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(54) **KIT FOR ASSEMBLING A PILLOW**

(57) The present invention relates to a kit for assembling a pillow comprising a support base (10) having two opposite long edges (14, 15) and two opposite short edges (16, 17). The base comprises first (11) and second (12) raised areas adjacent its first and second long edges for supporting the neck, and a central area (13) in between said raised areas for supporting the head. Thereby the first and second raised areas have a different height, the height of the central area being lower than the height of the lower of the two raised areas. Further the first and

second raised areas gradually taper in width as from the short edges of the support base to the center of the long edges. The kit further comprises three layers (21, 22, 23) corresponding in shape to the shape of the support base, with mutually different heights. The kit may further comprise a flexible cover suitable for holding the support base positioned upon any one or more of the three layers. The invention also relates to a method for assembling a pillow on the basis of the above kit, the pillow so assembled, as well as the use of the pillow by a user.

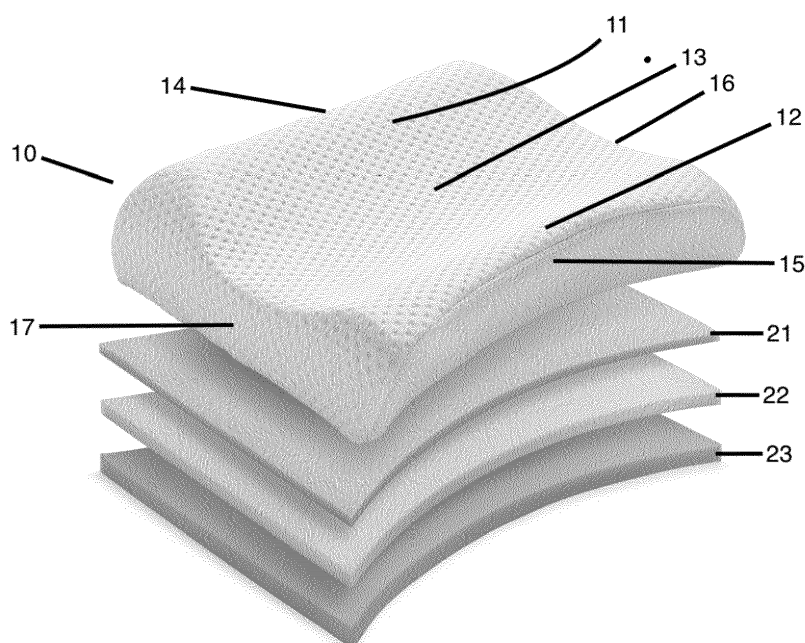


Fig. 3

Description

Field of the invention

[0001] The present invention relates to an improved head support in view of optimally supporting the head and the neck during sleep.

[0002] More in particular the invention relates to a kit for a head & neck support comprising various components that, taking into account the function of his/her body particulars, can be assembled by a user so as to form an ideal support for his/her head and neck.

Background of the invention

[0003] It is generally known and proven on scientific basis that a good sleep is an utmost requirement for a healthy human condition. By sleeping well, one is able to recover as well physically as mentally from the daily efforts.

However, for a healthy sleep, a correct position of the body is of prime importance. An incorrect position during sleep is often caused by the use of a bad mattress and/or pillow or head support.

[0004] The US Patent Number 9,179,781 discloses a mattress whereby an ideal sleeping position can be achieved for the human body by means of various inserts at the position of the shoulders, waist and hips.

Nevertheless, often sleeping problems are caused by an incorrect posture or position of the head, resp. the neck during sleep.

[0005] In view of the above there remains a need for a head support that can support the head and the neck for any person in an ideal manner.

It is generally accepted that an ideal support of the head and the neck is achieved when the spinal column remains in a horizontal position during the night.

So as to reach this goal, ergonomically conceived head supports are available, whereby the 'average' customer or person is taken as the basis for the design of such support.

[0006] This implies that the vast majority of people positions its head & neck on a support that is either too soft or too hard, or that is insufficiently high or low at the position of the head and/or that is insufficiently high or low at the position of the neck.

The direct consequence hereof is that for most people the spinal column, in particular at the position of the head and the neck is not ideally supported; this fact then results in complaints regarding an insufficiently recovering sleep.

[0007] The German Utility model Nr. DE 20 2011003 942 U1, published on 16.06.2011 in the name of Schwenk, Hans Ulrich, and the European Patent Publication Number 2 130 461 A1 published on 09.12.2009 in the name of Maremico, d.o.o., both disclose a head support comprising a high and a low long edge for supporting the neck. However none of these documents disclose the

presence of an recess for the shoulders in the head support.

The international patent publication published under number WO 2015/004409 A1 on 15.01.2015 in the name of Cheetham, Dominic, discloses such recess for the shoulders. However, the teaching of this document states explicitly that the head support should not comprise a high and a low long edge. Also with respect to the recess for the shoulders, this is only present in a part of the long edge of the head support.

Summary of the invention

[0008] It is an object of the present invention to remedy the problems and inconveniences of the head supports as described above.

More in particular, it is an object of the present invention to provide a support kit for the head comprising various components that may be assembled by the user to an ideal support for the head and the neck taking into account the individual characteristics of the user's body.

[0009] To achieve the above goals, the invention relates to a kit for assembling a pillow comprising:

- a support base (10) having two opposite long edges (14, 15) and two opposite short edges (16,17) comprising:
 - a first (11) and second (12) raised area adjacent its first and second long edge for supporting the neck, and
 - a central area (13) in between said raised areas for supporting the head;
- whereby:
 - the first and second raised areas have a different height,
 - the height of the central area is lower than the height of the lower of the two raised areas, and
 - the first and second raised areas gradually taper in width as from the short edges of the support base to the center of the long edges of the support base;
- three layers (21, 22, 23) corresponding in shape to the rectangular shape of the support base, with mutually different heights.

According to a preferred embodiment, the kit also comprises a flexible cover suitable for holding the support base positioned upon any one or more of the three layers.

[0010] The invention also relates to a method for assembling the abovementioned components into a pillow for supporting the head & neck.

The invention also relates to a pillow assembled by the above method.

The invention also relates to the use of the pillow assembled as described above.

More in particular the invention relates to a kit for assembling a pillow, a method for assembling the said kit into a pillow, the pillow assembled according to this method, and the use of the pillow so assembled as set forth hereinafter and as set forth in the claims appended hereto.

[0011] Further aspects and advantages of the embodiments described will appear from the following description taken together with the accompanying drawings.

Brief description of the drawings

[0012] The foregoing and other objects, features, and advantages of the invention will be apparent from the following more particular description of a preferential form of an embodiment of the invention. This will be further illustrated in the accompanying drawings, given as a non-restrictive example.

[0013] It will be appreciated that for simplicity and clarity of illustration, elements shown in the drawings & figures have not necessarily been drawn to scale, nor are these elements necessarily to scale relative to each other. For example, the dimensions of some of the elements may be exaggerated relative to other elements for clarity. Further, where considered appropriate, reference numerals may be repeated among the figures to indicate corresponding or analogous elements. So, in the drawings, the same reference numerals may identify the same elements of structure in each of the several figures where appropriate.

[0014] In the figures, the thickness of certain lines, layers, components, elements or features may be exaggerated for clarity.

Fig. 1 shows a side view of a person, the head and neck whereof rests on a pillow according to the state of the art.

Fig. 2 shows a side view of a person, the head and neck whereof rests on a pillow according to the invention.

Fig. 3 shows schematically and in perspective the various components of the kit for the pillow according to the invention.

Fig. 4 shows the pillow according to the invention from its bottom side, resting upon the mattress.

Fig. 5 shows two cross-sectional views of the support base of the pillow according to the invention.

Fig. 6 shows two illustrations of a person resting on the pillow according to the invention, the person having a thick (upper figure) or a thin (lower figure) neck resting on the lower (upper figure), resp. the higher raised area (lower figure) of the pillow.

Detailed description of embodiments of the invention

[0015] The present invention now is described more

fully hereinafter with reference to the accompanying drawings, in which embodiments of the invention are shown. However, it will be understood by those of ordinary skill in the art that the embodiments described herein may be practiced without these specific details. Indeed, this invention may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

In other instances, well-known methods, procedures and components have not been described in detail so as not to obscure the embodiments described herein.

In the claims as set forth hereinafter, the word "comprising" does not exclude other elements or steps, and the indefinite article "a" or "an" does not exclude a plurality. The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

In the claims, the claimed methods are not limited to the order of any steps recited unless so stated thereat.

[0016] As said forth above, the invention relates to:

- a kit for assembling a pillow;
- a method for assembling the pillow using the components of the said kit;
- the pillow assembled by the said method;
- use of the said pillow by a user.

[0017] To this end, the kit comprises the following basic components:

- 1) a support base (10);
- 2) three layers (21, 22, 23).

In a preferred mode, the kit also comprises a flexible cover to keep the components together.

With respect to the first component, this is the support base:

[0018] The support base has - as seen from the top - an approximate rectangular shape, so comprising four edges (two opposing long edges (14, 15) and two opposing short edges (16, 17)) and three areas:

- a central area (13), and
- first (11) and second (12) raised areas adjacent its first (14) and second (15) long edges.

[0019] The function of the raised areas (11, 12) is to support the neck of the user.

[0020] The central area (13) of the support base is situated in between both raised areas. The function of the central area (13) is to support the head of the user.

[0021] The support base is further characterized as fol-

lows:

- the first and second raised areas have a different height,
- the height of the central area is lower than the height of the lower of the two raised areas, and
- the first and second raised areas gradually taper in width as from the short edges of the support base to the center of the long edges of the support base.

With respect to the second component, namely the three layers:

[0022] The three layers (21, 22 and 23) correspond in shape to the shape of the support base. So they have the same approximate rectangular shape of the support base, as seen from the top. However, just like the support base, their long edges taper in width as from their short edges to the center of their long edges, as illustrated by Fig. 3.

[0023] The opposite short edges are straight.

[0024] These three layers are characterized by mutually different heights.

With respect to the optional third component, this is the flexible cover:

[0025] The flexible cover is suitable for holding the support base positioned upon any one or more of the three layers.

Further, with respect to the support base:

[0026] The support base, being part of the kit according to the invention, is characterized by a specific ergonomic shape or form. This shape has been designed by the inventors in close collaboration with occupational therapists and medici specialized in the human spine.

[0027] According to a preferred embodiment of the present invention, such support base has been manufactured on the basis of a pressure releasing high-quality foam rubber. The material commercialized by the company Carpenter, 5016 Monument Avenue, Richmond, VA 23230, USA, under the trade name Naturalis High Resilience could be used for this purpose.

In this foam rubber material, part of the fossil material has been replaced by natural oil, namely the natural oil derived from Ricinus nuts.

According to a preferred embodiment, the support base can be manufactured in two different embodiments, a soft and a more rigid realization.

The soft mode of realization preferably has a density comprised between 40 and 60, still more preferably around 50 kg per cubic meter. To the extent this figure is higher, the base will be more durable, sustainable, lasting, resilient, but also heavier.

So as to indicate the degree of comfort, the hardness of the soft mode of realization is expressed as a KPA value;

preferably this value is comprised between 1 and 4, more preferably between 1 and 3, still more preferably around 1.8.

The more rigid mode of realization of the support base has a density of around 50 kg/cubic meter and a KPA (kilo pascal) value of around 2.2.

The KPA value is an indication of the subjective degree of hardness, whereas the density of the material is a measure for the sustainability and quality of the material.

[0028] The support base (10) has an approximate rectangular shape, comprising two opposite long edges (14, 15) and two opposite short edges (16, 17). The first and second raised areas (11, 12) are adjacent the first (14) and second (15) long edges of the support base (10).

These first and second raised areas have a different height, and both raised areas have a height higher than the central (lower) area (13) situated in between both raised areas.

The function of a raised area is to support the neck of the user.

To this end, the user selects one of the raised areas to support its neck.

The function of the central area is to support the head of the user.

Hence such central area is somewhat lower than its adjacent raised area(s).

[0029] According to a preferred embodiment of the present invention, the height of the support base gradually increases from the central area to each of the raised areas.

As a result, the surface of the pillow gradually raises from the lower central area to each of the higher adjacent raised areas.

This is shown in figure 3 as well as in figure 5, see the figure on the left.

In this figure 5, a cross-sectional view of the support base (10) is shown. Its lower side should be positioned on a selection of the three layers (21, 22, 23). The so formed pillow can then be positioned on the mattress.

This figure 4 also indicates some preferential measures for the pillow:

- the long edges amount each to 487 mm;
- the short edges amount each to 409 mm;
- the distance between the top of the higher raised area to the top of lower raised area amounts to 335 mm.

The height of the higher raised area amounts to 115 mm, as shown in figure 5, left picture.

The height of the lower raised area amounts to 96 mm (not shown in the figure).

The higher, resp. the lower raised area of the pillow serves to support the neck of the user.

Depending on the size of the neck of the user, use will be made of the higher or the lower raised area of the pillow.

This feature is illustrated by figure 6.

The lower picture of figure 6 shows a person with a thin neck. Such a person will make use of the higher raised areas to support its neck.

The top picture of figure 6 shows a person with a thick neck. Such a person will make use of the lower raised areas to support its neck.

By making the above choice, the pillow according to the invention will suit both persons, irrespective of the size of their neck: in both cases, the neck and head of the person remain in a perfect horizontal position with respect to the spine of said person, as can be seen by the horizontal line with arrow depicted in both pictures of this figure 6.

[0030] In this way the goal of the invention, namely the provision of a pillow or head support that guarantees a perfect sleeping position to persons with quite different bodily structures, is realized. This perfect sleeping position is illustrated in both pictures of figure 6, as well as on the photo of figure 2.

In all of these cases, the spine, the neck, the neck vertebrae as well as the head all remain in a perfect horizontal position. This in turn results in a healthy, perfectly recovering sleep.

[0031] The raised areas gradually taper in width as from the short edge of the support base to the center of the long edge of the pillow. This is illustrated in figure 4 and is also visualized in figure 3.

It means in practical terms that the width of each raised area is smaller at its center, so around the middle of each long edge, and is at its broadest close to the short edges. This width gradually decreases from such short edge to the middle of the long edge. By such specific shape of each of the raised areas, a recess is formed for the shoulders of the person at rest.

A person characterized by a short neck, preferably should position his/her head and neck around the center of the long edge, where the width of the raised area is at its minimum.

A person characterized by a long neck, preferably should position his/her head and neck closer to the short edge of the pillow, where the width of the raised area is at its maximum.

Persons with an average neck-length, preferably should position their head and neck somewhere in between these two extremes, at a position which corresponds best to the length of their neck.

The fact that the width of the raised areas *gradually* changes from its maximum, at the short edge, to its minimum, around the center of the long edge, enables any person, irrespective of the length of his/her neck to position his/her head and neck at a position perfectly matching his/her neck length.

Further, the recess created by such gradually changing raised area, enables also any person to position its shoulders in such recess.

[0032] The curved full lines at the left and right side of figure 4 show the shape or form of the raised areas as they are positioned on the mattress.

The dotted curved lines near to the full curved line illustrate that the width of the raised areas of the support base indeed tapers in the direction of the middle of the long edges of the support base. At the short edge of the rectangular pillow (at the corner points) the width of the pillow amounts to 399 mm at the bottom of the pillow and 409 mm at its maximal width, approximately at half the height of the pillow. This width gradually tapers in the direction of the middle of the pillow.

10 In this preferential mode of execution of the pillow, the width then amounts to 275 mm.

The width of the long edges of the pillow increase from the bottom of the support base (the bottom, this means the flat, lower surface of the support base that is positioned on the layers) upwards, till approximately half the height of the raised areas.

15 In the middle of the support base, the angle at which these long edges increase in width from the bottom upwards, amounts to approx. 75°, as illustrated in figure 5, left picture.

According to a preferential mode of execution of the invention, this angle is comprised between 60 and 85°, still more preferentially between 70 and 80°, and still more preferentially it amounts to approximately 75°.

25 The width of the support base is the smallest in the middle (halfway the two opposite short edges) of the support base.

At the bottom of the support base, the width amounts to 275 mm, at the upper surface or top of the support base the width amounts to 335 mm. This implies that also in the vertical direction of the support base, this is the direction perpendicular to the mattress or the pillow, the side faces of the higher and lower raised areas taper from the top downwardly, over a distance of approximately 3 cm at each side, as well at the higher raised area as at the lower raised area (335 mm - 275 mm = 60 mm, so 3 cm at each long edge or at each raised area).

This tapering in the vertical direction is also illustrated in the figure 3.

40 **[0033]** Thanks to this tapering in the vertical direction downwardly from the top of the first and second raised areas to the bottom of the support base of the long edges of the support base, the recess for positioning the shoulders of the user, likewise increases as from the top of the raised area downwardly to the bottom of the support base, positioned upon the layer (s) (21, 22 or 23).

This perfectly matches with the bodily structure of the shoulders of a person: it enables such person to have his neck rest on the raised area, whereas his/her shoulders perfectly fit in the recess so formed by this downwards tapering.

Further, with respect to the layers:

55 **[0034]** The ergonomic support base as described above, as such, is insufficient to guarantee to persons with quite differing bodily structure a perfect horizontal position of the head, the neck and the neck vertebrae.

[0035] To this end, it is a requirement that the total height of the pillow over the mattress whereupon such pillow should be laid, is adjustable to the bodily structure of the individual user.

[0036] This requirement is met by the second component of the pillow kit according to the invention.

[0037] These layers should be positioned underneath the support base; in this way they elevate the overall position of the pillow base over the supporting mattress. This is illustrated in figure 3: the three layers are depicted underneath the support base.

[0038] This second component takes care of the second element in the global or overall bodily structure of the user (the first element of the bodily structure of the user to take into account is the thickness of his/her neck). Depending on the persons bodily structure, more in particular the width of his/her shoulders and also depending on the type of mattress that also determine to what extent, resp. to what width, the shoulders of the person are caved in such mattress, the person will need to use none, one, two or three layers in order to elevate the pillow base to a level above the mattress such that a horizontal position of his neck vertebrae is achieved.

[0039] All in total, these three layers can be used in eight different combinations:

- option 1: no use of any layer;
- option 2: use of layer 1;
- option 3: use of layer 2;
- option 4: use of layer 3;
- option 5: use of layers 1 + 2;
- option 6: use of layers 1 + 3;
- option 7: use of layers 2 + 3;
- option 8: use of layers 1 + 2 + 3.

[0040] These eight options are available for use in combination with either the higher raised area, or in combination with the lower raised area of the pillow base.

[0041] As a result, all in total, the user can opt for any of 16 available options by making a sensible combination out of:

- on the one hand the lower or higher raised area of the support base;
- any combination of the abovementioned three layers.

[0042] The height of each of these three layers can be freely chosen by the manufacturer of the pillow kit according to the invention.

[0043] According to a preferred mode of execution of the present invention, the ratio of the heights of these three layers amounts to 1, 1.5 and 2.

[0044] According to a preferred mode of execution of the present invention, the heights of the respective layers may amount to e.g. 1, 1.5 and 2 cm.

[0045] The layers may be manufactured on the basis of a flexible foam, e.g. polyurethane or polyether foam.

[0046] The density of the layers preferably is situated between 15 and 30, more preferentially between 20 and 25, for example 23.

[0047] The KPA value according to a preferential mode of execution, is situated between 2 and 7, still more preferentially between 3 and 6, still more preferentially amounts to approximately 3.6

Further, with respect to the flexible cover:

[0048] For practical use, it is advisable that the support base and each of the layers should be held together by a flexible cover, surrounding all of the components of the kit according to the invention.

[0049] However, the use of such flexible cover is not an absolute requirement and various alternative options are available to achieve the same goal.

As a possible alternative arrangement, the support base and the layers are held together by means that allow these components to adhere to each other in a flexible way, for example by the use of adhesive strips, e.g. made by Velcro ®. In such a case, the use of a flexible cover to keep together the various components of the kit according to the invention is not necessary.

When a flexible cover is used, such cover should be so designed that all parts of the kit fit in.

According to a further preferred embodiment, on top of the support base, a protective layer or material is positioned before the flexible cover encompasses the support base and its layers.

In a preferred mode, use is made of an anti-bacterial and washable flexible cover. According to a further preferred mode, use is made of a flexible cover that is placed only over the support base, not over the supporting layers.

[0050] As has been set forth in the introductory part of this description, the use of a pillow or head support is an essential element for a comfortable, healthy sleep, more in particular for a correct sleep position. It is of the utmost importance that the neck vertebrae are perfect in match, this means in perfect horizontal position along the same line as the spine; only in such a case an ideal support for the neck and head is assured.

The anatomical dimension and shape of the pillow or head support according to the present invention perfectly guarantees the above goal: it ideally supports the neck vertebrae and performs same as will in the back- as in a side- position of the user.

By such position, the neck vertebrae are in a position such that they are able to fully relax. By such position, also the neck muscles can fully relax. As a result the neck vertebrae are able to fully absorb the required body fluid, and can fully recover from the daily strains and stresses. In short, the pillow according to the invention assures for any person a 100 % correct sleeping position, and resulting therefrom, a healthy sleep.

Claims**1.** A kit for assembling a pillow comprising:

- a support base (10) having two opposite long edges (14, 15) and two opposite short edges (16, 17), said base comprising:

- a first (11) and second (12) raised area adjacent its first and second long edges for supporting the neck, and
- a central area (13) in between said raised areas for supporting the head;

whereby:

- the first and second raised areas have a different height,
- the height of the central area is lower than the height of the lower of the two raised areas, and
- the first and second raised areas gradually taper in width as from the short edges of the support base to the center of the long edges of the support base;

and

- three layers (21, 22, 23) corresponding in shape to the shape of the support base, with mutually different heights.

2. Kit according to claim 1, further comprising a flexible cover suitable for holding the support base positioned upon any one or more of the three layers.**3.** Kit according to claim 1 or 2, whereby the height of the support base gradually increases from the central area to each of the raised areas.**4.** Kit according to any of the preceding claims, whereby the ratio of the respective heights of the three layers amounts to 1, 1.5 and 2.**5.** Kit according to any of the preceding claims whereby the support base and the three layers are made of pressure releasing foam.**6.** Kit according to any of the preceding claims whereby the long edges downwardly taper from the top of the raised areas to the bottom of the support base.**7.** Method for assembling a pillow on the basis of the kit according to any of the preceding claims whereby:

- one, two or three layers (21, 22, 23) are selected taking into account the bodily structure of the user;
- the support base (10) is placed upon the se-

lected layers.

8. Method for assembling a pillow according to claim 7, whereby as an additional step a flexible cover is placed over the layers and the support base.**9.** Pillow assembled according to the method as set forth in claim 7 or 8.**10.** Use of the pillow according to claim 9 whereby taking into account the bodily structure of the user, the higher or lower raised area is selected as support for the neck of the user.

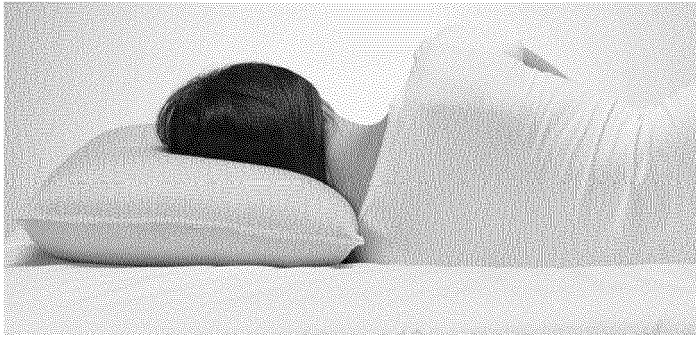


Fig. 1



Fig. 2

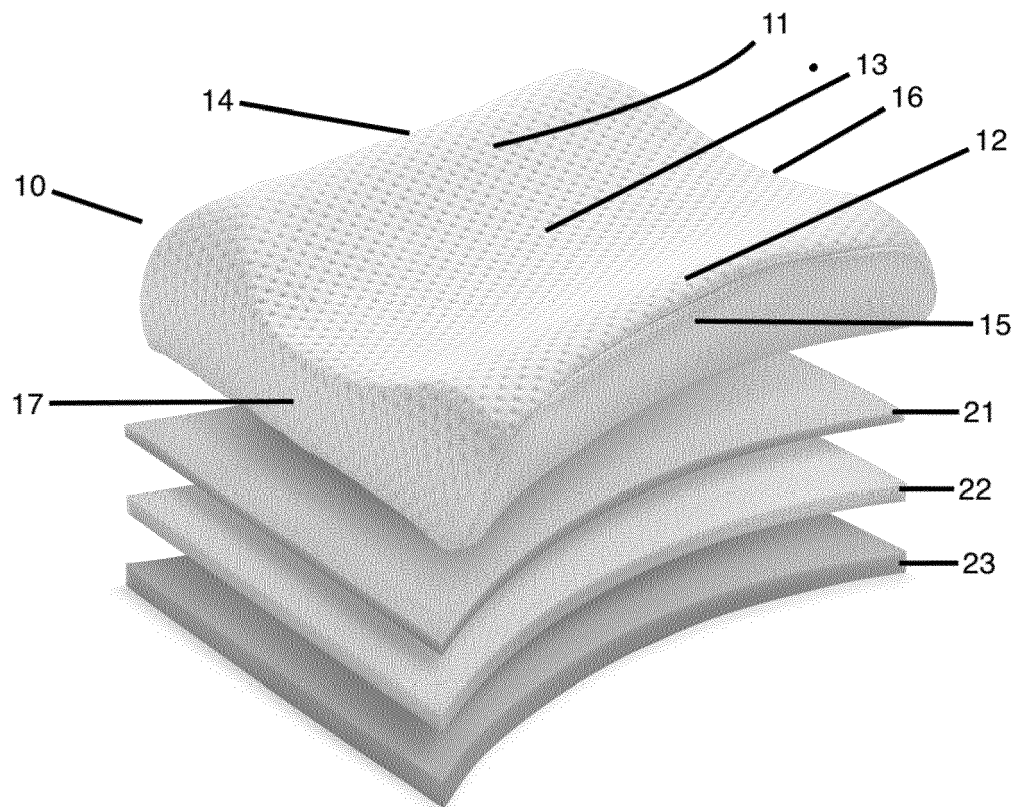


Fig. 3

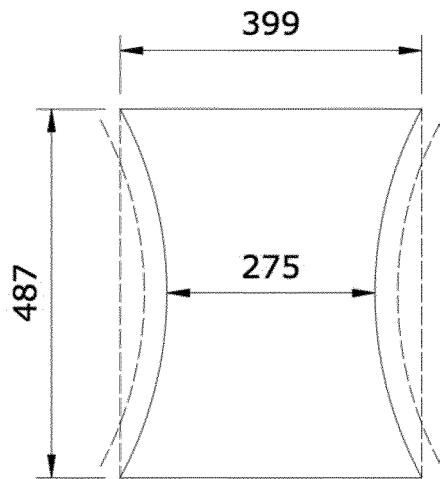


Fig. 4

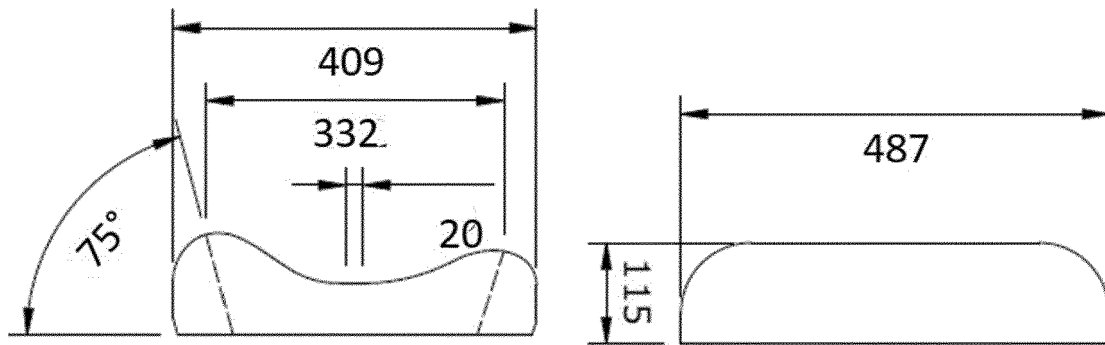


Fig. 5



Fig. 6



EUROPEAN SEARCH REPORT

 Application Number
 EP 18 02 0164

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 3 September 2018	Examiner Beugeling, Leo
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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 EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 02 0164

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