

Bed Base

The present invention relates to a support for a bed in accordance with the preamble of claim 1.

For resting comfortably in bed in any position, the bed device must exercise a support function which can adapt itself to every situation. Conventional beds therefore have a grate of slats with raised resilient transverse slats. Furthermore, with conventional beds, special attention is paid to the construction of the mattress placed on this slat grate.

Moreover, so-called natural beds are known, which have an optimum support effect in spite of the employment of very thin mattresses or futons. Here, the slat grate of conventional beds is replaced by a plurality of transverse slats made of solid wood, which rest on longitudinal rails, which are resilient vertically in respect to their loading and therefore act as spring bodies.

Thus, EP-A-0 116 237 discloses a bed device, which consists of two inflatable longitudinal rails arranged parallel with each other, in which a series of pockets has been arranged tangentially and transversely in respect to the longitudinal direction. Transverse slats have been pushed into these pockets, of which one end is supported in one of the longitudinal rails and the other end in the other longitudinal rail. A grate is created by means of this, which has increased flexibility. Fixing in place of the transverse slats in relation to the longitudinal rails is taken over by the lateral walls of the bed frame, if this support has been placed in such a frame. In another variation, a yoke-like structure is provided, through which the longitudinal rails extend and by means of which the two longitudinal rails are braced against each other. A transverse slat is also inserted into this yoke-like structure in order to assure stability. The assembly of

this bracing is relatively complicated and can therefore often not be performed by the buyer. But the variation without bracing is unstable and unsuitable if, for example, the bed support must be displaced in the course of housecleaning, or removed for some other purpose.

EP-A-0 243 383 also describes a natural bed with two resilient longitudinal rails made of a foam material or of foam rubber, and a plurality of transverse slats arranged grate-like above them. The transverse slats are connected with each other by means of a cloth over the entire surface, which simultaneously fixes the longitudinal rails in place. For this purpose the cloth has pockets at two oppositely located longitudinal edges, which are oriented transversely to the longitudinal direction and in which the ends of the transverse slats are held. In one variation the longitudinal rails are arranged between the cloth which acts as the covering, in another variation tunnel-like webs are fastened on the cloth, into which the longitudinal rails are pushed. Although this structure assures satisfactory stability, it has several disadvantages. For one, the cloth acts as a dust collector. Then, the airing of the bed from below is hampered and the tension in the cloth relaxes over time and during use and thus endangers the stability.

A similar construction of a bed support with resilient longitudinal rails made of a foam material and transverse slats made of wood connected therewith is shown in DE-A-39 33 816. Loops, extending transversely to the longitudinal direction, are attached to the longitudinal rails, through which the ends of the transverse slats have been pushed. The transverse slats have grooves for receiving the loops in order to fix the transverse slats in place in respect to the longitudinal rails. However, the

stability achieved by this is not sufficient for transport or under generally strong stresses on the bed support, because the loops can be displaced and therefore removed from the grooves. The grooves furthermore constitute weak points of the transverse slats and therefore potential breaking points. Moreover, the material of the loops is stressed more in the area of the grooves, since it rubs against the edges of the grooves.

It is therefore the object of the invention to create a bed support which removes the above disadvantages, and which furthermore can be cost-effectively produced and simply assembled.

This object is attained by the bed support having the characteristics of claim 1.

In contrast to the ways of fixation in the prior art, the longitudinal rails are not fixed in place on each other, nor in the pockets on the transverse slats, but each longitudinal rail is fastened on individual transverse slats separately from the others. Moreover, a stable fixation of the transverse slats and the longitudinal rails in relation to each other, which is not subject to aging, is assured with minimal means by this construction.

A very stable fixation in place is achieved without a covering over the entire width of the bed support being necessary. The savings in material are considerable, so that the production costs are lowered.

Since it is possible to select a relatively short fastening strip, the danger of material fatigue, and therefore a reduction of the stability, is removed.

The fastening strip extends transversely to the transverse slats, and in a preferred embodiment maximally has the width of a single transverse slat. Because of this it is arranged very

discreetly and does not interfere with the appearance. Moreover, no essentially downwardly projecting or hanging elements exist, which could act as dust collectors or which could be snagged, for example when vacuuming.

Exemplary embodiments of the subject of the invention are represented in the attached drawings and will be explained in the description which follows. Shown are in:

Fig. 1, a lateral view of a first embodiment of the bed support in accordance with the invention,

Fig. 2, a perspective view of a portion of the bed support in Fig. 1, viewed from above,

Fig. 3, a perspective view of a portion of the bed support in Fig. 1, viewed from below,

Fig. 4, a lateral view of a portion of a transverse slat with a fastening button,

Fig. 5, a plan view of the bed support in accordance with Fig. 1 from above,

Fig. 6, a section through a portion of a second embodiment of the bed support in accordance with the invention, and

Fig. 7, a plan view of a portion of a longitudinal side of the bed support in accordance with Fig. 6.

A first exemplary embodiment of the bed support in accordance with the invention is represented in Figs. 1 to 5. As can best be seen in Figs. 1 and 2, it essentially comprises two resilient or springy longitudinal rails 1 or spring bodies, distanced from and arranged parallel with each other, and several transverse slats 2, which are arranged in the manner of a grate transversely in respect to the longitudinal rails 1, rest on the latter and connect them with each other. The longitudinal rails 1 are made of an elastomeric material, preferably of latex, and

provided with a textile cover, preferably natural cotton. They can have any arbitrary cross section which, for example, can be rectangular, as represented here. However, it can also have a round or oval shape. The transverse slats are preferably made of solid wood, for example ash slats, and generally have a thickness of 4 to 15 mm. The transverse slats 2 are at least approximately flat.

Pockets 3, which are oriented transversely to the longitudinal direction, are arranged on the longitudinal rails 1. In this embodiment the pockets 3 have been sewn on the side of the longitudinal rail 1, so that they form a lateral extension. In general, they are also made of a textile material, in particular of woven pure natural fibers, such as hemp or cotton. The ends of the transverse slats 2 have been pushed into these pockets 3 and are held in them, wherein a portion of the transverse slats 2 projecting out of the pockets 3 rests on the longitudinal rails 1. Because the pockets 3 have been attached on one side of the longitudinal rails 1, a loop band 4 is fastened on the opposite side of the longitudinal rail 1, which extends in the longitudinal direction and through whose loops the transverse slats 2 are extended.

At least one fastening means 5 is connected with each longitudinal rail 1, which consists of a connecting means and a fastening strip 52, as can be seen in Figs. 3 and 5. The fastening strip 52 is oriented toward the other longitudinal rail 1 and extends in the transverse direction. Preferably the fastening strip 52 is also made of a textile material, for example woven natural fibers. In another embodiment, not represented here, the fastening strip 52 is fastened directly to the longitudinal rail 1. However, preferably and as represented here,

a connecting means is provided, which is effective over a distance of at least three transverse slats and in this way distributes the tensile forces acting through the fastening strip over this distance. The connecting means consists of two fastening loops 50, attached spaced apart from each other to the longitudinal rails 1, which are made of textile strips, for example woven cotton, and of a connecting bolt 51, which has been pushed through these fastening loops 50. The fastening strip 52 loops around the center area of the connecting bolt 51 which is not covered by the fastening loops 50. The manufacture and assembly of the fastening means is made simpler by this construction. Moreover, the fastening strip 52 can be made narrower, even if the force distribution to the longitudinal rails 1 takes place over a large area. Therefore the width of the fastening strip 51 preferably corresponds maximally to one transverse slat 2. The length is between 8 and 20 cm, preferably approximately 14 cm.

The fastening strip 52 has a button hole, through which a fastening button 20 attached to a transverse slat 2 extends. The fastening strip 52 is fastened in this way on the transverse strip 2, and each longitudinal rail 1 is fixed, separate from the other longitudinal rail, in respect to the transverse slats 2.

As represented in Fig. 4, the fastening button 29 preferably consists of a wooden dowel, which is driven into the transverse slat 2 and has a projecting head.

The fastening strip 52 and the fastening button 20 are arranged on the underside of the bed support, i.e. facing away from the surface for lying. Preferably two or more fastening strips 52 with separate connecting means are arranged distanced from each other on each longitudinal rail 1, wherein each fastening strip 52 is assigned its own fastening button 20.

Moreover, an adjoining fastening strip of the oppositely located rail 1 exists for each fastening strip 52, whose associated fastening button 20 is placed on the same transverse slat 2 as the fastening button of the first fastening strip.

A second embodiment of the bed support of the invention is represented in Fig. 6. Here, two slat grates are provided, which are constituted by a set of upper transverse slats 2' and a set of lower transverse slats 2. The upper transverse slats are generally embodied to be thinner and therefore more flexible than the lower ones. Typical thickness of the upper transverse slats 2' is 4 to 8 mm, and of the lower transverse slats 10 to 12 mm.

Again, two resilient longitudinal rails 1 are provided, which connect the transverse slats 2, 2' with each other. Here, the longitudinal rails 1 have an L-shaped cross section and in this way form a right angle. The pockets 3 for receiving the ends of the upper transverse slats 2' are attached to the front face of the short legs 12 and rest on the front face. Thus, the upper transverse slats 2' rest on the front face of the short leg 12. The lower transverse slats 2 rest on the inside of the long leg 13 and extend through the longitudinal rails 1. The longitudinal leg 1 with a partially opened zipper of the cover 10 is represented in Fig. 7. As can be seen in this Fig. 7, the longitudinal rail 1 consists of two solid body cores 11, which are arranged on top of each other and are enclosed in a textile cover 10 and between which the ends of the lower transverse slat 2 are pushed. Moreover, a loop band 4 is fastened on the inside of the long leg 13, through whose loops the lower transverse slats 2 extend.

The assembly and changing of the lower transverse slats 2' is made easier by means of this construction, since they can be pulled out of the longitudinal rail 1 without bending.

The fastening strip 52 is fastened by the connecting means on the front face of the long leg 13. The fastening buttons 20 are attached to the underside of at least one lower transverse slat 2.

Depending on the width of the bed or the desired firmness of the bed support, at least one resilient spacing or support rail 6, extending in the longitudinal direction and preferably having a rectangular or oval cross section, and which essentially has the same structure as the longitudinal rails 1, but does not have pockets 3, is provided between the lower and upper transverse slats 2, 2'. For fastening on the transverse slats, in this case the lower transverse slats 2, the support rail has a loop band 60, which extends at least approximately over the entire length, and through whose loops the lower transverse slats 2 are conducted.

So that the at least one support rail 6 is not displaced from its position and therefore does not negatively affect the comfortable rest, it is fastened in the embodiment represented here on the lower transverse slats 2 by means of a fastening strip 61 having at least one button hole. These second fastening strips 61 consist of a textile material and are fastened on the loop band 60, preferably woven in. As represented here, the second fastening strips 61 are suspended from the fastening buttons 20 used for fixing the longitudinal rails in place, or from separate fastening buttons.

If one support rail 6 is provided, it is fastened on both ends on the fastening buttons 20 via the second fastening strips 61. If several, in particular two support rails 6 are provided, in one embodiment only the outside support rails 6 are connected on their side facing the longitudinal rails 1 with the closest fastening button via the second fastening strip 61. To

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prevent displacement in the other direction, the support rails 6 are connected with each other by means of fixedly arranged or releasable strips.

Claims

1. A bed support with two resilient longitudinal rails (1) arranged spaced apart and parallel with each other, and several transverse slats (2) arranged in a grate-like manner, wherein pockets (3), which are oriented transversely in respect to the longitudinal direction and into which the ends of the transverse slats (2) are pushed, are arranged on the longitudinal rails (1), and wherein at least one fastening means (5) for fixing the transverse slats (2) and the longitudinal rails (1) in place in relation to each other is connected with each longitudinal rail (1),

characterized in that

at least one fastening strip (52) is attached on each longitudinal rail (1) transversely in respect to the longitudinal direction and is oriented toward the other longitudinal rail, and that a fastening button (20) for fastening the fastening strip (52) on the transverse slat (2) is provided on the nearest transverse slat (2).

2. The bed support in accordance with claim 1, characterized in that connecting means from the fastening strip (52) to the longitudinal rail (1) are provided, which are effective over a distance of at least three transverse slats (2).

3. The bed support in accordance with claim 2, characterized in that the connecting means are respectively two fastening loops (50), which are spaced apart in the longitudinal direction and attached to the longitudinal rails (1), and through



which a connecting bolt (51) has been pushed, and that the fastening strip (52) is attached to a center area of the connecting bolt (51) between the fastening loops (50).

4. The bed support in accordance with claim 1, characterized in that two fastening strips (52), which are arranged spaced apart from each other, are provided on each longitudinal rail (1).

5. The bed support in accordance with claim 1, characterized in that the fastening strip (52), or fastening strips, of a longitudinal rail (1) are arranged opposite the fastening strip, or fastening strips, of the second longitudinal rail, and that the associated fastening buttons (20) are attached to the same transverse slat (2).

6. The bed support in accordance with claim 1, characterized in that the width of the fastening strip (52) maximally corresponds to the width of a transverse slat (2).

7. The bed support in accordance with claim 1, characterized in that the fastening strip (52) is arranged on the underside of the bed support.

8. The bed support in accordance with claim 1, characterized in that the pockets (3) constitute a lateral extension of the longitudinal rails (1), so that the transverse slats (2) projecting out of the pockets (3) rest on the longitudinal rails (1).



9. The bed support in accordance with claim 1, characterized in that upper and lower transverse rails (2, 2') are provided, which are respectively arranged in a grate-like manner between the longitudinal rails (1), that the longitudinal rails (1) have an L-shaped cross section, that the upper transverse slats (2') are supported on the front faces of a short leg (12) of the longitudinal rails (1), and that the lower transverse slats (2) rest on the inside of a long leg (13), wherein a loop band (4) extending in the longitudinal direction is arranged at the end of the long leg (13) for receiving the lower transverse slats (2), and that the fastening buttons (20) for fastening the fastening strips (52) are arranged on the lower transverse slats (2).

10. The bed support in accordance with claim 9, characterized in that at least one resilient support rail (6) extending in the longitudinal direction is arranged between the lower and upper transverse rails (2, 2'), which is provided with a loop band (60) for passing transverse slats (2) through, and that the at least one support rail (2) can be fastened on the fastening buttons (20) of the lower transverse slats (2) via second fastening strips (61).

