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(54) **FOLDING STRUCTURE FOR MATTRESSES**

KLAPPSTRUKTUR FÜR MATRATZEN

STRUCTURE PLIANTE POUR MATELAS

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(56) References cited:
CN-U- 204 580 370
GB-A- 587 921
JP-A- 2015 204 893
KR-B1- 101 353 076
US-A1- 2003 112 147
US-A1- 2009 307 843

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Description

[0001] The present invention relates to a folding structure comprising a folding bearing surface and a support structure suitably adapted to be detachably arranged on a mattress.

[0002] Bed assemblies including means for hinging a mattress in order to tilt at least one portion thereof and arrange it in a desired position are currently known. A conventional option for tilting at least one portion of a mattress is through a mechanism that is part of the base where the mattress rests, or through an internal mechanism with structures hinging the mattress from the inside.

[0003] However, these are mechanisms that are fixed to the mattress structure such that they are not practical, especially in the case where it is necessary to replace the mattress with another.

[0004] The document JP 2015 204893 A discloses a folding structure for a mattress according to the state of the art.

[0005] In order to try to solve this problem, a simple and very efficient folding structure has been devised, which is intended to be placed on a conventional mattress so that it can be easily, comfortably and quickly removed from the mattress at any time by the user. With the system that is described herinbelow, it is possible to change the characteristics of a mattress, for example enlarging its surface, or even closing it so as to form a barrier in order to prevent a person from falling to the ground. This possibility is advantageously maintained even when the mattress has to be replaced by another one, although it has characteristics different from the previous one.

[0006] The folding structure provided herein is adapted to be arranged in a conventional mattress and it comprises a support surface that is adapted to support a person's head, to support the person's feet or even to place objects thereon, thus acting as a bedside table. Other applications, such as lateral tilting of the user's body are however not ruled out. This particular application is very useful in cases of sick people bedridden on a mattress for a long time, since the position of the person on her/his sides can be changed, avoiding to be always lying on the back uniformly.

[0007] For this purpose, the bearing surface may be formed of a substantially rigid plane or by a perimetric structure at least substantially surrounding a flexible element, such as fabric, etc. The bearing surface comprises a mattress or cushion portion, especially when intended to rest a person's head or for supporting person's feet. The bearing surface is also configured, for example, to receive a portion of a supplementary mattress intended to be placed on a main mattress.

[0008] The present folding structure further comprises a support structure. This support structure has at least one hinge area to the support surface. The support structure is suitably configured to fit externally to and removably from a mattress of any type.

[0009] In a preferred, but not limiting, example, the bearing surface is hinged to two support structures. In some cases, it may be desirable to have a number of folding structures on a mattress, for example to have two headboards, two footboards, two bedside tables, etc. In this case, the hinge area of the support structure with the bearing surface could be shared so that two adjacent support structures have a common hinge area. Cases where a number of fixed hinge areas are provided in the same support structure to be able to hinge the bearing surface in a proper position as required or desired are not ruled out. Cases where variable hinge areas are provided are also not ruled out. This case will be described further below.

[0010] In some cases, it may be provided that the support structure has a first dimension which is variable so that the folding structure can suitably be adapted to the thickness of a mattress. Said first dimension of the support structure could, for example, be a separation distance between two clamping elements adapted for inserting a mattress therebetween. By making the relative position of these two clamping elements variable so that the separation distance can be modified, it is possible, on the one hand, for the support structure to be advantageously adapted to any commercially available mattress and, on the other hand, for the folding structure to be capable of being applied to and removed from the mattress in a quick, easy and comfortable way by the user.

[0011] In this regard, a pressing element, for example formed by the two above mentioned clamping elements, adapted to reduce the first dimension, may be provided in order to suitably adjust the support structure to the thickness of the mattress so that the folding structure is mounted securely attached to the mattress in a use position.

[0012] As mentioned above, in some cases a variable hinge area may be provided.

[0013] Thus, the support structure may have a second dimension that is variable so as to change the position of the hinge area of the support structure with the bearing surface. That is, the second dimension of the support structure may be a separation distance between the hinge area and one edge of the mattress. Thus, the hinge area may, for example, be arranged proximate an edge of the mattress or remote therefrom a distance as desired. This would in some cases allow the bearing surface to extend beyond the contour of the mattress, if required. In any case, causing the relative position of the hinge area and the edge of the mattress to be variable, it is possible for the support structure to be folded in different positions on the plane of the mattress.

[0014] The support structure is formed by one or more L-shaped section members adapted to fit the thickness of a mattress. It is also envisaged that the support structure has a lower portion adapted to be inserted into a bed base, canape or the like. In this particular case, the support structure may be formed by at least one I-shaped section member with a bottom portion suitable for being

inserted into a bed base, canape or the like, as stated above.

[0015] In one example, the support structure comprises two of said section members, which can be joined to each other by at least one cross member. It is envisaged that the section members may be joined together by a surface such as, for example, a flat surface.

[0016] It is preferred that the bearing surface is allowed to be rotated a wide range of appropriate angles. In particular, it is preferred to use hinge areas including hinge members which enable the bearing surface or surfaces to be arranged in a multiplicity of angular positions, and preferably at least in one or more substantially horizontal positions, so as to extend the surface of a mattress at least laterally and/or in an at least substantially vertical position so that the bearing surface acts as a barrier or protection element closing at least one portion of the perimeter of the mattress, preventing babies, children, elderly, sick persons, etc. from falling to the ground. Hinge areas can be used including hinge members enabling the bearing surface or surfaces to be arranged in a multiplicity of angular positions freely or in predefined angular positions.

[0017] In one example, motor means may be provided. These motor means may comprise an electric motor or a motor of any other type suitable to drive the bearing surface causing it to be rotated in the hinge area relative to the bearing surface. A control module associated with said motor means may also be provided. The motor means can be controlled by the user through this control module, turning them on to rotate either the head, feet, side bearing surface, etc. around the hinge area with respect to the support structure, and turning them off when the support surface has reached a desired angle, for example tilted, horizontally extended, vertically extended, etc. The control module may include programmable means for actuating the bearing surface at a particular time, for example for bringing the head, feet or any other part of the user's body back to a fully stretched body position after a determined amount of time has elapsed from a tilted position. With this feature, for example, a user is advantageously prevented from falling asleep in an inadequate position, such as with the head, feet, etc. excessively tilted. This control module can be arranged, as appropriate, at a distance away from the mattress and the folding structure, and it could be operated by the user remotely. Remote actuation for rotating the bearing surface relative to the support structure could be performed through an application by a mobile phone, tablet, laptop, etc. These options may be advantageous in medical, caregiving environments, etc.

[0018] With the folding structure that has been described herein, the characteristics of a mattress of any kind, whether it is conventional, existing on the market, or another, can be changed in a very comfortable, easy, and fast way, providing great comfort to the user. With the present folding structure, a mattress of any type can be converted into a mattress with at least one reclining surface (headboard, footboard, wing) the usable area of which can be extended. With the present folding structure, a mattress of any type can be also made to include a protective barrier closing at least one portion of the perimeter thereof in order to prevent a person from falling to the ground.

[0019] The folding structure that has been described herein is external to the mattress and its configuration allows to hinge a plane of the mattress at any location of the perimeter thereof, that is, both from the perimeter towards the interior and from the perimeter towards the outside. This feature is possible regardless of where the mattress is placed.

[0020] The folding structure that has been described above can be applied to any type of mattress available on the market, regardless of whether an additional topper mattress is provided. As it is a compact, simple, removable and therefore portable and cost effective structure, it represents an extremely useful innovation on a concept for rest.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] A non-limiting example of a folding structure for mattresses according to the present invention is described below with reference to the accompanying drawings.

[0022] In said drawings:

Figure 1 is a perspective view of one particular example of two folding structures applied on a mattress;

Figure 2 is a perspective view of the folding structures in figure 1, shown outside the mattress, for a better understanding,

Figure 3 is a perspective view of a folding structure according to figure 1 and figure 2, where it can be seen how the folding structure can be varied to fit the thickness of a mattress; and

Figures 4, 5 and 6 are schematic side elevational views of the example of the folding structure applied on a mattress illustrating the bearing surface in different angular positions and with the hinge area also shown in different positions.

DETAILED DESCRIPTION OF ONE EMBODIMENT

[0023] In the non-limiting example shown in figures 1 to 6, one or several folding structures 100 are illustrated. The folding structures 100 shown are intended to be applied in a conventional mattress 500, shown in figure 1 and in figures 4, 5 and 6, so that they can be removed therefrom.

[0024] The folding structures 100 shown by way of an example comprise a bearing surface 200 which is intended to place a person's head to rest (not shown). Other applications are also possible, such as for supporting person's feet or for placing several objects on said support

surface 200, as if it were a removable bedside table.

[0025] The bearing surface 200 of the folding structure 100 is formed by a substantially rigid plane, in the non-limiting example shown in the figures. In said example, the bearing surface 200, which is intended to place a person's head to rest, i.e. to act as a headboard, is formed by a substantially rigid plane intended to receive a part of a topper mattress (not shown). The bearing surface 200 could, however, be formed by a perimetric structure surrounding an at least substantially flexible member, such as fabric, etc.

[0026] The folding structure 100 that is shown further includes a support structure 300. The support structure 300 serves the purpose of removably coupling the folding structure 100 to the mattress 500. The support structure 300 comprises two pairs of brackets. Each pair is formed by an upper bracket 305 and a lower bracket 310, which are described below.

[0027] Although not shown in the figures, the support structure 300 could include one or multiple brackets to join the brackets together and provide greater stability, especially if the spacing between said brackets is large. It is envisaged that the section members may be joined together even by a flat surface.

[0028] The upper bracket 305, in each pair of brackets, includes a substantially horizontal section in one section of which a hinge zone 400 with the support surface 200 is formed. The bearing surface 200 rotates about an axis passing through the hinge area 400 of each upper bracket 305. In some particular instances, it is possible to include several fixed hinge areas 400 in a same support structure 300 such that the bearing surface 200 is allowed to pivot in a suitable position.

[0029] The substantially horizontal portion of the upper bracket 305 is intended to be supported on the upper surface of the mattress 500. The upper bracket 305 in each pair of brackets further includes a substantially vertical section arranged to form an angle of approximately 90° to the substantially horizontal section.

[0030] The example shown in figures 1, 2 and 3, the hinge area 400 is in a fixed position. However, such position may be variable, as shown in figures 4, 5 and 6. That is, a variable dimension could be defined so as to change the position of the hinge area 400 of the support structure 300 with the bearing surface 200. Said dimension of the support structure 300 could be a separation distance between the hinge area 400 and one edge 505 of the mattress 500. By way of an example, the hinge area 400 could be arranged proximate the edge 505 of the mattress 500 or at a distance away from it as desired. This could allow the bearing surface 200 to protrude from the contour of the mattress 500, if necessary.

[0031] Referring to figures 4, 5 and 6 of the drawings, it should be particularly emphasised that, depending on the position of the hinge area 400, the folding structure 100 may or may not allow the surface of the mattress 500 to be extended. Thus, as shown in figure 4, the hinge portion 400 is in a remote position away from the edge 505 of the mattress 500 towards the inside thereof at a distance equal to or substantially longer than one dimension of the bearing surface 200. Thus, by completely folding the bearing surface 200 on the mattress 500, said bearing surface 200 does not protrude therefrom, that is, it does not reach the edge 505 of the mattress 500. However, as it can be seen in the case of the example shown in figure 6, the hinge area 400 is in a position outside the contour of the mattress 500, or even in a position proximate the edge 505 of the mattress 500 but at a distance substantially less than one dimension of the bearing surface 200. Thus, by completely folding the bearing surface 200 on the mattress 500, as shown in figure 6, said bearing surface 200 protrudes therefrom, that is, it exceeds the edge 505 of the mattress 500 by a predetermined distance. In this way, the useful surface of the mattress 500 is expanded.

[0032] The lower bracket 310, in each pair of brackets, includes a substantially horizontal portion intended to be below the lower surface of the mattress 500. This substantially horizontal portion could be adapted to be inserted into a bed base, canape or the like, where necessary. The lower bracket 310, in each pair of brackets, further includes a substantially vertical section arranged forming an angle of approximately 90° to the substantially horizontal section.

[0033] With particular reference to figure 3 of the drawings, in each pair of brackets, the substantially vertical section of the upper bracket 305 and the substantially vertical section of the lower bracket 310 are configured such that they can be joined to each other at different portions thereof. This feature allows a dimension, corresponding in this case to the spacing between the substantially horizontal opposed sections of the same pair of brackets 305, 310, to be varied so that the folding structure 100 can conveniently be adapted to the thickness of the mattress 500. By making the relative position of each pair of brackets 305, 310 capable of being varied such that the separation distance can be modified, it is possible for the support structure 100 to be adapted to any type of mattress available on the market and can be removed from the mattress 500 in a quick, easy and comfortable way by the user. Although not shown, a pressure member could be included to reduce the spacing between the substantially horizontal opposed sections of the same pair of brackets 305, 310. This pressure member would enable the support structure 300 to be adjusted in a controlled manner to the thickness of the mattress 500 so that the folding structure 100 is mounted securely in the mattress 500 in the position of use.

[0034] The hinge area 400 of the support structure 300 allows the support surface 200 to be rotated at an appropriate angle within a range of possible angles, such as those represented by way of an example in figures 4, 5 and 6 of the drawings. Thus, the bearing surface 200 may be slightly rotated, as shown in figure 4, to slightly tilt the user's head to rest normally in the bed. Although in the illustrated example, the bearing surface 200 acts

as a headboard, the invention is not limited to the inclination of the user's head but could be used to alternatively tilt other parts of the body such as the legs, the side, etc. The bearing surface 200 can be rotated to be arranged in a more vertical position, as shown in figure 5, to further tilt the user's head, e.g. for reading or watching TV on the bed. However, the bearing surface 200 is fully rotatable, as shown in figure 5, so as to be fully horizontal in order to extend the surface of the mattress 500. In addition to the folding positions of the bearing surface 200 shown by way of an example in figures 4, 5 and 6 of the drawings, many other different angular positions of the bearing surface 200 are possible including an at least substantially vertical position so that the bearing surface 200 acts as a barrier or protective element closing at least one portion of the perimeter of mattress 500. This allows to prevent babies, children, elderly, sick people, etc. to accidentally fall to the ground.

[0035] In the example shown in figure 1, two foldable structures 100 are shown applied to the same mattress 500. Each folding structure 100 has its own bearing surface 200 hinged to two corresponding support structures 300, each formed by two pairs of brackets. With such configuration, a mattress 500 that is provided with two independent headboards is obtained. However, the application of the present structure as a footboard, as a bedside table, etc. on the same mattress is not ruled out. The case where two bearing surfaces 200 share a support structure 300, i.e., the case where three pairs of brackets are used for two adjacent support surfaces 200, with the central pair of brackets being shared, is not ruled out.

[0036] The non-limiting example shown in figures 1-6 of the drawings allows to have a reclining surface 200 in a same mattress 500, which can extend the effective surface of the mattress 500 if required, to provide at least one tilted surface for tilting the head, the feet or other part of the user's body, or even to provide a protective barrier by closing at least one portion of the perimeter of the mattress 500 preventing a person from falling to the ground. This is achieved with a structure 100 which is comfortable, easy and quick to use, with a very simple and effective configuration which can be removed from the mattress 500 easily, conveniently and quickly at any time by the user.

[0037] Although only one example embodiment of a folding structure for mattresses has been disclosed herein, other modifications of said folding structure are possible for those skilled in the art. The scope of the present disclosure should not be therefore limited by the particular example described herein, but should be determined only by a fair reading of the claims that follow.

Claims

1. A folding structure for mattresses (100), the folding structure (100) comprising:

- a bearing surface (200) with a mattress or cushion portion intended to rest a person's head whereby the bearing surface (200) is configured to receive a portion of a supplementary mattress intended to be placed on a mattress (500), and
- a support structure (300) having at least one hinge area (400) with the bearing surface (200), the support structure (300) being configured for removably coupling the folding structure (100) to a mattress (500) allowing to hinge a plane of the mattress (500) at any location of the perimeter thereof,

characterized in that the support structure (300) comprises two pairs of brackets, each formed by:

- an upper bracket (305) including
  a substantially horizontal section intended to be supported on an upper surface of the mattress (500) and having the hinge area (400) so that the bearing surface (200) can be rotated about an axis passing through the hinge area (400); and
  - a substantially vertical section arranged to form an angle of approximately 90° to the substantially horizontal section,

and

- a lower bracket (310) including:
  a substantially horizontal portion intended to be below a lower surface of the mattress (500); and
  - a substantially vertical section arranged forming an angle of approximately 90° to the substantially horizontal section;

whereby the hinge area (400) is arranged in a remote position away from an edge (505) of the mattress (500) towards an inside thereof at a distance equal to or substantially longer than one dimension of the bearing surface (200).

2. The structure (100) according to claim 1, wherein the support structure (300) has a first dimension which is variable to fit the thickness of a mattress (500).

3. The structure (100) according to claim 2, wherein the support structure (300) has a second dimension which is variable to change the position of the hinge area (400).

4. Structure (100) according to any of the preceding claims, wherein the bearing surface (200) is formed by a substantially rigid plane.

5. Structure (100) according to any of the preceding claims, wherein the bearing surface (200) is formed by a perimetric structure surrounding an at least substantially flexible element.

6. Structure (100) according to any of the preceding claims, wherein it includes a pressing element intended for reducing said first dimension to adjust the support structure (300) to the thickness of the mattress (500).

7. Structure (100) according to any of the preceding claims, wherein the support structure (300) comprises two section members.

8. Structure (100) according to claim 7, wherein said section members of the support structure (300) are connected by at least one cross member.

9. Structure (100) according to any of the preceding claims, wherein the bearing surface (200) is adapted to be arranged in a substantially horizontal position to at least laterally extend the surface of a mattress (500).

10. Structure (100) according to any one of the preceding claims, wherein the bearing surface (200) is adapted to be arranged in a substantially vertical position to act as a protective element.

11. Structure (100) according to any of the preceding claims, wherein it further includes motor means for driving the bearing surface (200) causing it to be rotated in the hinge area (400) with respect to the bearing surface (200).

Patentansprüche

1. Eine Faltstruktur für Matratzen (100), wobei die Faltstruktur (100) Folgendes umfasst:

    - eine Auflagefläche (200) mit einem Matratzen- oder Polsterabschnitt, der dazu bestimmt ist, den Kopf einer Person zu stützen, wobei die Auflagefläche (200) dazu konfiguriert ist, einen Abschnitt einer Zusatzmatratze aufzunehmen, der dazu bestimmt ist, auf einer Matratze (500) platziert zu werden, und
    - eine Stützstruktur (300), die mindestens einen Scharnierbereich (400) mit der Auflagefläche (200) hat, wobei die Stützstruktur (300) dazu konfiguriert ist, die Faltstruktur (100) lösbar an eine Matratze (500) zu koppeln, was es ermöglicht, eine Ebene der Matratze (500) an einer beliebigen Stelle ihres Umfangs gelenkig zu verbinden,

    dadurch gekennzeichnet, dass die Stützstruktur (300) zwei Paare von Halterungen umfasst, die jeweils gebildet werden durch:

        - eine obere Halterung (305), die Folgendes beinhaltet:
        einen im Wesentlichen horizontalen Abschnitt, der dazu bestimmt ist, auf einer oberen Fläche der Matratze (500) gestützt zu werden und der den Scharnierbereich (400) hat, so dass die Auflagefläche (200) um eine Achse gedreht werden kann, die durch den Scharnierbereich (400) verläuft; und

            - einen im Wesentlichen vertikalen Abschnitt, der so angeordnet ist, dass er einen Winkel von etwa 90° zu dem im Wesentlichen horizontalen Abschnitt bildet,

    und

        - eine untere Halterung (310), die Folgendes beinhaltet:
        einen im Wesentlichen horizontalen Abschnitt, der dazu bestimmt ist, sich unter einer unteren Fläche der Matratze (500) zu befinden; und

            - einen im Wesentlichen vertikalen Abschnitt, der so angeordnet ist, dass er einen Winkel von etwa 90° zu dem im Wesentlichen horizontalen Abschnitt bildet;

    wobei der Scharnierbereich (400) in einer entfernten Position entfernt von einer Kante (505) der Matratze (500) in Richtung einer Innenseite davon in einem Abstand angeordnet ist, der gleich oder im Wesentlichen länger als eine Abmessung der Auflagefläche (200) ist.

2. Die Struktur (100) nach Anspruch 1, wobei die Stützstruktur (300) eine erste Abmessung hat, die variabel ist, so dass sie an die Dicke einer Matratze (500) angepasst werden kann.

3. Die Struktur (100) nach Anspruch 2, wobei die Stützstruktur (300) eine zweite Abmessung hat, die variabel ist, so dass die Position des Scharnierbereichs (400) geändert werden kann.

4. Struktur (100) nach einem der vorhergehenden Ansprüche, wobei die Auflagefläche (200) durch eine im Wesentlichen starre Ebene gebildet ist.

5. Struktur (100) nach einem der vorhergehenden Ansprüche, wobei die Auflagefläche (200) durch eine perimetrische Struktur gebildet ist, die ein zumindest im Wesentlichen flexibles Element umgibt.

6. Struktur (100) nach einem der vorhergehenden Ansprüche, wobei sie ein Druckelement umfasst, das dazu bestimmt ist, die erste Abmessung zu verringern, um die Stützstruktur (300) an die Dicke der Matratze (500) anzupassen.

7. Struktur (100) nach einem der vorhergehenden Ansprüche, wobei die Stützstruktur (300) zwei Profilelemente umfasst.

8. Struktur (100) nach Anspruch 7, wobei die Profilelemente der Stützstruktur (300) durch mindestens ein Querelement verbunden sind.

9. Struktur (100) nach einem der vorhergehenden Ansprüche, wobei die Auflagefläche (200) angepasst ist, um in einer im Wesentlichen horizontalen Position angeordnet zu werden, um die Oberfläche einer Matratze (500) zumindest seitlich zu verlängern.

10. Struktur (100) nach einem der vorhergehenden Ansprüche, wobei die Auflagefläche (200) angepasst ist, in einer im Wesentlichen vertikalen Position angeordnet zu werden, um als Schutzelement zu wirken.

11. Struktur (100) nach einem der vorhergehenden Ansprüche, wobei sie ferner eine Motoreinrichtung zum Antreiben der Auflagefläche (200) hat, was bewirkt, dass sie in dem Scharnierbereich (400) in Bezug auf die Auflagefläche (200) gedreht wird.

Revendications

1. Une structure pliante pour matelas (100), la structure pliante (100) comprenant :

    - une surface d'appui (200) avec une partie de matelas ou de coussin destinée à reposer la tête d'une personne, où la surface d'appui (200) est configurée pour recevoir une partie d'un matelas supplémentaire destiné à être placé sur un matelas (500), et
    - une structure de support (300) ayant au moins une zone de charnière (400) avec la surface d'appui (200), la structure de support (300) étant configurée pour coupler de manière amovible la structure pliante (100) à un matelas (500) permettant d'articuler un plan du matelas (500) à n'importe quel emplacement du périmètre de celui-ci,

    caractérisée en ce que la structure de support (300) comprend deux paires de supports, chacun formé par :

    - un support supérieur (305) comprenant une section sensiblement horizontale destinée à être supportée sur une surface supérieure du matelas (500) et ayant la zone de charnière (400) de sorte que la surface d'appui (200) peut être pivotée autour d'un axe qui passe à travers la zone de charnière (400) ; et

        - une section sensiblement verticale disposée de manière à former un angle d'environ 90° par rapport à la section sensiblement horizontale,

    et

    - un support inférieur (310) comprenant :
    une partie sensiblement horizontale destinée à être sous une surface inférieure du matelas (500) ; et

        - une section sensiblement verticale disposée en formant un angle d'environ 90° par rapport à la section sensiblement horizontale,

    dans laquelle la zone de charnière (400) est disposée dans une position éloignée d'un bord (505) du matelas (500) vers une partie intérieure de celui-ci à une distance égale ou sensiblement supérieure à une dimension de la surface d'appui (200).

2. La structure (100) selon la revendication 1, dans laquelle la structure de support (300) a une première dimension qui est variable pour s'adapter à l'épaisseur d'un matelas (500).

3. La structure (100) selon la revendication 2, dans laquelle la structure de support (300) a une seconde dimension qui est variable pour changer la position de la zone de charnière (400).

4. Structure (100) selon l'une quelconque des revendications précédentes, dans laquelle la surface d'appui (200) est formée par un plan sensiblement rigide.

5. Structure (100) selon l'une quelconque des revendications précédentes, dans laquelle la surface d'appui (200) est formée par une structure périmétrique entourant un élément au moins sensiblement flexible.

6. Structure (100) selon l'une quelconque des revendications précédentes, dans laquelle elle comprend un élément de pression destiné à réduire ladite première dimension pour ajuster la structure de support (300) à l'épaisseur du matelas (500).

7. Structure (100) selon l'une quelconque des revendications précédentes, dans laquelle la structure de

support (300) comprend deux éléments de section.

8. Structure (100) selon la revendication 7, dans laquelle lesdits éléments de section de la structure de support (300) sont reliés par au moins un élément transversal.

9. Structure (100) selon l'une quelconque des revendications précédentes, dans laquelle la surface d'appui (200) est adaptée pour être agencée dans une position sensiblement horizontale pour étendre au moins latéralement la surface d'un matelas (500).

10. Structure (100) selon l'une quelconque des revendications précédentes, dans laquelle la surface d'appui (200) est adaptée pour être agencée dans une position sensiblement verticale pour agir en tant qu'élément de protection.

11. Structure (100) selon l'une quelconque des revendications précédentes, dans laquelle elle comprend en outre des moyens moteurs pour entraîner la surface d'appui (200) en la faisant pivoter dans la zone de charnière (400) par rapport à la surface d'appui (200).

FIG. 1

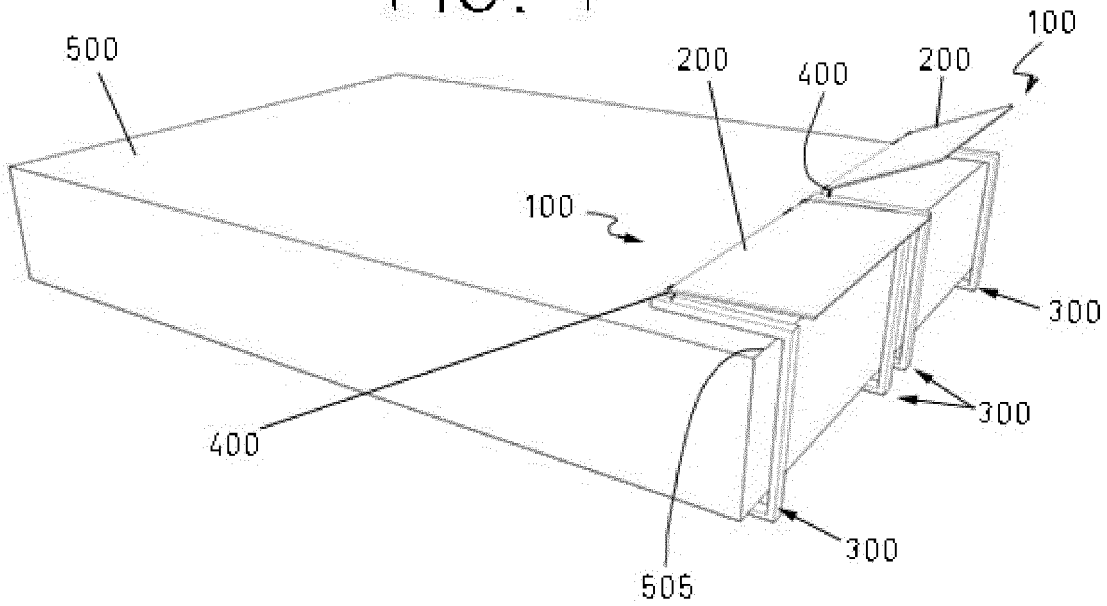

500
200
400
200
100
100
300
300
400
300
505

FIG. 2

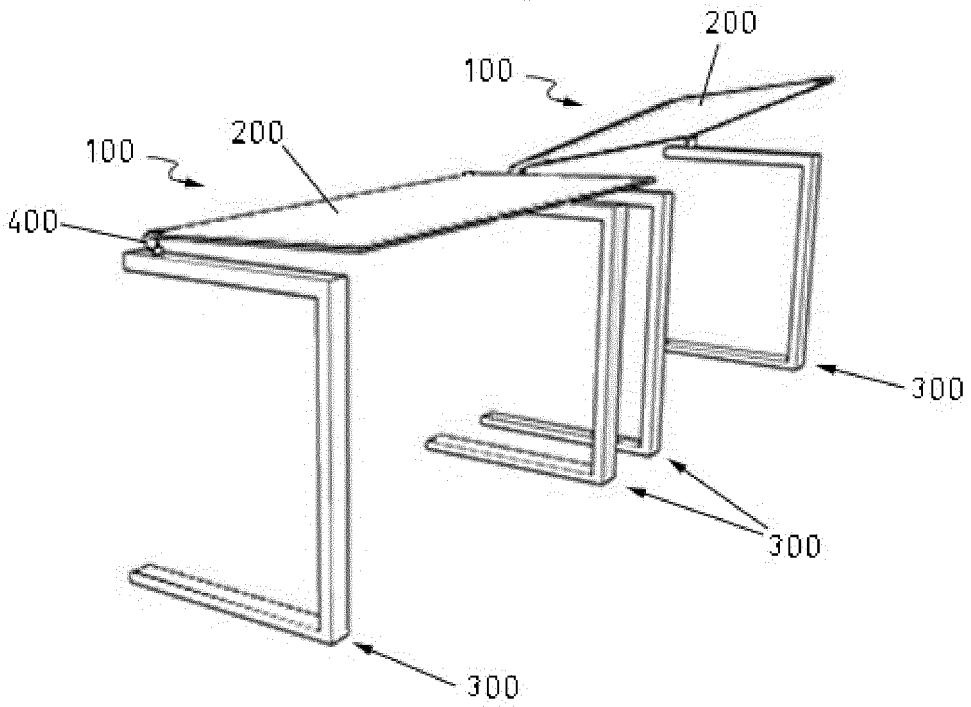

200
100
100
200
400
300
300
300

FIG. 3

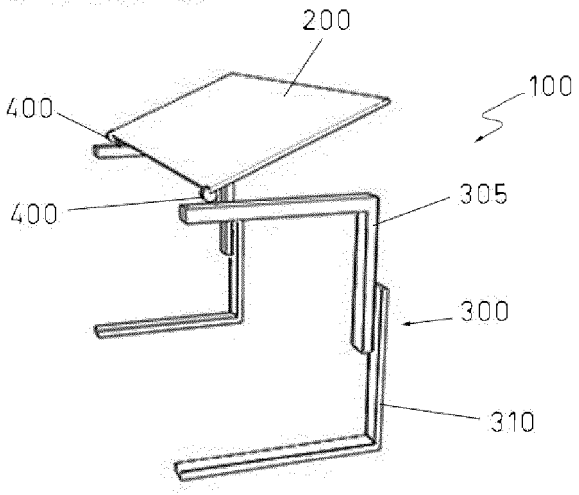


FIG. 4

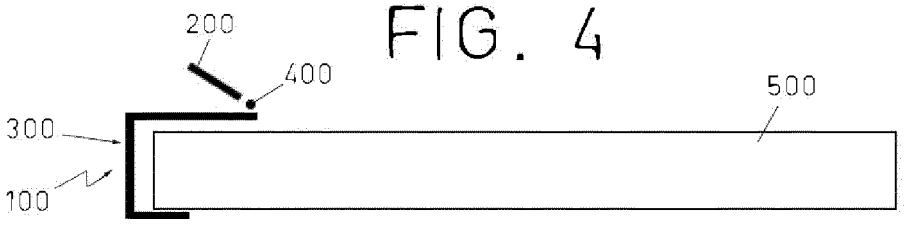
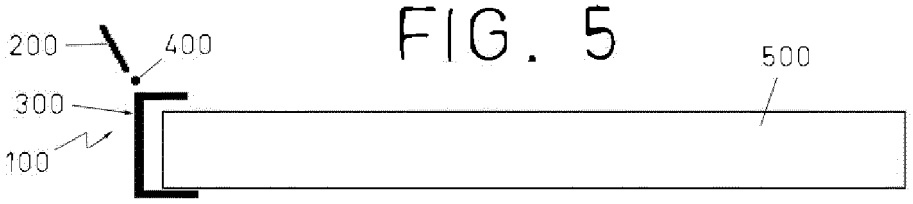


FIG. 5



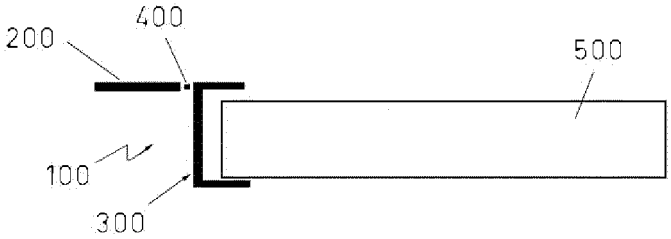


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2015204893 A **[0004]**