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(54) Mattress Arrangement

(57) A mattress arrangement (13) comprises at least two mattress modules (M_1, M_2, M_3, M_4), whereas each mattress module (M_1, M_2, M_3, M_4) is made up of a resilient module body and a covering enclosing the module body (M_1, M_2, M_3, M_4), and whereas the mattress modules (M_1, M_2, M_3, M_4) of the mattress arrangement (13) are detachably fastened to another by way of fastening means (V_1 - V_3; Z_1 - Z_2) and each mattress module (M_1, M_2, M_3, M_4) comprises one or more first fastening means (V_1 - V_3; Z_1 - Z_2) connected to complementary second fastening means (V_1 - V_3; Z_1 - Z_2) of another mattress module (M_1, M_2, M_3, M_4) of the arrangement (13).

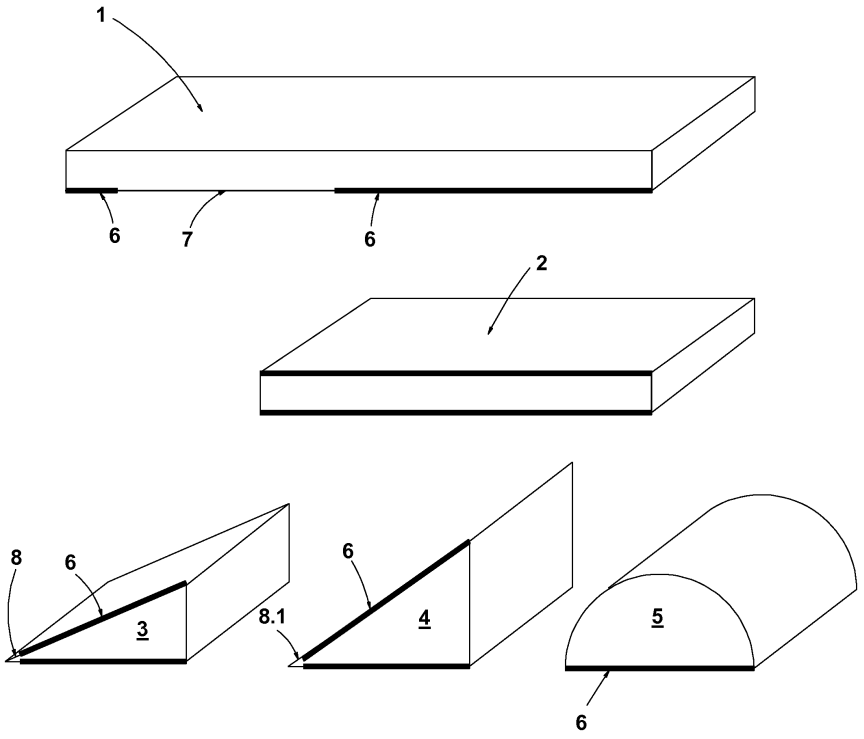

Fig. 1

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Description

[0001] The invention relates to a mattress arrangement in particular to be used as therapeutic mattress to support body portions of a patient.

[0002] Patients who are not able to move themselves in a bed need to be turned from time to time in order to prevent pressure sores (decubitus). Instead and/or additional to turning a patient pressure sores may be prevented by applying cushions, in particular support cushions under certain body parts to take away pressure from other body parts, namely those, in which usually pressure sores develop. Instead of using support pillows arranged on or beneath a conventional mattress to support certain body parts US 5,172,439 A discloses a therapeutic mattress overlay. This mattress overlay comprises a first layer and a second layer disposed beneath the first layer and in laminar juxtaposition therewith such that the second layer may be configured to provide an area of increased thickness to support an anatomical body portion. With this mattress overlay the area of increased thickness, which conventionally has been provided by a pillow may be provided by way of rolling the second mattress layer. This mattress layer is covered by the first layer, on which the patient rests. The second layer is part of the first layer or according to another embodiment disclosed attached to the first layer. In the part of this mattress overlay, in which the first and second mattress layers are not attached to one another the second layer may be rolled up to create the area of increased thickness. The mattress overlay as such is to be arranged on top of a conventional mattress.

[0003] EP 1,034,767 A2 describes a similar mattress arrangement. In contrast to the mattress overlay disclosed in US 5,172,439, the top mattress and the bottom mattress are not united in the disclosed mattress arrangement. Further, the bottom mattress layer is made up of a plurality of discrete elongate portions extending longitudinally of the mattress arrangement. The elongate portions may individually or together be rolled up in order to create an area of increased mattress thickness for the support of a body portion. For an facilitated easy rolling up of more than one elongate portions these are fastenable together.

[0004] Instead of using a foldable second mattress layer arranged beneath a top mattress layer in order to build areas of increased thickness supporting certain body parts wedges may be used. The use of such wedges is disclosed for example in DE 10 2006 0317 092 A1. Compared to folding of a mattress layer the wedges have a defined geometry and simply need to be arranged under a top mattress layer. These are typically used under a conventional mattress. When using wedges in order to change the topography of the top side of a mattress the mattress used needs to be lifted in order to introduce the wedge. Usually mattresses, in particular high quality mattresses are rather heavy in weight. Therefore, it may sometimes not be easy for a single person to bring the wedge into position. Due to the rolling up of the second layer forming mattress layers with a mattress arrangement as disclosed in EP 1,034,767 A2 it is encountered that the upper layer tends to move in respect to the lower layer thus also changing the position of support. This, though, is not intended. In US 5,172,439 the supporting areas may only be created in the defined zones in respect to the length of the mattress, in which the layers are parted.

[0005] It thus is an object of the invention to provide an improved mattress arrangement in particular in such a way, that the drawbacks of the prior art described are omitted at least in part.

[0006] The present invention alleviates the above-mentioned deficiencies by way of a mattress arrangement comprising at least two mattress modules, whereas each mattress module is made up of a resilient module body and a covering enclosing the module body, and whereas the mattress modules of the mattress arrangement are detachably fastened to each other by way of fastening means and each mattress module comprises one or more first fastening means connected to complementary second fastening means of another mattress module of the arrangement.

[0007] This mattress arrangement combines a widespread variability of combining several individual mattress modules to make up an individually different mattress arrangement. By individually selecting certain mattress modules a mattress arrangement may be supplied which is individually adapted to the needs of a patient. Furthermore, the mattress arrangement supplied to a patient may be altered in the way of supporting of certain body parts. The individual mattress modules each have a covering enclosing a resilient module body. The hardness and the durability of this module body is adapted to the intended use of this mattress module. Thus, the module body of some mattress modules may be softer than others. The covering of each mattress module makes handling of such mattress modules easier, in particular also in respect of cleaning and/or disinfecting them. Further, the covering may be used to attach grips or the like. Further, the individual mattress modules of such mattress arrangement comprise first and/or second fastening means in order to fasten one mattress module to another mattress module. Fastening the individual mattress modules to one another gives the mattress arrangement, built up of at least two mattress modules, the required shape stability. The fastening means of the mattress modules are intended for detachably fastening the mattress modules to one another. Providing detachable fastening means makes it easy to configure a mattress arrangement and/or to change the mattress arrangement. Such a mattress arrangement is thus the result of a modular mattress system comprising several different mattress modules, which differ in geometry and/or hardness and/or durability and/or covering or in at least one other feature having influence on the functionality or purpose of the mattress arrangement. When using the term ge-

ometry in respect of the individual mattress modules this term not only covers the geometry as such but also the size of the mattress modules. By supplying a variety of different mattress modules any mattress arrangement may be created simply by combining different individual mattress modules to form one mattress arrangement. Therefore, the individual needs of a patient may be encountered in a most individual way.

[0008] To fasten the individual mattress modules to one another virtually any suitable fastening means may be used. This term comprises the use of fastening means being part of or attached to the mattress modules to be fastened to one another. Fastening means in the terminology of this discloser also comprises means that keep the individual mattress modules of a mattress arrangement in form and shape, without that the mattress modules are directly fastened to one another. Such means may be understood as a fastening blanket or plaid covering a mattress arrangement and holding the mattress modules in place by may of its sideflaps. Fastening two mattress modules to one another may be achieved by using buttons, velcro or zippers to give some examples. The fastening means are preferably arranged on the sidewalls of a mattress module or attached to an edge, preferably to a longitudinal edge of such module. Such arrangement is preferred, because then access is easy to the fastening means, in particular for detaching them from one another. The fastening means comprise first and second fastening means, whereas the first fastening means are arranged on one mattress module and the second fastening means are arranged on the other mattress module to be fastened to the first mattress module.

[0009] For more comfort of the person resting on top of the mattress arrangement a flexible fitted sheet may be placed on top of the top mattress module of the mattress arrangement. Such sheet is a stretch-fit-sheet and provides a wrinkle free surface. Such flexible fitted sheet may be fastened to the top mattress module by extending around the corners of the mattress module. By way of another embodiment such flexible fitted sheet is used as a fastening blanket as described before but provides on top of holding the individual mattress modules in their intended arrangement and thus fastening the mattress modules to provide a wrinkle or crease free surface, on which a patient may rest.

[0010] In another embodiment fastening means are provided pair-wise to define a set of fastening means. These are made up of each a first and a second fastening means provided on one mattress module whereas the complementary fastening means pair is arranged in a complementary manner on said other mattress module. Further, it is possible to arrange one part of the fastening means on a flap attached to one mattress module, for example the upper one, and extending to the sidewall of the mattress module arranged adjacent, for example below to this mattress module. The second fastening means are preferably arranged on the sidewall of that second mattress module. The flap may be limited in its size to carry the first fastening means and to reach to the second fastening means supplied on the second mattress module. A flap may also be arranged in a curtain-like circumferential manner or along the longitudinal sides on an upper mattress module to cover the fastening means and/or the joint between the upper mattress module and the one arranged beneath this. In case more than two mattress module layers and/or mattress module elements are used, such curtain-like flap can extend in its height to the sidewall of the lowest mattress module thus covering all joints. The intention of such flaps is to prevent for example cleaning liquids to enter between two mattress modules. Further, using such flaps covers the fastening means. Further, such one or more flaps can be arranged detachable to the top mattress module.

[0011] According to a further embodiment one or more of the mattress modules have second fastening means arranged in different heights on the sidewall. This gives the possibility to fasten the first fastening means on the mattress module in different heights on the sidewall on the second mattress module. With such arrangement the hardness of the combined mattress module is adjustable due to a possible pre-compression of the module bodies when the tighter fastening position is used, in particular of the module body with the second fastening means.

[0012] In a preferred embodiment the mattress arrangement comprises three basically flat mattress modules. The bottom module is designed as weight-support module and thus shows a certain hardness, in particular a higher hardness than the hardness of the layers on top of this mattress module. The top module is designed as layer module and thus has a softer module body. The mattress module sandwiched between the top module and the bottom module is used as a forming module, which may be brought into different shapes, for example by rolling or folding in order to support different body parts. The fastening of the individual mattress modules to one and another guarantees that the mattress arrangement stays in shape, even if the patient moves on the top mattress. In this respect it is to be noted, that such mattresses are not only used by people who are not able to move themselves, but also by people which need to have to support a body part and are basically able to move.

[0013] The coverings of the module body as such are typically designed to be easy cleaned, in particular disinfected. It is possible to have one or both facing sides of two mattress modules arranged on top of each other covered or provided with anti-slip means, which could be an anti-slip coating applied to the covering.

[0014] In the following the invention will be described with reference to the figures accompanied. In these:

Fig. 1 shows schematically different geometries of mattress mod- ules, which may be combined to a mattress arrangement,

Fig. 2 shows a side view of a further embodi-

ment of two mattress modules,

Fig.3 shows a side view of a bed with a mattress arrangement made up of mattress modules as depicted in figure 1,

Fig. 4 shows a partial front side view of a further mattress arrange- ment,

Fig. 5a, 5b show a perspective schematic view of a further mattress module arrangement (figure 5a) and a topside view of a mattress module of the mattress arrangement of figure 5a, and

Fig. 6 shows the mattress arrangement of figure 5a (uppermost sketch) and by way of example different arrangements to be built with this mattress arrangement.

[0015] Figure 1 shows by way of example different mattress modules 1, 2, 3, 4, 5. The mattress modules 1, 2, 3, 4, 5 differ in their geometry and/or their size and/or in the hardness or durability of their module body. The module body of each mattress module 1, 2, 3, 4, 5 is made up of a resilient material typically used for mattress applications, such as foam, latex, pocket springs, gel, polyester fibers or the like. The module bodies of the individual mattress modules 1, 2, 3, 4, 5 are adapted in respect of the before mentioned features to the intended use of the individual module 1, 2, 3, 4, 5. Each mattress module 1, 2, 3, 4, 5 is enclosed by a covering. The covering used could be any flexible material to cover the individual module body. In a preferred embodiment the covering is a fabric, in particular coated with a breathable, impervious, elastic coating, for example made of polyurethane. The covering enclosing the module body of each mattress module 1, 2, 3, 4, 5 is adapted to the size of the module body. Attached to the covering of each mattress module 1, 2, 3, 4, 5 are fastening means to fasten one mattress module to another mattress module. In the depicted embodiments of figure 1 zippers are used as fastening means. On the longitudinal edges of each mattress module 1, 2, 3, 4, 5 one half of a zipper is arranged. The positions of the zipper parts are indicated in figure 1 with the mattress modules 1, 2, 3, 4, 5 by the black line marked with reference numeral 6 with mattress module 1. The zipper parts 6 attached to the covering of the mattress module 1 are arranged along the longitudinal lower edges 7 in two individual sections. The mattress module 1 is a mattress module to be used as a top layer of a mattress arrangement. Therefore, the zipper parts 6 are arranged on both bottom longitudinal edges 7. The module body of this mattress module 1 shows an elasticity for comfortable laying. The module body of the mattress module 1 could be described with soft.

[0016] The size of the mattress module 1 is adapted to fill the laying surface of a bed.

[0017] Further mattress modules, not depicted in figure 1 are part of the mattress module system. These mattress modules have the same size like the mattress module 1 but differ from the mattress module 1 by their hardness and possibly their thickness. In order to have a base mattress layer as a support the module body of such a mattress module is harder. Such mattress module shows zipper parts its top longitudinal edges. These zipper parts are complementary to the zipper parts of mattress module 1, so they may be put together with the zipper parts of mattress module 1 in order to fasten these two modules with one another. Still further mattress modules of the same size as mattress module 1 are provided to be part of a mattress arrangement, which are sandwiched between a top layer mattress module and a bottom layer mattress module and to be used as a forming layer in order to roll and/or fold or otherwise deform this mattress module to provide one or more mattress areas of increased thickness to support certain body parts of a patient resting on the top mattress module. Therefore, such mattress module has a module body adapted to be folded and/or rolled and/or otherwise to be deformed without breaking.

[0018] By way of example the mattress module 2 depicted in figure 1 has a smaller size in the length of the mattress module 1. The mattress module 2 is approximately two thirds of the length of mattress module 1. Further mattress modules with other lengths, for example half the length of mattress module 1 may be provided. Still further, mattress modules with only part of the width of the mattress module 1 may be provided.

[0019] Mattress modules 3, 4 are provided as wedges with different wedge geometry and/or different hardness of their module bodies. The wedges 3, 4 carry on their wedge edges 8, 8.1 zipper parts. This enables the wedges 3, 4 to be fastened to a top layer mattress module and/or lower layer mattress module. Again with the mattress modules 3, 4 the zipper parts are attached to the covering. By way of example mattress module 5 is a support cushion with a semi-circular cross section. The mattress module 5 carries on its bottom side edges zipper parts 6.

[0020] In order to build a mattress arrangement individual mattress modules as for example depicted in figure 1 are combined and fastened to each other. It is not always necessary to fasten all mattress modules to one another as long as the mattress modules fastened to each other hold the mattress module not fastened and most probably arranged intermediate of two other mattress modules in place.

[0021] Figure 2 shows another embodiment of two mattress modules 9, 10, which are in respect of their module body and their covering manufactured as the mattress modules described to figure 1. The mattress modules 9, 10 differ in their fastening means to fasten one mattress module to another mattress module. Instead of zippers as used with mattress modules 1, 2, 3, 4, 5 the mattress modules 9, 10 may be fastened to one another using

velcro fastening means. The mattress module 9 carries a number of flaps 11, whereas on the backside of the flaps 11 the hook fastening part of a velcro fastening means are supplied. Attached to the sidewall covering of the mattress module 10 the loop fastening parts 12 of a velcro fastening means are supplied. The flaps 11 and the loop part 12 are arranged on the longitudinal side of the mattress modules 9, 10.

[0022] Further mattress modules with complementary hook and loop parts of a velcro fastening means are part of the mattress module system, of which in figure 2 only two modules are depicted.

[0023] Figure 3 shows a mattress arrangement 13 arranged on a bed 14, typically used in hospitals. The mattress arrangement 13 is resting on a mattress support 15 of the bed 14. The mattress arrangement 13 itself is made up of four different mattress modules M_1, M_2, M_3, M_4. Mattress module M_1 is a base mattress module, of which the hardness of its module body shows a certain hardness to be able to be used as a support layer. Mattress module M_2 is the top mattress module of the mattress arrangement 13 and thus providing with its top side the laying surface, on which the patient rests. The module body of mattress module 2 is thus designed accordingly soft. Sandwiched between mattress module M_1 and mattress module M_2 is a third mattress module M_3. Mattress module M_3 is used as a forming layer to create a certain topography of the upper side laying surface of mattress module M_2 for the support of a body part when deformed. As depicted in figure 3 mattress module M_2 is rolled up at one end.

[0024] Further integrated into the mattress arrangement 13 is mattress module M_4, which is a wedge sandwiched between the top end of mattress module M_2 and mattress module M_3.

[0025] The mattress modules M_1, M_2, M_3, M_4 each have a module body and a covering as described to mattress modules 1, 2, 3, 4, 5 of figure 1. Further, the mattress modules M_1, M_2, M_3, M_4 each have complementary fastening means so the individual mattress modules M_1, M_2, M_3, M_4 may be securely detachably fastened to one another. Fastening the mattress modules M_1, M_2, M_3, M_4 to one another keeps the mattress arrangement 13 in shape and form. The fastening means of these mattress modules M_1, M_2, M_3, M_4 are basically zippers. Further velcro fasteners are provided. In the depicted embodiment, the mattress module M_2 carries on its longitudinal bottom edge a zipper part, which is fastened to the complementary zipper part arranged on the top longitudinal edge of mattress module M_3. The zipper is marked with Z_1 in figure 3. The zipper Z_1 is open from the top right end of mattress modules M_2 and M_3 to introduce the wedge mattress module M_4. Mattress module M_4 is hold in place by way of an anti-slip coating applied to the top and the bottom surface of its covering. For further fastening mattress module M_2 to mattress module M_3 velcro fasteners V_1, V_2 are positioned at the end of zipper Z_1 (velcro fastener V_1) and at the end of the wedge module M_4. Mattress module M_3 is fastened to mattress module M_1 by a zipper Z_2. Zippers Z_1 and Z_2 extend about two thirds along the length of the longitudinal edges of mattress modules M_1, M_2, M_3. The velcro fasteners V_1, V_2 are provided in such a way, that mattress module M_2 carries a flap 16 with the hook parts, whereas the longitudinal extension of the flaps 16 reach to the sidewall of mattress module M_1. Mattress module M_1 and mattress module M_3 are provided with loop parts attached to the sidewalls and covered by the flaps 16 in figure 3. With such flap arrangement it is possible to fasten mattress module M_2 directly to mattress module M_1, which in particular is useful, when mattress module M_3 is rolled up with its end as depicted in figure 3. Then mattress module M_2 may also be directly fastened to mattress module M_1. The same may also be achieved using zippers.

[0026] It will be apparent to anybody skilled in the art that, when providing a modular mattress system as described, it is not only easy to provide a different mattress arrangement adapted to the individual needs of supporting a patient, but changing a mattress arrangement is also easily achieved. The coverings of the individual mattress modules are easily cleaned and/or disinfected.

[0027] Figure 4 shows a front side partial view of another mattress arrangement 17 with three mattress modules M_5, M_6, M_7 which are fastened to each other by zippers Z_3, Z_4. The mattress modules M_5, M_6, M_7 may possibly have the same properties like the mattress modules M_1, M_2, M_3. Further to the embodiment depicted in figure 3 the mattress arrangement 17 shows a flap 18 extending along its longitudinal sides. The flap 18 is used as a covering for zippers Z_3, Z_4 and the joints between the individual mattress modules M_5, M_6, M_7. The flap 18 not only serves to provide a uniform outer appearance of the side of the mattress arrangement 17 but also that liquids or other impurities do not come in contact with the zippers Z_3, Z_4 or enter in between the individual mattress modules.

[0028] Figure 5a shows another mattress arrangement 19 made up of three individual mattress modules. The mattress modules making up the mattress arrangement 19 are similar to the mattress module M_1, M_2, and M_3. The wide dark lines in figure 5a depict the placement of zippers, with which the individual mattress modules of the mattress arrangement 19 are fastened to each other. In order to depict the zip placements of each mattress module of the mattress arrangement 19 figure 5b shows a top view of the top layer mattress module of the mattress arrangement 19. From this it may be seen, that at one end, which is most probably to be used as the heal end of the mattress arrangement the zip extends along the whole width of the mattress module. It is also to be seen, that the zips along the longitudinal sides of the mattress modules of the mattress arrangement 19 are lead around the head end corner of each mattress module.

[0029] Schematically in figure 6 different arrangements of the mattress arrangement 19 are depicted. The top graphical display of figure 6 shows the mattress ar-

rangement in a side elevational view. The other graphic representations show possible arrangements of the mattress arrangement 19. The second top picture shows for example the mattress arrangement 19 with a rolled up section of the middle mattress module, which is rolled up from the heal end side to increase elevation of the legs. In the third top picture the mattress arrangement 19 is shown with a folded heal end of the middle mattress module in order to relieve the heals of pressure. The other depicted arrangements include different wedges to be used on the head end, sandwiched between the top layer mattress module and the second layer mattress module and another heal end mattress module, which is arranged below the heal end of the mattress arrangement 19.

[0030] From the description of the mattress arrangements it will be obvious for a person skilled in the art, that the mattress module either rolled or folded up as depicted from the heal side may also be deformed in any other manner in order to achieve a certain support to a body part of a person resting on the mattress arrangement. If thus would easily be possible to roll or fold up a forming mattress module also from its longitudinal side or in a diagonal direction. Due to the fastening of the mattress modules, at least of the two mattress modules sandwiching the deformed module this forming mattress module stays in its intended shape.

[0031] The individual mattress modules in the mattress arrangement 19 depicted in figure 6 are fastened to each other by way of the zips schematically shown in figure 5a and 5b. The wedges depicted in figure 6 are not necessarily fastened with zips to the adjacent mattress modules.

[0032] Preferably the top fabric of the top mattress module of each mattress arrangement described is of the multi-stretch, wipe clean, waterproof, vapor permeable, PU coated knitted nylon type. The base of all mattress modules of the mattress arrangements described are made up of a non-slip fabric. In particular with the use of such non-slip fabric on the base of each mattress module and possibly also on the top of the intermediate and lower mattress module prevent wedges from slipping out and folded or rolled or otherwise deformed intermediate layers to stay in form besides that the mattress modules or at least some of them are fastened to each other for example by way of zips.

[0033] For a person skilled in the art it will be apparent, that from the disclosure of the mattress system and mattress arrangement, respectively, a wide variety of embodiments are possibly to be created without leaving the scope of the claims. As such it will be apparent for a person skilled in the art, that it would very well be possible to provide a mattress arrangement it which one or more wedges may be arranges underneath the lowest mattress module or sandwiched in between two mattress modules for example the mattress modules M_2 and M_3 extending parallel to the longitudinal extension of the mattress modules. Such wedge would have a short lateral extension and would be used to support the back of a person laying on top of the mattress arrangement when resting on his side. The wedge is fastened to one or both adjacent mattress modules. Thus, the wedge will not slip out of its indent position and keep the patient securly supported.

[0034] The term comprises and comprising used in the claims and the specification is not to be understood as a term limiting the mattress module to those features mentioned, but is to be understood that such mattress modules may have these features possibly together with further features.

Reference Numerals

[0035]

1	mattress module
2	mattress module
3	mattress module
4	mattress module
5	mattress module
6	zipper part
7	edge
8, 8.1	edge
9	mattress module
10	mattress module
11	flap with hook part
12	loop part
13	mattress arrangement
14	bed
15	mattress support
16	flap
17	mattress arrangement
18	flap
19	mattress arrangement

M_1 - M_7	mattress module
V_1 - V_3	velcro fastener
Z_1 - Z_4	zipper

Claims

1. Mattress arrangement comprising at least two mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10), whereas each mattress module (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) is made up of a resilient module body and a covering enclosing the module body, and whereas the mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) of the mattress arrangement (13, 17, 19) are detachably fastened to another by way of fastening means (V_1 - V_3; Z_1 - Z_4) and each mattress module (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) comprises one or more first fastening (V_1 - V_3; Z_1 - Z_4) means connected to complementary second fastening (V_1 - V_3; Z_1 - Z_4) means of another mattress module (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) of the

arrangement (13, 17, 19).

2. Mattress arrangement according to claim 1, **characterized in that** the individual mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) of the mattress arrangement (13, 17, 19) differ from one another by way of their geometries and/or their hardness and/or their durability and/or their covering and/or any other feature having influence on the functionality.

3. Mattress arrangement according to claim 1 or 2, **characterized in that** the mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7) each have first and second fastening means arranged adjacent to each other to define a set of fastening means.

4. Mattress arrangement according to one of claims 1 to 3, **characterized in that** the first fastening means are arranged on a flap (11) attached to the covering of the mattress module (9), whereas the second fastening (12) means are arranged on the side wall of the covering of the second mattress module (10).

5. Mattress arrangement according one of claims 1 to 4, **characterized in that** the fastening means are buttons, velcro or the like.

6. Mattress arrangement according to claim 1 or 2, **characterized in that** fastening means are detectable zippers (Z_1, Z_4), preferably arranged along edges of the individual mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7), whereas a first mattress module carries one part of the zipper and a second mattress module connected to the first mattress module carries the other complementary part of this zipper.

7. Mattress arrangement according to one of claims 1 to 7, **characterized in that** the top mattress (M_5) module has a flap (18) along its longitudinal extension extending in height at least over the fastening means (Z_3) to fasten this mattress module (M_5) to the adjacent lower mattress module (M_6) and the joint between said mattress modules (M_5, M_6).

8. Mattress arrangement according to claim 7, **characterized in that** the flap (18) extends over all fastening means arranged beneath the top layer mattress module (M_5) and the joint between the lowest mattress module (M_7) and the one arranged on top of that mattress module (M_6).

9. Mattress arrangement according to one of claims 1 to 8, **characterized in that** the mattress arrangement (13, 17, 19) comprises three basically flat mattress modules (M_1, M_2, M_3; M_5, M_6, M_7) having at least the same length and width, but possibly of different height, whereas the bottom module (M_1, M_7) is designed as weight-support module and thus shows a higher hardness, the top module (M_2, M_5) is designed as layer module and is thus softer, and the module (M_3, M_6) sandwiched between the top module (M_2, M_5) and the bottom module (M_1, M_7) is designed as forming module to be brought into different shapes for supporting a body part resting on the top surface of the top mattress module (M_2, M_5).

10. Mattress arrangement according to one of claims 1 to 9, **characterized in that** the mattress arrangement (13, 17) comprises one or more non-flat mattress modules (M_4) arranged beneath a top mattress module (M_2).

11. Mattress arrangement according to one of claims 1 to 10, **characterized in that** the mattress arrangement (13, 17) may be fastened to a conventional mattress.

12. Mattress arrangement according to one of claims 1 to 11, **characterized in that** the bottom side of a top layer mattress module and/or the top side of the mattress module arranged beneath this top layer module are provided with anti-slip means, preferably an anti-slip coating applied to the covering.

Amended claims in accordance with Rule 137(2) EPC.

1. Mattress arrangement comprising at least three mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10), whereas each mattress module (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) is made up of a resilient module body and a covering enclosing the module body, and whereas the mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) of the mattress arrangement (13, 17, 19) are detachably fastened to another by way of fastening means (V_1 - V_3; Z_1 - Z_4) and each mattress module (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) comprises one or more first fastening (V_1 - V_3; Z_1 - Z_4) means connected to complementary second fastening (V_1 - V_3; Z_1 - Z_4) means of another mattress module (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) of the arrangement (13, 17, 19), whereas the individual mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7; 9, 10) of the mattress arrangement (13, 17, 19) differ from one another by way of their geometries and/or their hardness and/or their durability and/or their covering and/or any other feature having influence on the functionality.

2. Mattress arrangement according to claim 1, **characterized in that** the mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7) each have first and

second fastening means arranged adjacent to each other to define a set of fastening means.

3. Mattress arrangement according to claim 1 or 2, **characterized in that** the first fastening means are arranged on a flap (11) attached to the covering of the mattress module (9), whereas the second fastening (12) means are arranged on the side wall of the covering of the second mattress module (10).

4. Mattress arrangement according to one of claims 1 to 3, **characterized in that** the fastening means are buttons, velcro or the like.

5. Mattress arrangement according to claim 1, **characterized in that** fastening means are detectable zippers (Z_1, Z_4), preferably arranged along edges of the individual mattress modules (1, 2, 3, 4, 5; M_1, M_2, M_3, M_4; M_5, M_6, M_7), whereas a first mattress module carries one part of the zipper and a second mattress module connected to the first mattress module carries the other complementary part of this zipper.

6. Mattress arrangement according to one of claims 1 to 5, **characterized in that** the top mattress (M_5) module has a flap (18) along its longitudinal extension extending in height at least over the fastening means (Z_3) to fasten this mattress module (M_5) to the adjacent lower mattress module (M_6) and the joint between said mattress modules (M_5, M_6).

7. Mattress arrangement according to claim 6, **characterized in that** the flap (18) extends over all fastening means arranged beneath the top layer mattress module (M_5) and the joint between the lowest mattress module (M_7) and the one arranged on top of that mattress module (M_6).

8. Mattress arrangement according to one of claims 1 to 7, **characterized in that** the mattress arrangement (13, 17, 19) comprises three basically flat mattress modules (M_1, M_2, M_3; M_5, M_6, M_7) having at least the same length and width, but possibly of different height, whereas the bottom module (M_1, M_7) is a weight-support module and thus shows a higher hardness, the top module (M_2, M_5) is a layer module and is thus softer, and the module (M_3, M_6) sandwiched between the top module (M_2, M_5) and the bottom module (M_1, M_7) is a forming module to be brought into different shapes for supporting a body part resting on the top surface of the top mattress module (M_2, M_5).

9. Mattress arrangement according to one of claims 1 to 8, **characterized in that** the mattress arrangement (13, 17) comprises one or more non-flat mattress modules (M_4) arranged beneath a top mattress module (M_2).

10. Mattress arrangement according to one of claims 1 to 9, **characterized in that** the mattress arrangement (13, 17) may be fastened to a conventional mattress.

11. Mattress arrangement according to one of claims 1 to 10, **characterized in that** the bottom side of a top layer mattress module and/or the top side of the mattress module arranged beneath this top layer module are provided with anti-slip means, preferably an anti-slip coating applied to the covering.

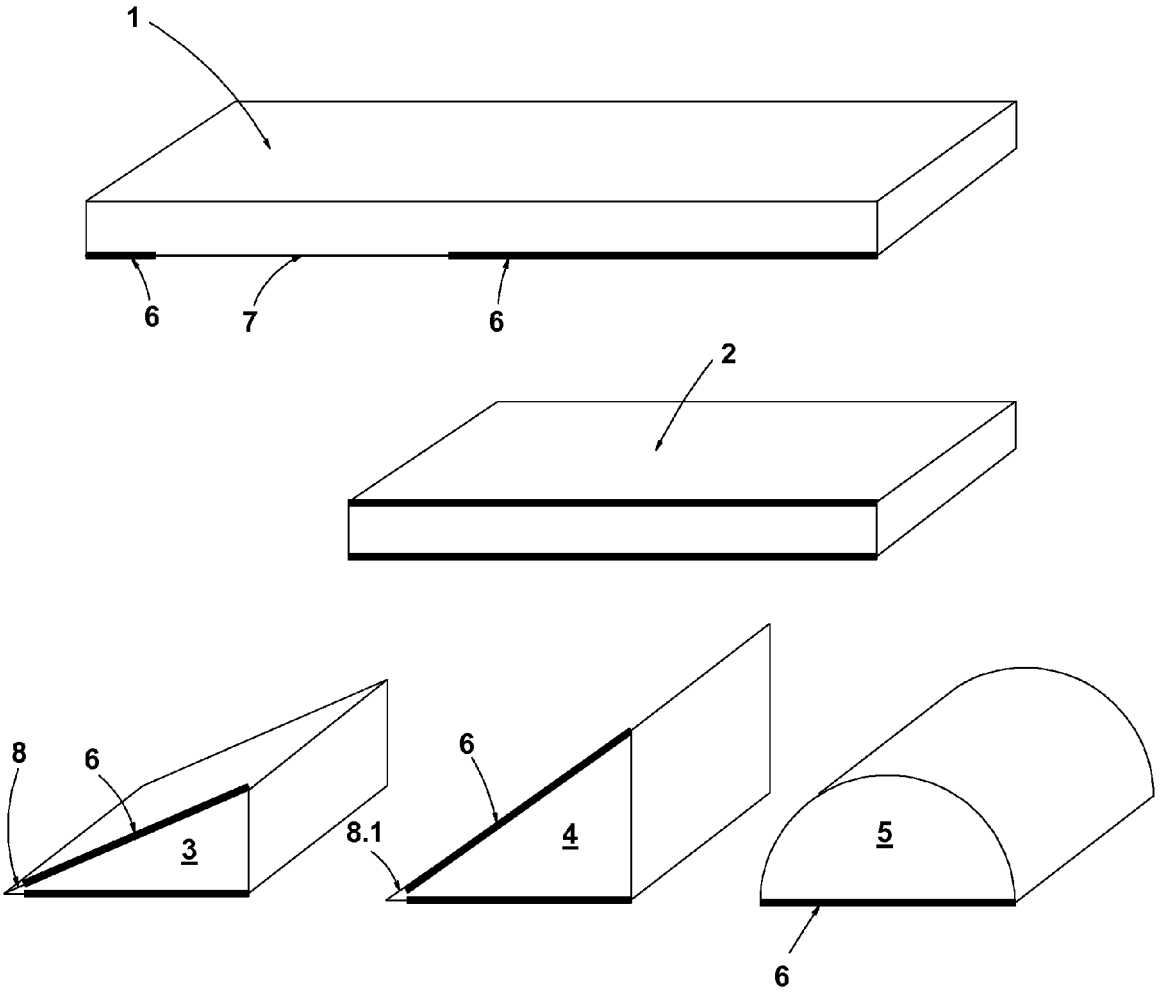

Fig. 1

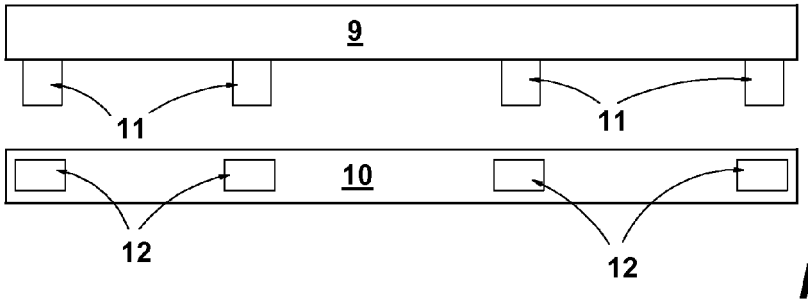

Fig. 2

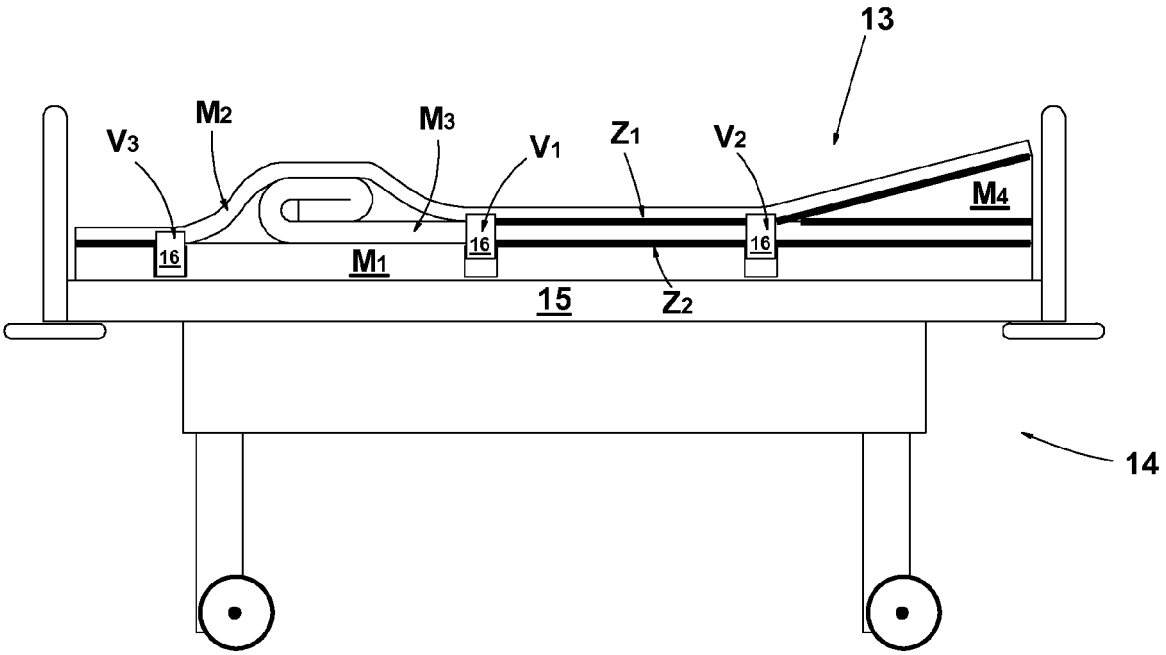

Fig. 3

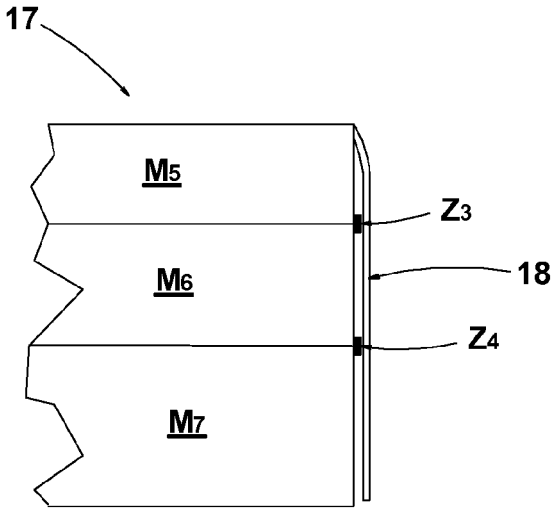

Fig. 4

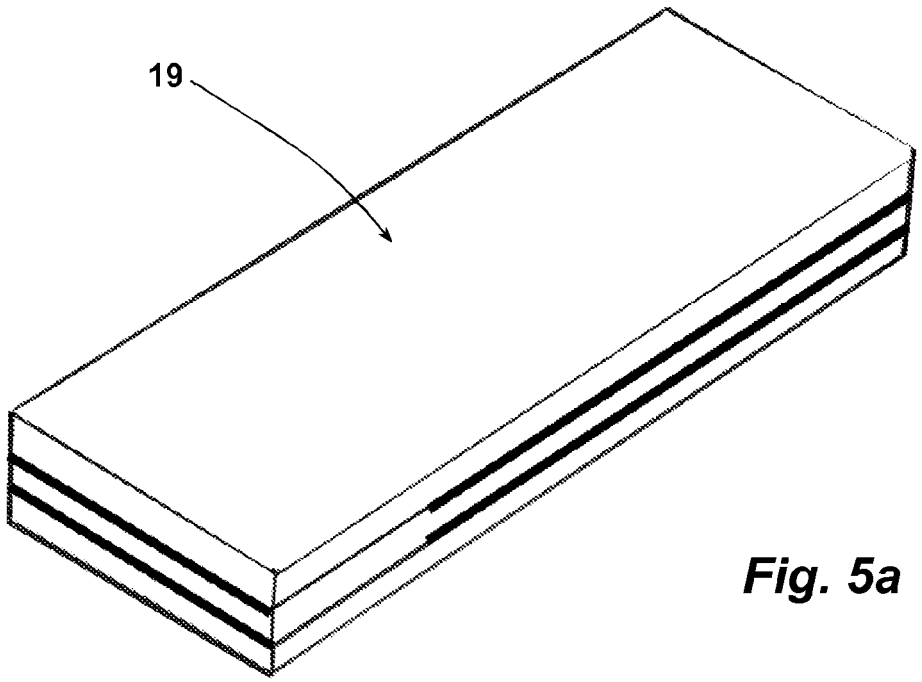

Fig. 5a

Fig. 5b

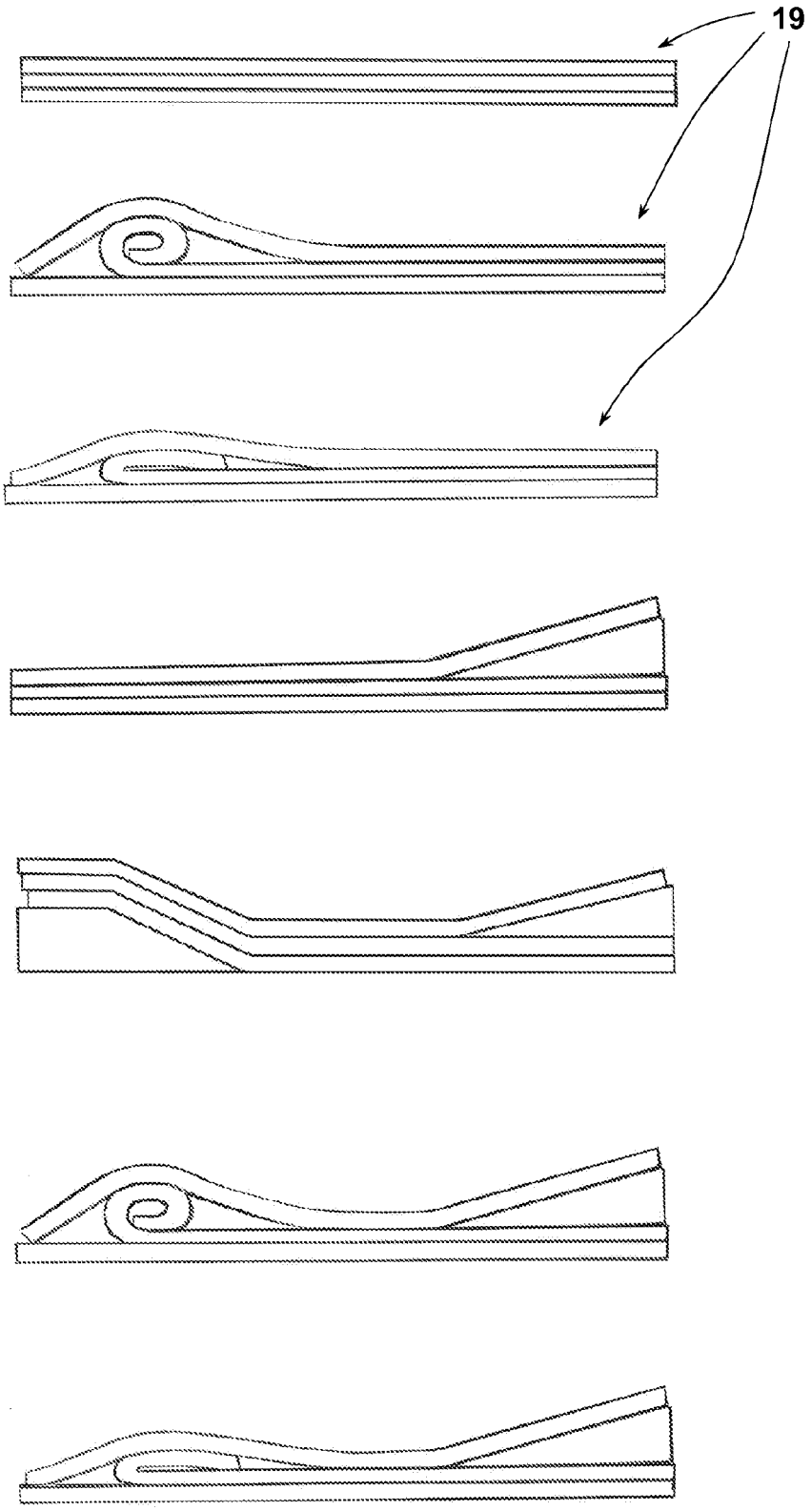

Fig. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 08 10 5110

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 94 13 504 U1 (MATRATZEN OBERMUEHLE) 13 October 1994 (1994-10-13) * page 18, lines 14-19; claims 1,18,24-29; figures 1-4 *	1-6,11	INV. A61G7/057 A47C27/14
X	US 6 115 861 A (REEDER ET AL) 12 September 2000 (2000-09-12) * columns 13,14 * * columns 38,39; figures 3,35a,35b,36 *	1-5,7,8,11,12	
Y		10	
Y	EP 0 777 988 A (SYNERGIC ITALIANA S R L) 11 June 1997 (1997-06-11) * claims; figures *	10	
X	WO 03/084369 A (GUARDIGLI) 16 October 2003 (2003-10-16) * abstract; figures *	1-6,11,12	
A	US 7 140 053 B1 (MANGANO) 28 November 2006 (2006-11-28) * abstract; figures *	7,8	
A,D	US 5 172 439 A (FARLEY) 22 December 1992 (1992-12-22) * abstract; figures *	9	
A	US 7 328 471 B1 (STOHR) 12 February 2008 (2008-02-12) * columns 4,5; figures *	10,12	
A	DE 22 35 818 A1 (STEFFEN) 31 January 1974 (1974-01-31) * claim 1; figures *		

TECHNICAL FIELDS SEARCHED (IPC)
A61G
A47C
A47D
A63H
B63B
B63C
A47G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 January 2009	Kis, Pál

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26-01-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 9413504 U1	13-10-1994	NONE	
US 6115861 A	12-09-2000	NONE	
EP 0777988 A	11-06-1997	DE 69627615 D1	28-05-2003
		DE 69627615 T2	19-05-2004
		ES 2198457 T3	01-02-2004
		IT BO950175 U1	06-06-1997
WO 03084369 A	16-10-2003	AU 2003224023 A1	20-10-2003
		IT FO020020009 A1	06-10-2003
US 7140053 B1	28-11-2006	NONE	
US 5172439 A	22-12-1992	NONE	
US 7328471 B1	12-02-2008	NONE	
DE 2235818 A1	31-01-1974	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 5172439 A **[0002] [0003] [0004]**
- EP 1034767 A2 **[0003] [0004]**
- DE 1020060317092 A1 **[0004]**