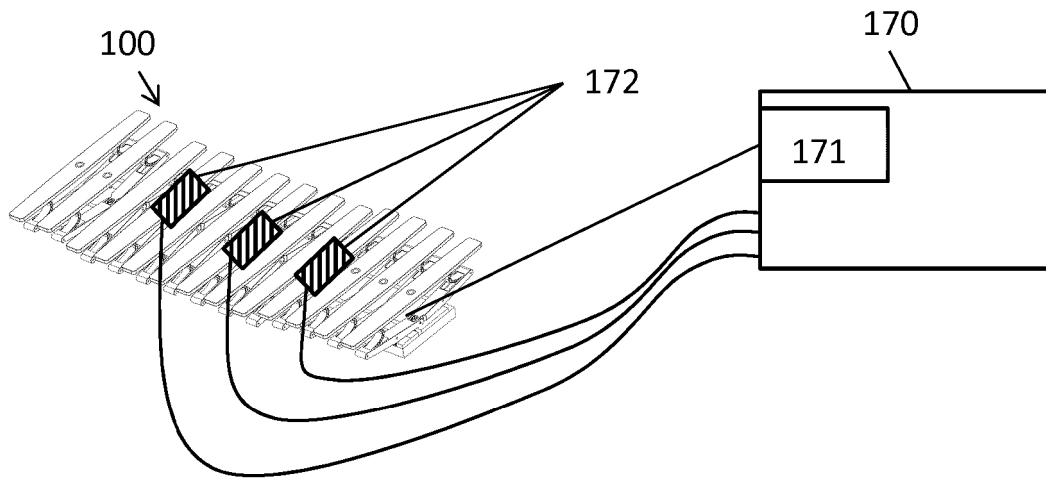


FIG. 15

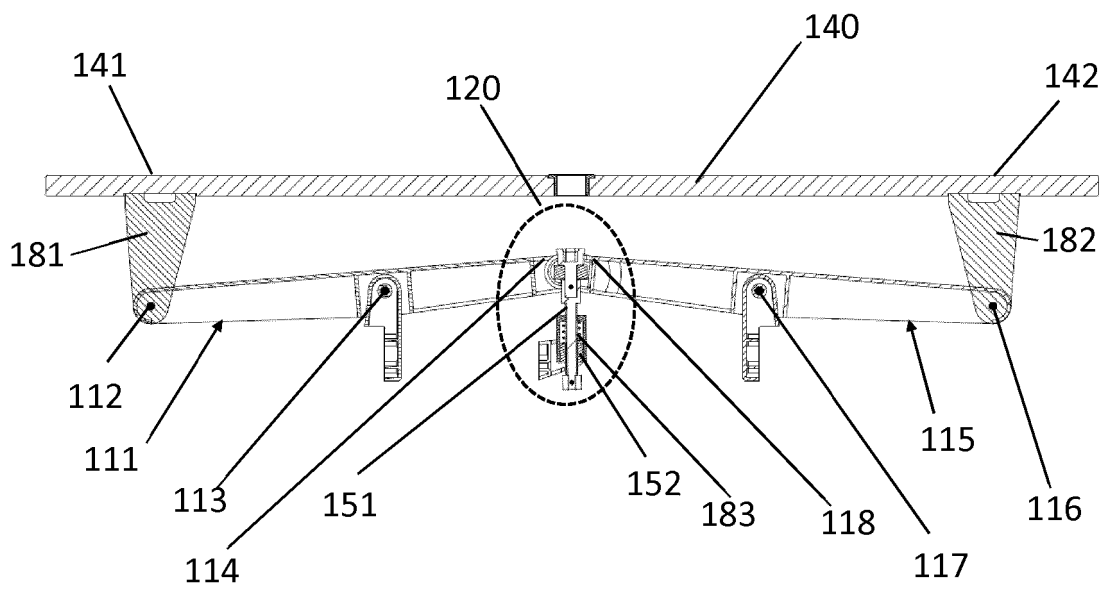


FIG. 16

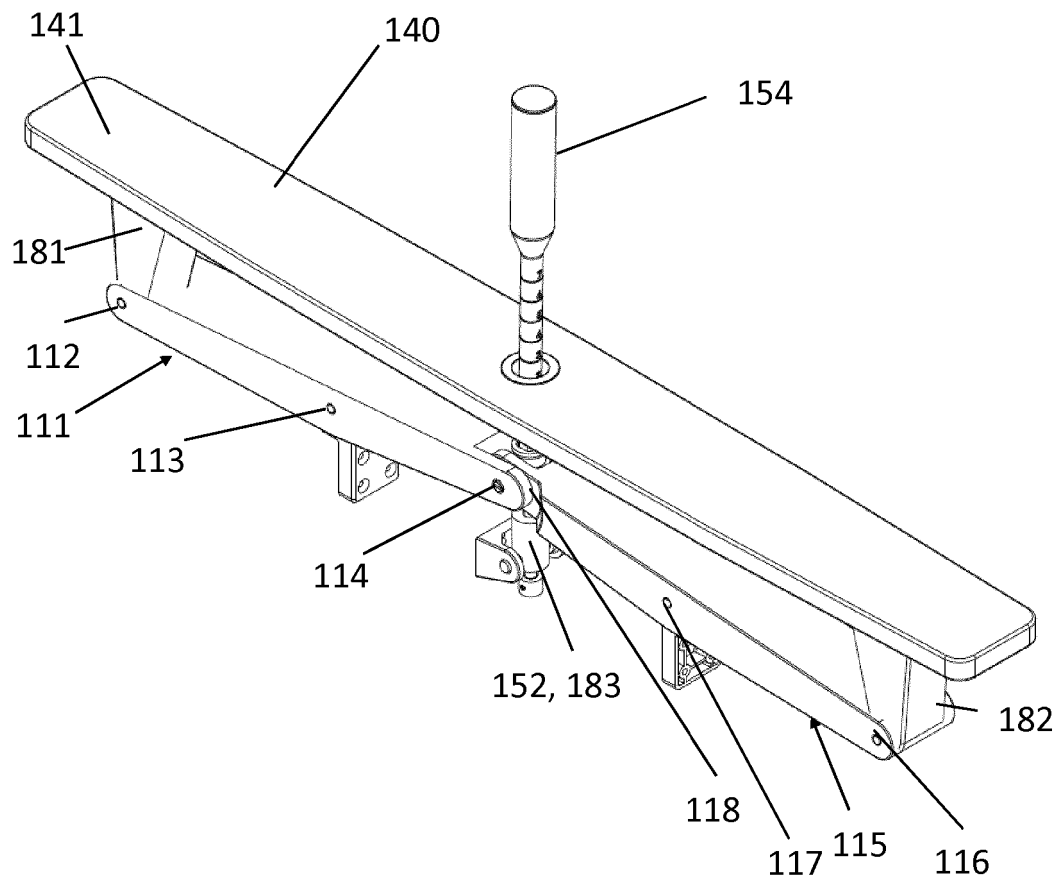


FIG. 17

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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