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(54) Adjustable bed

Verstellbares Bett

Sommier réglable

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Description

Technical Field

[0001] The present invention relates to an adjustable bed according to the preamble of claim 1, which comprises a safety device for reducing the risk of a person or an object being squeezed between the bedstead and the movable parts. A similar bed is already known by US-A-6 061 852. The invention relates especially to an adjustable bed of the type where the bed bottom in the longitudinal direction of the bed is divided into at least two segments articulated to each other, and adjusting means for adjusting the angle between the segments.

Background Art

[0002] Increasing efforts are devoted to making beds more comfortable. For instance, it is becoming more and more common to have adjustable beds of the type where the bed bottom in the longitudinal direction of the bed is divided into two or more segments articulated to each other, where the angle between the segments can be adjusted to the user's requirements. As a result, the bed can easily be adjusted to suit various purposes, for instance to allow sitting on the bed when reading, working, eating etc, lying on the bed when sleeping or resting, keeping the legs or head in a raised position in case of special troubles and diseases etc.

[0003] Beds of the type mentioned by way of introduction are previously known, for instance from WO 97/30614 and EP 0 604 240. These prior-art beds comprise four segments which can be set at different angles relative to each other by setting means.

[0004] In such adjustable beds, i.e. beds where one or more parts of the bed bottom may vary in height or angularly, it is a problem that when operating the bed a person or an object may be squeezed between a movable part and a fixed part, such as the frame supporting the bed. It is particularly serious if, for instance, small children play with the bed, in which cases squeezing may even cause fatal situations. It is therefore known to arrange safety systems to prevent squeezing in adjustable beds.

[0005] For instance, US 4,463,463 discloses an adjustable bed where several parts are adjustable vertically or angularly. An electric motor drives the movable parts. A safety device is arranged to detect an object, such as a hand or the like, positioned between the bedstead and the movable parts and to release a switch which switches off the electric motor upon such detection.

[0006] Moreover WO 02/11585 discloses a safety device which is a flexible strip that is sensitive to electrical conductance. The strip can thus detect that an object, for instance a hand, is positioned nearby. The generated electric signals can then be used to control an electric motor for instance.

[0007] EP 1 126 771 discloses a solution where a detector is arranged along the edge of the fixed part in the vicinity of the movable part. The detector is then connected to a warning system and/or a means which stops the motion of the movable part.

[0008] A general problem in this type of known solutions is, however, that they are relatively expensive and complicated to manufacture and install. It is also difficult to make the system sufficiently reliable. In particular it is a problem that, in normal use of the bed, the system will not be utilised while at the same time it is most important for the system to function as intended the few times during the life of the bed when there is a risk of squeezing.

Object of the Invention

[0009] It is therefore an object of the present invention to provide an adjustable bed which wholly or at least partly solves the above problems of prior-art technique and, thus, provides a bed with a more reliable and/or less complicated safety device.

[0010] This object is achieved by an adjustable bed according to the appended claims.

Summary of the Invention

[0011] According to a first aspect, the invention provides an adjustable bed comprising at least one fixed supporting part and a bed bottom device comprising at least one part which is movable relative to the fixed supporting part. Moreover a safety strip of a deformable material is arranged between the fixed and the movable part, the safety strip being adapted, when subjected to an extended load, to exert a supporting force and, when subjected to a load on a limited surface, to cause partial deformation in the area of the load.

[0012] This construction results in a stable and steady bed construction, which allows the fixed part to effectively support the movable parts while at the same time an effective safety device is provided. Moreover, in this construction the safety device is highly reliable since no movable mechanical parts, electrical components or the like are included. Moreover, this bed construction is very cost-effective and relatively simple and inexpensive to manufacture. The safety device does not merely provide better protection against injuries in people in the vicinity of the bed, but also provides protection against damage to the bed, which will thus obtain a longer life and durability.

[0013] In this way, the safety strips offer support to the movable parts in normal use since they distribute, in the lower positions, their load across the entire surface of the safety strips. However, when there is a risk of squeezing, by a hand, a foot or the like getting between a movable part and a safety strip, this causes a point load, which in turn results in redistribution and deformation of the material of the safety strip. In this way, injuries caused by squeezing are prevented.

[0014] In particular, the invention is suited for adjustable beds of the type where the fixed supporting part

comprises a bedstead which supports the bed bottom device and which thus constitutes a base for the bed. Preferably, the bedstead comprises a bed frame. The bed bottom device with the at least one movable part comprises, in turn, preferably a relatively rigid bed bottom and at least one resilient layer arranged thereon.

[0015] Furthermore it is preferred that the bed bottom device in the longitudinal direction of the bed be divided into at least two segments articulated to each other, and adjusting means for adjusting the angle between the segments, at least one of the segments being movable relative to the fixed supporting part. For example, the bed bottom can, in the longitudinal direction of the bed, be divided into three, four or more segments articulated to each other, and adjusting means for adjusting the angles between the segments.

[0016] When the bed bottom device comprises a plurality of parts movable relative to the fixed supporting part, it is also preferred that a safety strip of a deformable material be arranged between all the movable parts and the fixed part. In this way, an effective safety device is achieved for the entire bed.

[0017] The safety strip is preferably arranged on the fixed part, preferably along the periphery thereof, and in such a manner that the at least one movable part in at least one position rests against the safety strip. This ensures effective support of the movable part while at the same time an effective safety device is obtained. Alternatively, it is however also possible for the safety strip to be arranged in such a manner that the movable part does not abut against the same. For instance, a gap between the safety strip and the movable part can thus be obtained also in the lowermost position of the movable part. This is especially advantageous when the movable part also has a certain degree of movability in the plane of the mattress, which can be provided, for instance, by connecting the bed bottom device to the supporting part by way of a displaceable slide.

[0018] The safety strip can be adapted, when subjected to a load on a limited surface, to allow maximum partial deformation in the area of the load transversely of the longitudinal direction of the safety strip, i.e. vertically, in the range 2-25 cm, preferably in the range 5-13 cm, and most preferred about 10 cm. In this fashion, an effective safety device is provided for hands and arms, and also for larger objects, such as infants' heads.

[0019] For essentially the same reason, it is also preferred for the safety strip to be adapted, when being subjected to a load on a limited surface, to allow partial deformation of a deformation area with a maximum extent in the longitudinal direction of the safety strip in the range 1-25 cm, preferably in the range 10-15 cm.

[0020] The deformable material of the safety strip is preferably flexible and elastic and may be, for example, a synthetic material, preferably a foam rubber material.

[0021] According to a second aspect, the invention provides a method for manufacturing an adjustable bed, comprising the steps of providing a fixed supporting part; arranging a bed bottom device comprising at least one part which is movable relative to the fixed supporting part so as to be supported by the fixed part; and arranging a safety strip of a deformable material between the fixed and the movable part, the safety strip being adapted, when subjected to an extended load, to exert a supporting force and, when subjected to a load on a limited surface, to cause partial deformation in the area of the load.

[0022] With this method, advantages corresponding to those discussed above with regard to the first aspect of the invention will be achieved.

[0023] Further features and advantages of the present invention will be evident from the following description of preferred embodiments and from the claims.

Brief Description of the Drawings

[0024] The invention will now be described in more detail by way of embodiments and with reference to the accompanying drawings, in which

Fig. 1 is a schematic perspective view of a bed according to an embodiment of the invention in a raised position; and

Fig. 2 is a schematic perspective view of the adjustable bed in Fig. 1 in a partly lowered position.

Description of Preferred Embodiments

[0025] A bed according to a preferred embodiment of the invention, as shown in Figs 1 and 2, comprises a bedstead 1 which supports a bed bottom device 2.

[0026] The bedstead can advantageously comprise a bed frame 11 and bed legs 12 arranged thereon. However, other variants of bedsteads are, of course, also conceivable.

[0027] The bed bottom device 2 comprises a bed bottom 3 and a resilient layer 4 arranged thereon. The resilient layer is preferably an elastic spring layer, but other resilient layers, such as of foam rubber material, are also conceivable.

[0028] The bed bottom is, as is evident from Figs 1-2, divided into segments in the longitudinal direction of the bed, preferably four segments: a head end segment 31, a base segment 32, an upper foot end segment 33 and a lower foot end segment 34. At least some, and preferably all except one, of these segments are movable relative to the fixed bedstead 1. These segments can, for instance, be adjustable so that the head end segment can be inclined upwards relative to the base segment as a backrest, and so that the lower foot end segment can be raised, as shown in Fig. 1.

[0029] An adjusting means (not shown) for adjusting the inclination between the head end segment and the base segment may comprise, for instance, a rotatable shaft extending in the transverse direction of the bed. The rotatable shaft is actuated directly, or preferably by way of one or more link arms, by a piston assembly. Other

ways of automatically or manually rotating the shaft are also conceivable. However, several variants of the adjusting means are possible, as is known in the technical field. For instance, other drive means than piston assemblies can be used, and also other transmission means than link arms and the like. Devices for providing the adjusting functionality of the adjustable bed are per se previously known and do not constitute an independent part of this invention.

[0030] The adjustable bed comprises a safety strip 5 arranged between the fixed and the movable part. Preferably, safety strips 51, 52 are arranged between all movable parts and the fixed part, and it is further preferred for the safety strip to be arranged along the periphery of the fixed part. For instance, the safety strip can have an outer edge surface which passes into the edge surface of the bedstead.

[0031] The safety strip preferably has a limited width, preferably in the range 1-25 cm, and most preferred between 2 and 5 cm. However, it is also possible to let the safety strip occupy the entire surface of the space between the movable and the fixed part.

[0032] The safety strip is made of a deformable material, so that it will be adapted, when subjected to an extended load, to exert a supporting force and, when subjected to a load on a limited surface, to cause partial deformation in the area of the load. In this manner, the safety strip can, in normal use, assist in supporting the movable part in certain positions. For example, the safety strip can be arranged so that the movable parts in the lowered position abut against the same, as is particularly evident from Fig. 2. At the same time, however, the safety strip allows partial deformation if a small object gets between the movable and the fixed part, as illustrated by the object 7 in Figs 1 and 2. In this way, the risk of hands, arms, infants' heads etc. being squeezed is eliminated or at least reduced.

[0033] The safety strip is preferably arranged on the fixed part, even if it can alternatively be arranged on the underside of the movable part. In a preferred embodiment, a spacer element 6 is arranged between the bedstead 1 and a fixed part 32 of the bed bottom device 3. In this way, a gap forms between the bed bottom device in its flat, lowered position and the bedstead. This gap is then filled by the safety strip 5.

[0034] The safety strip is preferably adapted, when subjected to a load on a limited surface, to allow maximum partial deformation in the area of the load transversely of the longitudinal direction of the safety strip, i.e. vertically, in the range 2-25 cm, and preferably in the range 5-13 cm. That is to say, objects of this maximum height will be taken care of by the safety strip without being injured when getting between the fixed and the movable part..

[0035] Moreover, it is preferred, in case of a load being exerted on a limited surface to allow partial deformation in the area of the load in the direction with a maximum extent in the longitudinal direction of the safety strip of the deformation area in the range 1-25 cm, preferably in the range 10-15 cm. That is to say, objects of this maximum width can be taken care of by the safety strip without being injured when getting between the fixed and the movable part.

[0036] The safety strip is preferably made of a deformable material which is flexible and elastic. For example, a synthetic material can be used, preferably, for instance, foam rubber material. Other designs of the safety strip, however, are also possible. For example, the safety strip may comprise a plurality of elastic springs arranged side by side, preferably surrounded by a covering material. Furthermore, the safety strip could comprise an outer covering and a mobile medium enclosed therein, such as a gas, liquid, gel or the like. In that case, the outer covering should be designed so that the mobile medium cannot escape through the covering, but at least partly be redistributed within the same. It goes without saying that also other variants of the safety strip which provide the same function are feasible.

[0037] The invention has now been described by means of embodiments. However, it will be appreciated that several other variants of the invention are possible. For example, it is possible to use the principle of the invention in many other variants of adjustable beds, with different designs of bedstead and bed bottom, with different numbers of movable parts etc. It is also possible to design the safety strip in many other ways, with other shapes, other materials, other dimensions etc. Such obvious variants must be considered to be included in the invention as defined in the appended claims.

Claims

1. An adjustable bed comprising at least one fixed supporting part (1) having a bedstead which is arranged to support a bed bottom device (2) comprising at least one part (31, 33, 34) which is movable relative to the bedstead, **characterised in that** a safety strip (5) of a deformable material is arranged between the bedstead and the movable part, along the periphery of the bedstead and/or the movable part, and having a limited extent towards the centre of the bed, the safety strip being adapted, when subjected to an extended load, to exert a supporting force and, when subjected to a load on a limited surface, to cause partial deformation in the area of the load.

2. An adjustable bed as claimed in claim 1, wherein the bedstead (1) comprises a bed frame (11).

3. An adjustable bed as claimed in claim 1 or 2, wherein the bed bottom device (2) with the at least one movable part comprises a relatively rigid bed bottom (3) and at least one resilient layer (4) arranged thereon.

4. An adjustable bed as claimed in any one of the pre-

ceding claims, wherein the bed bottom device in the longitudinal direction of the bed is divided into at least two segments (31-34) articulated to each other, and adjusting means for adjusting the angle between the segments, at least one of the segments being movable relative to the fixed supporting part.

5. An adjustable bed as claimed in claim 4, wherein the bed bottom in the longitudinal direction of the bed is divided into at least three segments (31-34) articulated to each other, and adjusting means for adjusting the angles between the segments.

6. An adjustable bed as claimed in any one of the preceding claims, wherein the bed bottom device comprises a plurality of parts (31, 33, 34) which are movable relative to the bedstead (1), a safety strip (51, 52) of a deformable material being arranged between all the movable parts and the bedstead.

7. An adjustable bed as claimed in any one of the preceding claims, wherein the safety strip (5) is arranged on the bedstead (1), preferably along the periphery thereof, and in such a manner that the at least one movable part in at least one position rests against the safety strip.

8. An adjustable bed as claimed in any one of the preceding claims, wherein the safety strip (5) is adapted, when subjected to a load on a limited surface, to allow maximum partial deformation in the area of the load transversely of the longitudinal direction of the safety strip in the range 2-25 cm, preferably in the range 5-13 cm.

9. An adjustable bed as claimed in any one of the preceding claims, wherein the safety strip (5) is adapted, when subjected to a load on a limited surface, to allow partial deformation of a deformation area with a maximum extent in the longitudinal direction of the safety strip in the range 1-25 cm, preferably in the range 10-15 cm.

10. An adjustable bed as claimed in any one of the preceding claims, wherein the deformable material is flexible and elastic.

11. An adjustable bed as claimed in any one of the preceding claims, wherein the deformable material is a synthetic material, preferably a foam rubber material.

12. An adjustable bed as claimed in any one of the preceding claims, wherein the extent of the safety strip towards the centre of the bed is in the range 1-25 cm, most preferred in the range 2-5 cm.

13. A method for manufacturing an adjustable bed, comprising the steps of:

providing a fixed supporting part, comprising a bedstead; and

arranging a bed bottom device comprising at least one part which is movable relative to the fixed supporting part so as to be supported by the bedstead; **characterised by** the additional step of:

arranging a safety strip of a deformable material between the bedstead and the movable part, the safety strip being arranged along the periphery of the bedstead and/or the movable part, with a limited extent towards the centre of the bed, the safety strip being adapted, when subjected to an extended load, to exert a supporting force and, when subjected to a load on a limited surface, to cause partial deformation in the area of the load.

Patentansprüche

1. Verstellbares Bett mit wenigstens einem festen Tragteil (1), welches ein Bettgestell aufweist, welches zum Tragen einer Bettunterteil-Einheit (2) mit wenigstens einem Teil (31, 33, 34) ausgebildet ist, welches relativ zu dem Bettgestell bewegbar ist, **dadurch gekennzeichnet, dass** zwischen dem Bettgestell und dem bewegbaren Teil entlang dem Umfang des Bettgestells und/oder des bewegbaren Teils eine Sicherheitsleiste (5) aus einem verformbaren Material angeordnet ist, welche eine begrenzte Erstreckung in Richtung des Zentrums des Bettes aufweist, wobei die Sicherheitsleiste, wenn sie einer flächig einwirkenden Last ausgesetzt ist, zum Ausüben einer Tragkraft, und wenn sie einer auf eine begrenzte Fläche einwirkenden Last ausgesetzt ist, zum Bewirken einer partiellen Verformung im Bereich der Last ausgebildet ist.

2. Verstellbares Bett nach Anspruch 1, wobei das Bettgestell (1) einen Bettrahmen (11) aufweist.

3. Verstellbares Bett nach Anspruch 1 oder 2, wobei die Bettunterteil-Einheit (2) mit dem wenigstens einen bewegbaren Teil ein verhältnismäßig starres Bettunterteil (3) und wenigstens eine hierauf angeordnete nachgiebige Lage (4) aufweist.

4. Verstellbares Bett nach einem der vorangehenden Ansprüche, wobei die Bettunterteil-Einheit in Längsrichtung des Bettes in wenigstens zwei Segmente (31-34) unterteilt ist, welche aneinander angelenkt sind, wobei Verstellmittel zum Einstellen des Winkels zwischen den Segmenten vorgesehen sind und wenigstens eines der Segmente relativ zu dem festen Tragteil bewegbar ist.

5. Verstellbares Bett nach Anspruch 4, wobei das Bettunterteil in Längsrichtung des Bettes in wenigstens drei Segmente (31-34) unterteilt ist, welche aneinander angelenkt sind, wobei Verstellmittel zum Einstellen des Winkels zwischen den Segmenten vorgesehen sind.

6. Verstellbares Bett nach einem der vorangehenden Ansprüche, wobei die Bettunterteil-Einheit eine Mehrzahl an Teilen (31, 33, 34) aufweist, welche relativ zu dem Bettgestell (1) bewegbar sind, wobei zwischen sämtlichen bewegbaren Teilen und dem Bettgestell eine Sicherheitsleiste (51, 52) aus einem verformbaren Material angeordnet ist.

7. Verstellbares Bett nach einem der vorangehenden Ansprüche, wobei die Sicherheitsleiste (5) auf dem Bettgestell (1), vorzugsweise entlang dem Umfang desselben, und derart angeordnet ist, dass das wenigstens eine bewegbare Teil in wenigstens einer Stellung gegen die Sicherheitsleiste anliegt.

8. Verstellbares Bett nach einem der vorangehenden Ansprüche, wobei die Sicherheitsleiste (5), wenn sie einer auf eine begrenzte Fläche einwirkenden Last ausgesetzt ist, zum Ermöglichen einer maximalen partiellen Verformung im Bereich der Last quer zur Längsrichtung der Sicherheitsleiste im Bereich von 2 bis 25 cm, vorzugsweise im Bereich von 5 bis 13 cm, ausgebildet ist.

9. Verstellbares Bett nach einem der vorangehenden Ansprüche, wobei die Sicherheitsleiste, wenn sie einer auf eine begrenzte Fläche einwirkenden Last ausgesetzt ist, zum Ermöglichen einer partiellen Verformung eines Verformungsbereiches mit einer maximalen Erstreckung in Längsrichtung der Sicherheitsleiste im Bereich von 1 bis 25 cm, vorzugsweise im Bereich von 10 bis 15 cm, ausgebildet ist.

10. Verstellbares Bett nach einem der vorangehenden Ansprüche, wobei das verformbare Material nachgiebig und elastisch ist.

11. Verstellbares Bett nach einem der vorangehenden Ansprüche, wobei das verformbare Material ein synthetisches Material, vorzugsweise ein Schaumgummi-Material, ist.

12. Verstellbares Bett nach einem der vorangehenden Ansprüche, wobei die Erstreckung der Sicherheitsleiste in Richtung des Zentrums des Bettes im Bereich von 1 bis 25 cm, vorzugsweise im Bereich von 2 bis 5 cm, beträgt.

13. Verfahren zur Herstellung eines verstellbaren Bettes, umfassend die folgenden Schritte:

- Bereitstellen eines festen Tragteils mit einem Bettgestell; und
- Anordnen einer Bettunterteil-Einheit mit wenigstens einem Teil, welches relativ zu dem festen Tragteil bewegbar ist, um von dem Bettgestell getragen zu sein;

gekennzeichnet durch den folgenden weiteren Schritt:

- Anordnen einer Sicherheitsleiste aus einem verformbaren Material zwischen dem Bettgestell und dem bewegbaren Teil, wobei die Sicherheitsleiste entlang dem Umfang des Bettgestells und/oder des bewegbaren Teils mit einer begrenzten Erstreckung in Richtung des Zentrums des Bettes angeordnet wird, wobei die Sicherheitsleiste, wenn sie einer flächig einwirkenden Last ausgesetzt ist, zum Ausüben einer Tragkraft, und wenn sie einer auf eine begrenzte Fläche einwirkenden Last ausgesetzt ist, zum Bewirken einer partiellen Verformung im Bereich der Last ausgebildet ist.

Revendications

1. Lit réglable comprenant au moins une partie de support fixe (1) ayant un encadrement qui est conçu pour supporter un dispositif de bas de lit (2) comprenant au moins une partie (31, 33, 34) qui est déplaçable par rapport à l'encadrement, **caractérisé en ce qu'**une bande de sécurité (5) constituée d'un matériau déformable est disposée entre l'encadrement et la partie déplaçable, le long de la périphérie de l'encadrement et/ou de la partie déplaçable, et ayant une étendue limitée vers le centre du lit, la bande de sécurité étant adaptée, lorsque soumise à une charge étendue, à exercer une force de support et, lorsque soumise à une charge sur une surface limitée, à entraîner une déformation partielle dans la zone de la charge.

2. Lit réglable selon la revendication 1, dans lequel l'encadrement (1) comprend un cadre de lit (11).

3. Lit réglable selon la revendication 1 ou 2, dans lequel le dispositif de bas de lit (2) avec au moins une partie mobile comprend un bas de lit (3) relativement rigide et au moins une couche résiliente (4) agencée sur celui-ci.

4. Lit réglable selon l'une quelconque des revendications précédentes, dans lequel le dispositif de bas de lit dans la direction longitudinale du lit est divisé en au moins deux segments (31-34) articulés l'un à l'autre, et un moyen de réglage pour régler l'angle entre les segments, au moins un des segments étant déplaçable par rapport à la partie de support fixe.

5. Lit réglable selon la revendication 4, dans lequel le bas de lit dans la direction longitudinale du lit est divisé en au moins trois segments (31-34) articulés les uns avec les autres, et un moyen de réglage pour régler les angles entre les segments.

6. Lit réglable selon l'une quelconque des revendications précédentes, dans lequel le dispositif de bas de lit comprend une pluralité de parties (31, 33, 34) qui sont déplaçables par rapport à l'encadrement (1), une bande de sécurité (51, 52) constituée d'un matériau déformable étant agencée entre toutes les parties déplaçables et l'encadrement.

7. Lit réglable selon l'une quelconque des revendications précédentes, dans lequel la bande de sécurité (5) est agencée sur l'encadrement (1), de préférence le long de sa périphérie, et d'une manière telle qu'au moins une des parties déplaçables dans au moins une position reste contre la bande de sécurité.

8. Lit réglable selon l'une quelconque des revendications précédentes, dans lequel la bande de sécurité (5) est adaptée, lorsque soumise à une charge sur une surface limitée, à permettre une déformation partielle maximale dans la zone de la charge transversalement à la direction longitudinale de la bande de sécurité dans la plage de 2 à 25 cm, de préférence dans la plage de 5 à 13 cm.

9. Lit réglable selon l'une quelconque des revendications précédentes, dans lequel la bande de sécurité (5) est adaptée, lorsque soumise à une charge sur une surface limitée, à permettre une déformation partielle d'une zone de déformation avec une étendue maximale dans la direction longitudinale de la bande de sécurité dans la plage de 1 à 25 cm, de préférence dans la plage de 10 à 15 cm.

10. Lit réglable selon l'une quelconque des revendications précédentes, dans lequel le matériau déformable est flexible et élastique.

11. Lit réglable selon l'une quelconque des revendications précédentes, dans lequel le matériau déformable est un matériau synthétique, de préférence un matériau de caoutchouc mousse.

12. Lit réglable selon l'une quelconque des revendications précédentes, dans lequel l'étendue de la bande de sécurité vers le centre du lit est dans la plage de 1 à 25 cm, de manière la plus préférée dans la plage de 2 à 5 cm.

13. Procédé de fabrication d'un lit réglable, comprenant les étapes consistant à :

fournir une partie de support fixe, comprenant un encadrement ; et
agencer un dispositif de bas de lit comprenant au moins une partie qui est déplaçable par rapport à la partie de support fixe de façon à être supportée par l'encadrement ;

caractérisé par l'étape supplémentaire consistant à :

agencer une bande de sécurité constituée d'un matériau déformable entre l'encadrement et la partie déplaçable, la bande de sécurité étant agencée le long de la périphérie de l'encadrement et/ou de la partie déplaçable, avec une étendue limitée vers le centre du lit, la bande de sécurité étant adaptée, lorsque soumise à une charge étendue, à exercer une force de support et, lorsque soumise à une charge sur une surface limitée, à entraîner une déformation partielle dans la zone de la charge.

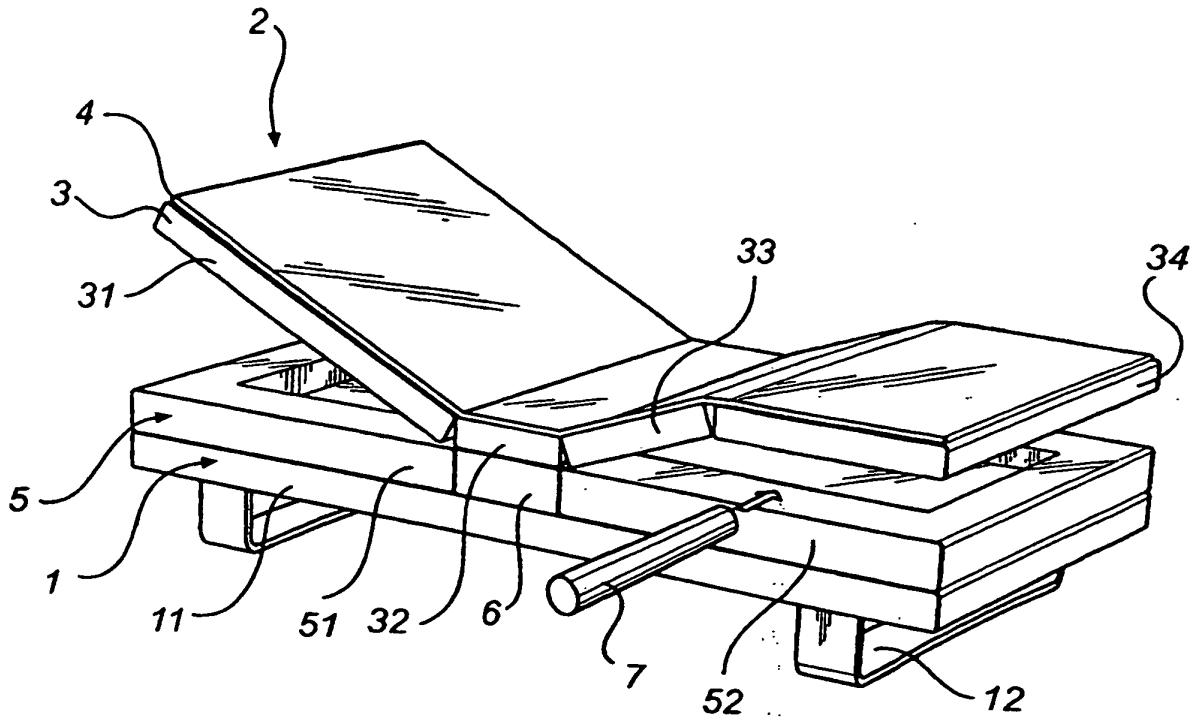


Fig. 1

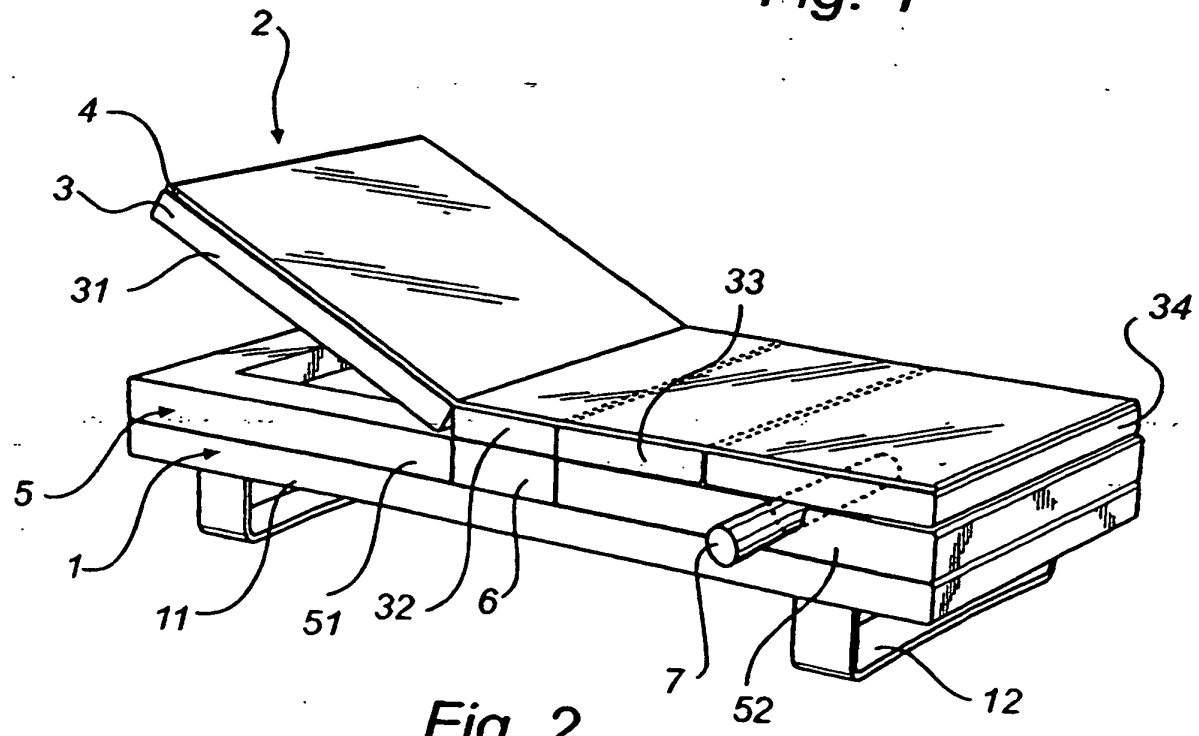


Fig. 2